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Syllabus of the courses where the revision was carried out program wise in the Academic Year: 2017-2018

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1	B. Tech (Civil Engineering)	1
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7	B. Tech (Petroleum Technology)	190
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11	M. Tech (Power Electronics and Drives)	291
12	M. Tech (Petroleum Engineering)	300
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Department of Civil Engineering

Syllabus revision Index for the Academic Year 2017-2018 B.Tech Civil Engineering

S.No	Name of the course	Percentage of syllabus change
1	English-I	65
2	English-II	55
3	English Communication Skills Lab-II	40
4	Mathematics - I	40
5	Environmental Studies	20
6	Engineering Chemistry	25
7	Engineering Chemistry LAB	20
8	Computer Programming Lab	40
9	Mathematics - III	40
10	Engineering Physics	25

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	171HS1T01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW-J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	. UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists.	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BS1T01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)-Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

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	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary 'constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations, with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – 'Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

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	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social IBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Chemistry	Engineering Chemistry
Course Code	R161105	171BS1T03
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation:- Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers :- Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT- I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques) - Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels – Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas, LPG	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the

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	Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.	formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.
	UNIT VI: CHEMISTRY OF ENGINEERING MATERIALS AND FUEL CELLS Refractories: - Definition, characteristics, classification, properties, failure of refractories Lubricants: - Definition, function, Theory and mechanism of lubricants, properties (Definition and importance) Cement: - Constituents, manufacturing, hardening and setting, deterioration of cement Insulators: - Thermal and electrical insulators Fuel cells: - Hydrogen Oxygen fuel cells – Methanol Oxygen fuel cells	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English -I	English-II
Course Code	R161101	171HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. TECHNOLOGY WITH A HUMAN FACE (Detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. CLIMATE CHANGE AND HUMAN STRATEGY (Detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. EMERGING TECHNOLOGIES (Detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. THE SECRET OF WORK (Detailed) 2. THE SCARECROW (Non-Detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. WORK BRINGS SOLACE (Detailed) 2. A VILLAGE LOST TO THE NATION (Non-Detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

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	Applications: Equation of continuity, potential surfaces	Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area- Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Physics	Engineering Physics
Course Code	R161204	171BS2T07
Syllabus	UNIT-I INTERFERENCE: Principle of Superposition – Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	UNIT-I: Interference: Principle of Superposition – Coherence – Interference in thin films (reflection geometry)— Newton's rings – construction and basic principle of Interferometer.
	UNIT-II DIFFRACTION: Fraunhofer diffraction at single slit cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes	UNIT-II: Diffraction: Fraunhofer diffraction at single slit - Cases of double slit, N-slits, & circular aperture, Grating equation – Rayleigh criterion of resolving power- Resolving power of a grating, Telescope and Microscopes.
	UNIT-III POLARIZATION: Types of Polarization-production - Nicol Prism - Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter) LASERS: Characteristics– Stimulated emission – Einstein's Transition ProbabilitiesPumping schemes - Ruby laser – Helium Neon laser.	UNIT-III: Polarization: Types of Polarization-production - Nicol Prism -Quarter wave plateand Half Wave plateworking principle of polarimeter (Sacharimeter) Lasers: Characteristics– Stimulated emission – Einstein's Transition Probabilities- Pumping schemes- Ruby laser – Helium Neon laser-CO2 Laser-Applications
	UNIT-IV ACOUSTICS: Reverberation time - Sabine's formula – Acoustics of concert-hall. ULTRASONICS: Production - Ultrasonic transducers- Non-Destructive Testing – Applications	UNIT-IV: Acoustics: Reverberation time - Sabine's formula – Acoustics of concert-hall. Ultrasonics: Production - Ultrasonic transducers- Non-Destructive Testing-Applications. Crystallography & x-ray diffraction: Basis and lattice – Crystal Systems – Bravais Lattice - Symmetry elements- Unit cellpacking fraction – coordination number- Miller indices – Separation between successive (h k l) planes – Bragg's law-Bragg's x-ray spectrometer.

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	UNIT-V CRYSTALLOGRAPHY & X-RAY DIFFRACTION: Basis and lattice – Bravais systems Symmetry elements- Unit cell-packing fraction – coordination number-Miller indices – Separation between successive (h k l) planes – Bragg's law NUCLEAR ENERGY – SOURCE OF POWER: Mass defect & Binding Energy – Fusion and Fission as sources – Fast breeder Reactors.	UNIT-V: Magnetism: Classification based on Field, Temperature and order/disorder – atomic origin – Ferromagnetism-Hysteresis- applications of magnetic materials (Para &Ferro). Dielectrics: Electric Polarization – Dielectric in DC fields – Internal field –Clausius Mossoti Equation – Dielectric loss- Ferroelectric Hysteresis and applications.
	UNIT-VI MAGNETISM: Classification based on Field, Temperature and order/disorder –atomic origin – Ferromagnetism- Hysteresis- applications of magnetic materials (Para &Ferro).. DIELECTRICS: Electric Polarization – Dielectrics in DC and AC fields – Internal field – Clausius Mossoti Equation - Loss, Breakdown and strength of dielectric materials – Ferroelectric Hysteresis and applications.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has

		to generate ATM PIN number. After generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum

	returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	of individual digits of a positive integer. 5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series	**Exercise – 7:** Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and

	expansion. (use factorial function)	returning values. 7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. • • In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with

		Obesity: Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure 11.2) Write a C Program to Store

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day – Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student 2. Update Existing Student

		3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	· Engineering/Applied Chemistry Lab	Engineering Chemistry Lab
Course Code	R161227/ R161118	171BS1L01
Syllabus	1. Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc....	Exercise 1: Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc.
	2. Trial experiment - Determination of HCl using standard Na2CO3 solution	Exercise 2: Trial experiment - Determination of HCl using standard Na2CO3 solution.
	3. Determination of alkalinity of a sample containing Na2CO3 and NaOH.	Exercise 3: Preparation of Phenol - Formaldehyde resin (Bakelite).
	..4. Determination of KMnO4 using standard Oxalic acid solution	Exercise 4: Determination of KMnO4 using standard Oxalic acid solution.
	5. Determination of Ferrous iron using standard K2Cr2O7 solution	Exercise 5: Determination of ferrous iron using standard K2Cr2O7 solution.
	6. Determination of Copper using standard K2Cr2O7 solution	Exercise 6: Preparation of Bio-Diesel.
	7. Determination of temporary and permanent hardness of water using standard EDTA solution.	Exercise 7: Determination of temporary and permanent hardness of water using standard EDTA solution.
	8. Determination of Copper using standard EDTA solution	Exercise 8: Determination of Copper using standard EDTA solution.
	9. Determination of Iron by a Colorimetric method using thiocynate as reagent.	Exercise 9: Determination of Iron by a Colorimetric method using thiocynate as reagent.
	10. Determination of pH of the given sample solution using pH meter.	Exercise 10: Determination of pH of the given sample solution using pH meter.
	11. Conductometric titration between strong acid and strong base.	Exercise 11: Conduct metric titration between strong acid and strong base.
	12. Conductometric titration between strong acid and weak base.	Exercise 12: Conduct metric titration between strong acid and weak base.
	13. Potentiometric titration between strong acid and strong base.	Exercise 13: Potentiometric titration between strong acid and strong base.
	14. Potentiometric titration between	Exercise 14: Potentiometric titration

	strong acid and weak base.	between strong acid and weak base.
	15. Determination of Zinc using standard EDTA solution.	Exercise 15: Determination of Zinc using standard EDTA solution.
	16. Determination of Vitamin – C.	Exercise 16: Determination of Vitamin – C.

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Aditya Engineering College (A9)

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Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956
Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab-II	English Communication Skills Lab-II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

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	strong acid and weak base.	between strong acid and weak base.
	15. Determination of Zinc using standard EDTA solution.	Exercise 15: Determination of Zinc using standard EDTA solution.
	16. Determination of Vitamin – C.	Exercise 16: Determination of Vitamin – C.

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Department of Civil Engineering

Syllabus revision Index for the Academic Year 2017-2018 M.Tech Structural Engineering

S.No	Name of the course	Percentage of syllabus change
1	Experimental Analysis 172SE1E01	20
2	Structural Optimization 172SE1E02	30
3	Analysis & Design of Tall Buildings 172SE1E05	20
4	Plastics Analysis & Designing 172SE1E06	20

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Department of Civil Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	EXPERIMENTAL STRESS ANALYSIS	EXPERIMENTAL STRESS ANALYSIS
Course Code	172SE1E01	172SE1E01
Syllabus	UNIT-I Introduction and Strain Measurement Methods Model & Prototype Dimensional analysis-Factors influencing model design – Scale factors and Model material properties – Methods of model design. Definition of strain and its relation to experimental determinations - properties of strain gauge systems – Mechanical, Optical, Acoustic and Pneumatic types.	UNIT-I **Introduction and Strain Measurement Methods** Model & Prototype Dimensional analysis-Factors influencing model design – Scale factors and Model material properties – Methods of model design. Definition of strain and its relation to experimental determinations - properties of strain gauge systems – Mechanical, Optical, Acoustic and Pneumatic types.
	UNIT-II Electrical Resistance Strain Gauges Introduction – gauge construction strain gauge adhesives - mounting methods – gauge sensitivities and gage factor – performance characteristics of wire and foil strain gauges – environmental effects. Analysis of strain gauge data – the three-element rectangular rosette – the delta rosette – correction for transverse sensitivity.	UNIT-II **Electrical Resistance Strain Gauges** Introduction – gauge construction strain gauge adhesives - mounting methods – gauge sensitivities and gage factor – performance characteristics of wire and foil strain gauges – environmental effects. Analysis of strain gauge data – the three-element rectangular rosette – the delta rosette – correction for transverse sensitivity.
	UNIT –III Non – Destructive Testing Introduction – objectives of non destructive testing. Ultrasonic pulse velocity method – Rebound Hammer method (Concrete hammer) – Acoustic Emissionapplication to assessment of concrete quality	UNIT –III **Non – Destructive Testing** Introduction – objectives of non destructive testing. Ultrasonic pulse velocitymethod – Rebound Hammer method (Concrete hammer) – Acoustic Emission- application to assessment of concrete quality.

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	UNIT-IV Theory of Photo Elasticity Introduction – temporary double refraction – Index ellipsoid and stress ellipsoid – the stress optic law – effects of stressed model in a polariscope for various arrangements - fringe sharpening.	UNIT-IV **Distress Measurements and Control** Diagnosis of distress in structures - Crack observation and measurements - Corrosion of Reinforcement in concrete - Half cell, construction and use - Damage identification - Controlled blasting for demolition - Techniques for residual stress measurements.
	UNIT-V Two Dimensional Photo Elasticity Introduction–iso-chromatic fringe patterns – isoclinic fringe patterns – compensation techniques – calibration methods – separation methods – materials for photo- elasticity – properties of photo-elastic materials.	UNIT-V **Two Dimensional Photo Elasticity** Introduction–iso-chromatic fringe patterns – isoclinic fringe patterns – compensation techniques – calibration methods – separation methods – materials for photo- elasticity – properties of photo-elastic materials.

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Department of Civil Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	STRUCTURAL OPTMIZATION	STRUCTURAL OPTMIZATION
Course Code	172SE1E02	172SE1E02
Syllabus	UNIT-I Introduction Need and scope for optimization – statements of optimization problems- Objective function and its surface design variables- constraints and constraint surface- Classification of optimization problems (various functions continuous, discontinuous and discrete) and function behavior (monotonic and unimodal).	**UNIT-I** **Introduction** Need and scope for optimization – statements of optimization problems- Objective function and its surface design variables- constraints and constraint surface- Classification of optimization problems (various functions continuous, discontinuous and discrete) and function behavior (monotonic and unimodal). Design methodology- Civil engineering case study - Optimality criteria - Lagrange multiplier method - Kuhntucker Criteria.
	UNIT-II Classical Optimization Techniques Differential calculus method, multi variable optimization by method of constrained variation and Lagrange multipliers (generalized problem) Khun-Tucker conditions of optimality -Fully stressed design and optimality criterion based algorithmsintroduction, characteristics of fully stressed design th	**UNIT-II** **Classical Optimization Techniques** Differential calculus method, multi variable optimization by method of constrainedvariation and Lagrange multipliers (generalized problem) Khun-Tucker conditionsof optimality -Fully stressed design and optimality criterion based algorithms- introduction, characteristics of fully stressed design theoretical basis- examples.

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	UNIT –III Non-Liner Programming Unconstrained minimization-Fibonacci, golden search, Quadratic and cubic interpolation methods for a one dimensional minimization and univariate method, Powel's method, Newton's method and Davidon Fletcher Powell's method for multivariable optimization-Constrained minimization- Cutting plane method Zoutendjik's method-penalty function methods.	**UNIT –III** **Non-Liner Programming** Unconstrained minimization-Fibonacci, golden search, Quadratic and cubic interpolation methods for a one dimensional minimization and univariate method, Powel's method, Newton's method and Davidon Fletcher Powell's method for multivariable optimization- Constrained minimization- Cutting plane method- Zoutendjik's method-penalty function methods.
	UNIT-IV Linear Programming Definitions and theorems- Simplex method-Duality in Linear programmingPlastic analysis and Minimum weight design and rigid frame.	**UNIT-IV** **Linear Programming** Definitions and theorems-Simplex method-Duality in Linear programming- Plastic analysis and Minimum weight design and rigid frame.
	UNIT-V Introduction to Quadratic Programming Geometric programming- and dynamic programming- Design of beams and frames using dynamic programming technique.	**UNIT-V** **Non Traditional Methods** Genetic Algorithm - Terminology - Natural Law of Evolutions - Genetic operators - steps for solution of problems – Simulated Annealing - Algorithm - Boltzman's equation - ANT Colony optimization - Algorithm - Pheromone trail - Travelling salesman problem - Introduction to TABU search - sample problem – Artificial Neural Network - Application characteristics.

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Department of Civil Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	ANALYSIS AND DESIGN OF TALL BUILDINGS	ANALYSIS AND DESIGN OF TALL BUILDINGS
Course Code	172SE1E05	172SE1E05
Syllabus	UNIT-I Design Philosophies and Materials Modern concepts – High Performance Concrete, Fibre Reinforced Concrete, Light weight concrete, Self Compacting Concrete	**UNIT-I** **Design Philosophies and Materials** Modern concepts – High Performance Concrete, Fibre Reinforced Concrete, Light weight concrete, Self Compacting Concrete.
	UNIT-II Gravity Loading Dead load, Live load, Impact load, Construction load, Sequential loading. Wind Loading – Static and Dynamic Approach, Analytical method, Wind Tunnel- Experimental methods. Earthquake Loading – Equivalent lateral Load analysis, Response Spectrum Method, Combination of Loads	**UNIT-II** **Gravity Loading** Dead load, Live load, Impact load, Construction load, Sequential loading. Wind Loading – Static and Dynamic Approach, Analytical method, Wind Tunnel Experimental methods. Earthquake Loading – Equivalent lateral Load analysis, Response Spectrum Method, Combination of Loads
	UNIT –III Behavior of Structural Systems Factors affecting the growth, height and structural form, Behaviour of Braced frames, Rigid Frames, In-filled frames, Shear walls, Coupled Shear walls, Wall–Frames, Tubular, Outrigger braced, Hybrid systems.	**UNIT –III** **Behavior of Structural Systems** Factors affecting the growth, height and structural form, Behaviour of Braced frames, Rigid Frames, In-filled frames, Shear walls, Coupled Shear walls, Wall– Frames, Tubular, Outrigger braced, Hybrid systems.

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	UNIT-IV Analysis and Design Modelling for approximate analysis, Accurate analysis and reduction techniques, Analysis of structures as an integral unit, Analysis for member forces, drift and twist. Computerized 3D analysis. Design for differential movement, Creep and Shrinkage effects, Temperature Effects and Fire Resistance.	**UNIT-IV** **Analysis and Design** Modelling for approximate analysis, Accurate analysis and reduction techniques, Analysis of structures as an integral unit, Analysis for member forces, drift and twist. Computerized 3D analysis. Design for differential movement, Creep and Shrinkage effects, Temperature Effects and Fire Resistance.
	UNIT-V Stability Analysis Overall buckling analysis of frames, wall–frames, Approximate methods, Second order effect of gravity loading, P–Delta Effects, Simultaneous first order and PDelta analysis, Translational instability, Torsional Instability, Out of plumb effects, Effect of stiffness of members and foundation rotation in stability of structures	**UNIT-V** **Analysis and Behaviour of Tall Buildings** Linear and Non-linear behavior - Material non-linearity - Geometric non-linearity - Rigid and Elastic Supports - First Order Elastic Analysis - Second Order Elastic Analysis - First order Inelastic Analysis - Second order Inelastic Analysis - Behavior of Structural forms in Tall buildings - Rigid frame, Braced Frames, Shear Walls, Core walls, Tubular, Belt truss, Outrigger (Concepts only)

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Department of Civil Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	PLASTIC ANALYSIS AND DESIGN	PLASTIC ANALYSIS AND DESIGN
Course Code	172SE1E06	172SE1E06
Syllabus	UNIT-I Introduction and Basic Hypothesis Concepts of stress and strain – relation of steel Moment curvature relation- basic difference between elastic and plastic analysis with examples- Yield condition, idealizations, collapse criteria- Virtual work in the elastic-plastic state-Evaluation of fully plastic moment and shape factors for the various practical sections	**UNIT-I** **Introduction and Basic Hypothesis** Concepts of stress and strain – relation of steel Moment curvature relation- basic difference between elastic and plastic analysis with examples- Yield condition, idealizations, collapse criteria- Virtual work in the elastic-plastic state-Evaluation of fully plastic moment and shape factors for the various practical sections.
	UNIT-II Method of Limit Analysis Introduction to limit analysis of simply supported fixed beams and continuous beams, Effect of partial fixity and end, invariance of collapse loads, basic theorems of limit analysis, rectangular portal frames, gable frames, grids, superposition of mechanisms, drawing statistical bending moment diagrams for checks.	**UNIT-II** **Method of Limit Analysis** Introduction to limit analysis of simply supported fixed beams and continuous beams, Effect of partial fixity and end, invariance of collapse loads, basic theoremsof limit analysis, rectangular portal frames, gable frames, grids, superposition of mechanisms, drawing statistical bending moment diagrams for checks.

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	UNIT –III Limit Design Principles Basic principles, limit design theorems, application of limit design theorems, trial and error method, method of combining mechanisms, plastic moment distribution method, load replacement method, continuous beams and simple frames designs using above principles.	**UNIT –III** **Limit Design Principles** Basic principles, limit design theorems, application of limit design theorems, trial and error method, method of combining mechanisms, plastic moment distribution method, load replacement method, continuous beams and simple frames designs using above principles.
	UNIT-IV: Deflection in Plastic Beams and Frames Load deflection relations for simply supported beams, deflection of simple pin based and fixed based portal frames, method of computing deflections.	**UNIT-IV:** **Deflection in Plastic Beams and Frames** Load deflection relations for simply supported beams, deflection of simple pin based and fixed based portal frames, method of computing deflections.
	UNIT-V Minimum Weight Design Introduction to minimum Weight and linear Weight functions- Foulkes theorems and its geometrical analogue and absolute minimum weight design.	**UNIT-V** **Detailing and Field Practices** Detailing for ductility - Measures of ductility - Flexural yielding in frames and walls - Flexural members in ductile frames - Columns and frame members subject to bending and axial load - Joints in ductile frames - shear walls - Fire resistance of structural members - Code requirements - Quality control of concrete

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Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has

		to generate ATM PIN number. After generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement. 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum

	returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	of individual digits of a positive integer. 5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series	**Exercise – 7:** Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and

	expansion. (use factorial function)	returning values. 7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. • • In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with

		Obesity: Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure 11.2) Write a C Program to Store

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day = Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student 2. Update Existing Student

		3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

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Department of Electrical and Electronics Engineering

Syllabus revision Index for 2017-2018

S. No	Name of the course	Percentage of syllabus change
1	English – I	65
2	Mathematics - I	40
3	Environmental Studies	20
4	Applied Chemistry	20
5	Computer Programming Lab	40
6	English - II	55
7	Mathematics - III	40
8	Applied Physics	20
9	English Communication Skills Lab - II	40
10	Electrical Machines-I	80
11	Electrical Machines-II	65
12	Electrical Machines -I Laboratory	60

Head of The Department
Dept. Of Electrical & Electronics Engineering
Aditya Engineering College (A9)

Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	171HS1T01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW-J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	. UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists.	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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Department of H & B
Aditya Engineering C

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	17IBSIT01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

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Department of

Aditya Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social IBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

	rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Chemistry	Applied Chemistry
Course Code	R161106/R161221	171BS1T05/ 171BS2T05
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation : Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT - I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus.

	analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Introduction, classification, examples: RDX, TNT and ammonium nitrite - rocket fuels	
	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating)	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Superconductors :- Type-I & Type-2, properties &applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors: -Type – I, Type II – Characteristics and applications Semiconductors: - Preparation of semiconductors, working of diods and transistors. Green synthesis: -Principles Liquid crystals:-Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT V: SOLID STATE CHEMISTRY Types of solids - close packing of atoms and ions - BCC , FCC, structures of rock salt - cesium chloride- spinel - normal and inverse spinels, Non-elemental	UNIT - V: Non-Conventional Energy Sources: Solar Energy: - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design,

	semiconducting Materials:- Stoichiometric, controlled valency & Chalcogen photo/semiconductors, Preparation of Semiconductors - Semiconductor Devices:- p-n junction diode as rectifier – junction transistor. Insulators (electrical and electronic applications) Magnetic materials:- Ferro and ferri magnetism. Hall effect and its applications.	working and its importance Non-conventional energy sources: (i) Hydropower include setup a hydropower plant (schematic diagram) (ii) Geothermal energy: Introduction-schematic diagram of a geothermal power plant (iii) Tidal and wave power: Introduction- Design and working-movement of tides and their effect on sea level. (iv) Ocean thermal energy: Introduction, closed-cycle, ocean thermal energy conversion (OTEC), open cycle OTEC, hybrid OTEC, schematic diagram and explanation. (v) Biomass and biofuels.
	UNIT VI: NON CONVENTIONAL ENERGY SOURCES AND STORAGE DEVICES Solar Energy: - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design, working and its importance Non-conventional energy sources: (i) Hydropower include setup a hydropower plant (schematic diagram) (ii) Geothermal energy: Introduction-schematic diagram of a geothermal power plant (iii) Tidal and wave power: Introduction- Design and working-movement of tides and their effect on sea level. (iv) Ocean thermal energy: Introduction, closed-cycle, ocean thermal energy conversion (OTEC), open cycle OTEC, hybrid OTEC, schematic diagram and explanation. (v) Biomass and biofuels Fuel cells:- Introduction - cell representation, H2-O2 fuel cell: Design and working, advantages and limitations. Types of fuel cells: Alkaline fuel cell - methanol-oxygen - phosphoric acid fuel cells - molten carbonate fuel cells.	

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Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has

		to generate ATM PIN number. After generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement. 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum

	returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	of individual digits of a positive integer. 5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series	**Exercise** – 7: Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and

	expansion. (use factorial function)	returning values. 7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. • • In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with

		Obesity: Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure 11.2) Write a C Program to Store

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day = Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student 2. Update Existing Student

		3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English -I	English-II
Course Code	R161101	17HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. TECHNOLOGY WITH A HUMAN FACE (Detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. CLIMATE CHANGE AND HUMAN STRATEGY (Detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. EMERGING TECHNOLOGIES (Detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. THE SECRET OF WORK (Detailed) 2. THE SCARECROW (Non-Detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. WORK BRINGS SOLACE (Detailed) 2. A VILLAGE LOST TO THE NATION (Non-Detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

	Applications: Equation of continuity, potential surfaces	Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area- Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Physics	Applied Physics
Course Code	R161207	171BS1T04/171BS2T04
Syllabus	UNIT-I INTERFERENCE: Principle of Superposition – Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	UNIT-I: Interference: Principle of Superposition – Coherence– Interference in thin films (reflection geometry) – Newton's rings – construction and working principle of Interferometer.
	UNIT-II DIFFRACTION: Fraunhofer diffraction at single slit - Cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes.	UNIT-II: Diffraction: Fraunhofer diffraction at single slit – Cases of double slit, N-slits, & circular aperture, grating equation – Rayleigh criterion of resolving power- Resolving power of a grating, Telescope and Microscopes
	UNIT-III POLARIZATION: Types of Polarization – Methods of production - Nicol Prism -Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition Probabilities Pumping schemes - Ruby laser – Helium Neon laser.	UNIT-III: Polarization: Types of Polarization – Methods of production – Nicol Prism – Quarter wave plate and Half Wave plate- working principle of polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition ProbabilitiesPumping schemes- Ruby laser – Helium Neon laser-CO2 Laser- Applications
	UNIT-IV ELECTROMAGNETIC FIELDS: Scalar and Vector Fields – Electric Potential- Gradient, Divergence of fields – Gauss and Stokes theorems-Propagation of EM waves through dielectric medium.	UNIT-IV: Quantum Mechanics: Introduction –Matter waves – Schrödinger Time Independent and Time Dependent wave equations – Particle in a box. FREE ELECTRON THEORY: Defects of classical free electron theory –Quantum Free electron theory – concept of Fermi Energy..
	UNIT-V QUANTUM MECHANICS: Introduction - Matter waves – Schröedinger Time Independent and Time Dependent wave equations – Particle in a box. FREE ELECTRON	UNIT-V: Band Theory of Solids: Bloch's theorem (qualitative) – Kronig – Penney model (Qualitative) – energy bands in crystalline solids – classification of crystalline solids– effective mass of

	THEORY: Defects of Classical free electron theory –Quantum Free electron theory - concept of Fermi Energy.	electron & concept of hole. Semiconductor Physics: Conduction – Density of carriers in Intrinsic and Extrinsic semiconductors – Drift & Diffusion – relevance of Einstein's equation- Hall effect in semiconductors.–
	UNIT-VI BAND THEORY OF SOLIDS: Bloch's theorem (qualitative) – Kronig – Penney model – energy bands in crystalline solids – classification of crystalline solids– effective mass of electron & concept of hole. SEMICONDUCTOR PHYSICS: Conduction – Density of carriers in Intrinsic and Extrinsic semiconductors – Drift & Diffusion – relevance of Einstein's equation- Hall effect in semiconductors	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab-II	English Communication Skills Lab-II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

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Department of Electrical and Electronics Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	**Electrical Machines-I**	**Electrical Machines-I**
Course Code	**RT21026**	**R1621022**
Syllabus	**UNIT–I: Electromechanical Energy Conversion:** Introduction to S.I Units - principles of electromechanical energy conversion – forces and torque in magnetic field systems – energy balance- singly excited machine- magnetic force - co-energy – multi excited magnetic field system-construction features of conventional and modern DC machines.	**UNIT–I: Electromechanical Energy Conversion and introduction to DC machines:** Principles of electromechanical energy conversion – singly excited and multi excited system – Calculation of force and torque using the concept of co-energy. Construction and principle of operation of DC machine – EMF equation for generator – Classification of DC machines based on excitation – OCC of DC shunt generator.
	UNIT–II: D.C. Generators – I Principle of operation – E.M.F equation- armature windings – lap and wave windings – armature reaction – cross magnetizing and de-magnetizing AT/pole –commutation process – methods of improving commutation – compensating windings – Interpoles.	**UNIT–II: Performance of D.C. Machines** Torque and back-emf equations of dc motors– Armature reaction and commutation – characteristics of separately-excited, shunt, series and compound motors - losses and efficiency- applications of dc motors.
	UNIT III: DC Generators -II: Methods of excitation-Self excited and separately excited-types of generators build-up of emf-open circuit characteristics-critical field resistance-critical speed-causes for failure to self-excitation-remedial measures-Internal and external characteristics of separately excited, shunt, series, compound generators-applications, losses and efficiency.	**UNIT-III: Starting, Speed Control and Testing of D.C. Machines** Necessity of starter – Starting by 3 point and 4-point starters – Speed control by armature voltage and field control – testing of DC machines - brake test, Swinburne's method – principle of regenerative or Hopkinson's method - retardation test -- separation of losses.
	UNIT–IV: D.C. Motors Principle of operation – back E.M.F - torque equation –characteristics of shunt, series and compound motors –	**UNIT–IV: Single-phase Transformers** Types and constructional details - principle of operation - emf equation - operation on no load and on load –

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	armature reaction and commutation - losses and efficiency- speed torque characteristics-applications of dc motors. Starting by 3 point and 4 point starters – protective devices.	lagging, leading and unity power factors loads - phasor diagrams of transformers – equivalent circuit – regulation – losses and efficiency – effect of variation of frequency and supply voltage on losses – All day efficiency.
	UNIT-V: Speed Control and Testing of D.C. Machines: Speed control by armature voltage and field flux control – testing of DC machines - brake test, Swinburne's method – principle of regenerative or Hopkinson's method - retardation test -- separation of losses – methods of electrical braking: plugging, dynamic and regenerative.	**UNIT-V Single-phase Transformers Testing:** Tests on single phase transformers – open circuit and short circuit tests – Sumpner's test – separation of losses – parallel operation with equal voltage ratios – auto transformer - equivalent circuit – comparison with two winding transformers.
	UNIT–VI: Design of D.C. Machines Design concept - output equation - choice of specific electric and magnetic loadings – separation of D and L - estimation of number of conductors/ turns - coils - armature slots – conductor dimension – slot dimension - choice of number of poles – length of air gap.	**UNIT-VI 3-Phase Transformers** Polyphase connections - Y/Y, Y/Δ, Δ/Y, Δ/Δ and open Δ -- Third harmonics in phase voltages three winding transformers: determination of Zp, Zs and Zt -- transients in switching - off load and on load tap changers -- Scott connection

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Electrical Machines-II	Electrical Machines-II
Course Code	RT22025	R1622022
Syllabus	**UNIT-I Single-phase Transformers** Types and constructional details - principle of operation - emf equation - operation on no load and on load – lagging, leading and unity power factors loads - phasor diagrams of transformers – equivalent circuit – regulation – losses and efficiency – effect of variation of frequency and supply voltage on losses – All day efficiency.	**UNIT-I 3-phase Induction Motors** Construction details of cage and wound rotor machines - production of rotating magnetic field - principle of operation - rotor emf and rotor frequency - rotor current and pf at standstill and during running conditions - rotor power input, rotor copper loss and mechanical power developed and their interrelationship – equivalent circuit – phasor diagram
	UNIT-II Single-phase Transformers Testing: Tests on single phase transformers – open circuit and short circuit tests – Sumpner's test – separation of losses – parallel operation with equal voltage ratios – auto transformer - equivalent circuit – comparison with two winding transformers	**UNIT-II Characteristics, starting and testing methods of Induction Motors** Torque equation - expressions for maximum torque and starting torque - torque slip characteristic - double cage and deep bar rotors - crawling and cogging – speed control of induction motor with V/f method – no load and blocked rotor tests - circle diagram for predetermination of performance– methods of starting – starting current and torque calculations – induction generator operation (Qualitative treatment only)
	UNIT-III 3-Phase Transformers Polyphase connections - Y/Y, Y/Δ, Δ/Y, Δ/Δ and open Δ -- Third harmonics in phase voltages - three winding transformers: determination of Zp, Zs and Zt -- transients in switching - off load and on load tap changers -- Scott connection.	**UNIT – III: Single Phase Motors** Single phase induction motors – Constructional features and equivalent circuit Problem of starting–Double revolving field theory–Starting methods, shaded pole motors, AC Series motor.
	UNIT-IV 3- phase Induction Motors	**UNIT–IV: Construction, Operation and Voltage Regulation of**

	construction details of cage and wound rotor machines - production of a rotating magnetic field - principle of operation - rotor emf and rotor frequency - rotor current and pf at standstill and during running conditions - rotor power input, rotor copper loss and mechanical power developed and their inter relationship – equivalent circuit – phasor diagram.	**Synchronous generator** Constructional features of non–salient and salient pole type – Armature windings – Distributed and concentrated windings – Distribution– Pitch and winding factors –E.M.F equation–Improvements of waveform and armature reaction–Voltage regulation by synchronous impedance method– MMFmethod and Potier triangle method–Phasor diagrams– Two reaction analysis of salient pole machines and phasor diagram.
	UNIT-V Characteristics, starting and testing methods of Induction Motors: Torque equation - expressions for maximum torque and starting torque - torque slip characteristic - double cage and deep bar rotors - crawling and cogging - no load and blocked rotor tests - circle diagram for predetermination of performance - methods of starting – starting current and torque calculations – induction generator operation.	**UNIT –V: Parallel operation of synchronous generators:** Parallel operation with infinite bus and other alternators – Synchronizing power – Load sharing – Control of real and reactive power– Numerical problems.
	UNIT-VI Design of transformer and 3-phase induction motor Transformer: Design concept – output equation – choice of windings – calculation of number of turns – length of mean turn of winding - calculation of resistance and leakage reactance. Three phase induction motor: Design concept – choice of specific electric and magnetic loadings – output equation – stator design – number of slots – conductor dimensions – type of winding – number of rotor slots – conductor dimensions.	**UNIT–VI: Synchronous motor – operation, starting and performance** Synchronous Motor principle and theory of operation– Phasor diagram – Starting torque– Variation of current and power factor with excitation –Synchronous condenser – Mathematical analysis for power developed– Hunting and its suppression – Methods of starting – Applications.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Electrical Machines -I Laboratory	Electrical Machines -I Laboratory
Course Code	RT22027	R1622027
Syllabus	1.Magnetization characteristics of DC shunt generator. Determination of critical field resistance and critical speed.	1. Magnetization characteristics of DC shunt generator. Determination of critical field resistance and critical speed.
	2.Load test on DC shunt generator. Determination of characteristics.	2.Brake test on DC shunt motor. Determination of performance curves.
	3.Brake test on DC shunt motor. Determination of performance curves.	3.Hopkinson's test on DC shunt machines. Predetermination of efficiency.
	4.Load test on DC compound generator. Determination of characteristics.	4.Swinburne's test and Predetermination of efficiencies as Generator and Motor
	5.Hopkinson's test on DC shunt machines. Predetermination of efficiency.	5.Speed control of DC shunt motor by Field and armature Control.
	6.Fields test on DC series machines. Determination of efficiency.	6.Retardation test on DC shunt motor. Determination of losses at rated speed
	7.Swinburne's test and Predetermination of efficiencies as Generator and Motor.	7.Separation of losses in DC shunts motor.
	8.Speed control of DC shunt motor by Field and armature Control.	8.OC & SC test on single phase transformer.
	9.Brake test on DC compound motor. Determination of performance curves.	9.Sumpner's test on single phase transformer
	10.Load test on DC series generator. Determination of characteristics	10.Scott connection of transformers
	11.Retardation test on DC shunt motor. Determination of losses at rated speed.	11.Parallel operation of Single-phase Transformers
	12.Separation of losses in DC shunt motor.	12.Separation of core losses of a single-phase transformer

		13.Heat run test on a bank of 3 Nos. of single-phase Delta connected transformers

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Department of Mechanical Engineering

Syllabus revision Index (2017-18)

S.No	Name of the course	Percentage of syllabus change
1	English-I	65
2	Mathematics-I	40
3	Environmental Studies	25
4	Engineering Chemistry	25
5	Engineering Chemistry Lab	20
6	Computer Programming Lab	40
7	English-II	55
8	Mathematics-III	40
9	English Communication Skills Lab-II	40

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	171HS1T01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW-J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	. UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists.	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BS1T01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social IBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

	rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Chemistry	Engineering Chemistry
Course Code	R161105	171BS1T03
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation:- Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers :- Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT- I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques) - Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels – Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas, LPG	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the

	and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Rocket fuels	combustion of a fuel – Flue gas analysis – Orsat apparatus.
	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion :- Definition – Theories of Corrosion (chemical & electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Super conductors:-Type –I, Type II – Characteristics and applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors:-Type – I, Type II – Characteristics and applications Semi conductors: - Preparation of semiconductors, working of diodes and transistors. Green synthesis:-Principles Liquid crystals:-Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT V: WATER TECHNOLOGY Hard water:- Reasons for hardness – units of hardness - determination of hardness and alkalinity - Water for steam generation - Boiler troubles – Priming and	UNIT - V: Water Technology Hard water:- Reasons for hardness – units of hardness - determination of hardness andalkalinity - Water for steam generation - Boiler troubles – Priming and Foaming, Scale

	Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.	formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.
	UNIT VI: CHEMISTRY OF ENGINEERING MATERIALS AND FUEL CELLS Refractories: - Definition, characteristics, classification, properties, failure of refractories Lubricants: - Definition, function, Theory and mechanism of lubricants, properties (Definition and importance) Cement: - Constituents, manufacturing, hardening and setting, deterioration of cement Insulators: - Thermal and electrical insulators Fuel cells: - Hydrogen Oxygen fuel cells – Methanol Oxygen fuel cells	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering/Applied Chemistry Lab	Engineering Chemistry Lab
Course Code	R161227/ R161118	171BS1L01
Syllabus	1. Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc....	Exercise 1: Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc.
	2. Trial experiment - Determination of HCl using standard Na2CO3 solution	Exercise 2: Trial experiment - Determination of HCl using standard Na2CO3 solution.
	3. Determination of alkalinity of a sample containing Na2CO3 and NaOH.	Exercise 3: Preparation of Phenol - Formaldehyde resin (Bakelite).
	..4. Determination of KMnO4 using standard Oxalic acid solution	Exercise 4: Determination of KMnO4 using standard Oxalic acid solution.
	5. Determination of Ferrous iron using standard K2Cr2O7 solution	Exercise 5: Determination of ferrous iron using standard K2Cr2O7 solution.
	6. Determination of Copper using standard K2Cr2O7 solution	Exercise 6: Preparation of Bio-Diesel.
	7. Determination of temporary and permanent hardness of water using standard EDTA solution.	Exercise 7: Determination of temporary and permanent hardness of water using standard EDTA solution.
	8. Determination of Copper using standard EDTA solution	Exercise 8: Determination of Copper using standard EDTA solution.
	9. Determination of Iron by a Colorimetric method using thiocynate as reagent.	Exercise 9: Determination of Iron by a Colorimetric method using thiocynate as reagent.
	10. Determination of pH of the given sample solution using pH meter.	Exercise 10: Determination of pH of the given sample solution using pH meter.
	11. Conductometric titration between strong acid and strong base.	Exercise 11: Conduct metric titration between strong acid and strong base.
	12. Conductometric titration between strong acid and weak base.	Exercise 12: Conduct metric titration between strong acid and weak base.
	13. Potentiometric titration between strong acid and strong base.	Exercise 13: Potentiometric titration between strong acid and strong base.
	14. Potentiometric titration between	Exercise 14: Potentiometric titration

	strong acid and weak base.	between strong acid and weak base.
	15. Determination of Zinc using standard EDTA solution.	Exercise 15: Determination of Zinc using standard EDTA solution.
	16. Determination of Vitamin – C.	Exercise 16: Determination of Vitamin – C.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has

		to generate ATM PIN number. After generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement. 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum

	returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	of individual digits of a positive integer. 5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series	**Exercise – 7:** Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and

	expansion. (use factorial function)	returning values. 7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. • • In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with

		Obesity: Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure 11.2) Write a C Program to Store

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day = Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student 2. Update Existing Student

		3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

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ADITYA ENGINEERING COLLEGE

An Autonomous Institution

Approved by AICTE • Permanently Affiliated to JNTUK • Accredited by NAAC with 'A' Grade

Recognised by UGC under sections 2(f) and 12(B) of UGC Act, 1956

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English -I	English-II
Course Code	R161101	171HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. TECHNOLOGY WITH A HUMAN FACE (Detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. CLIMATE CHANGE AND HUMAN STRATEGY (Detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. EMERGING TECHNOLOGIES (Detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. THE SECRET OF WORK (Detailed) 2. THE SCARECROW (Non-Detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. WORK BRINGS SOLACE (Detailed) 2. A VILLAGE LOST TO THE NATION (Non-Detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

	Applications: Equation of continuity, potential surfaces	Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area- Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab-II	English Communication Skills Lab-II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

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Department of Electronics and communication Engineering

Syllabus revision Index

2017-18

S.No	Name of the course	Percentage of syllabus change
1	English-I	65%
2	Mathematics – I	40%
3	Mathematics – II	60%
4	Applied Physics	20%
5	Computer Programming Lab	40%
6	English-II	55%
7	Mathematics – III	40%
8	Environmental Studies	20%
9	Applied Chemistry	25%
10	English Communication Skills Lab-II	40%
11	Applied Chemistry Lab	20%
12	Control Systems	40%
13	Management Science	50%

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	171HSIT01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW-J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	. UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists.	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BS1T01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

G. V.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social IBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

	rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-II (NMCV)	Mathematics-II (for ECE)
Course Code	R161110	171BS2T02
Syllabus	UNIT I: Solution of Algebraic and Transcendental Equations: Introduction-Bisection method – Method of false position – Iteration method – Newton-Raphson method (One variable and simultaneous Equations).	UNIT I: Solution of Algebraic and Transcendental Equations and Interpolation: Introduction- Bisection method – Method of false position – Iteration method – Newton - Raphson method. Errors in polynomial interpolation – Finite differences- Forward differences-Backward differences –Central differences – Relation between operators - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.
	UNIT II: Interpolation: Introduction-Errors in polynomial interpolation – Finite differences- Forward differences-Backward differences –Central differences – Symbolic relations and separation of symbols - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula	UNIT II: Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method, Modified Euler's method – Runge - Kutta method (fourth order).
	UNIT III: Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method - Runge-Kutta method (second and fourth order).	UNIT III: Fourier Series: Fourier series of periodic function - Dirichlet's conditions for Fourier expansion - Functions having points of discontinuities–Change of interval – Even and odd functions – Half-range series.
	Unit-IV: Functions of a complex variable Complex function , Real and Imaginary parts of Complex function, Limit,	UNIT IV: Fourier Transforms: Fourier integral theorem (without proof) – Fourier sine and cosine integrals - sine and cosine

	Continuity and Derivative of complex function, Cauchy-Riemann equations, Analytic function, entire function, singular point, conjugate function, C – R equations in polar form, Harmonic functions, Milne-Thomson method, Simple applications to flow problems,	transforms – properties – inverse transforms – Finite Fourier transforms.
	Unit-V: Series Expansion and Complex Integration Line integral of a complex function, Cauchy's theorem(only statement) , Cauchy's Integral Formula. Absolutely convergent and uniformly convergent of series of complex terms, Radius of convergence, Taylor's series, Maclaurin's series expansion, Laurent's series.	UNIT V: Applications of Partial Differential Equations: Classification of Higher order P.D.E - Method of separation of Variables- Solution of One dimensional Wave equation, Heat equation and two-dimensional Laplace equation.
	Unit-VI: Singularities and Residue Theorem Zeros of an analytic function, Singularity, Isolated singularity, Removable singularity, Essential singularity, pole of order m, simple pole, Residues, Residue theorem, Calculation of residues, Residue at a pole of order m, Evaluation of real definite integrals: Integration around the unit circle, Integration around semi circle, Indenting the contours having poles on the real axis.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English -I	English-II
Course Code	R161101	171HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. TECHNOLOGY WITH A HUMAN FACE (Detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. CLIMATE CHANGE AND HUMAN STRATEGY (Detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. EMERGING TECHNOLOGIES (Detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. THE SECRET OF WORK (Detailed) 2. THE SCARECROW (Non-Detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. WORK BRINGS SOLACE (Detailed) 2. A VILLAGE LOST TO THE NATION (Non-Detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Physics	Applied Physics
Course Code	R161207	171BS1T04/171BS2T04
Syllabus	UNIT-I INTERFERENCE: Principle of Superposition – Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	UNIT-I: Interference: Principle of Superposition – Coherence– Interference in thin films (reflection geometry) – Newton's rings – construction and working principle of Interferometer.
	UNIT-II DIFFRACTION: Fraunhofer diffraction at single slit - Cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes.	UNIT-II: Diffraction: Fraunhofer diffraction at single slit – Cases of double slit, N-slits, & circular aperture, grating equation – Rayleigh criterion of resolving power- Resolving power of a grating, Telescope and Microscopes
	UNIT-III POLARIZATION: Types of Polarization – Methods of production - Nicol Prism -Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition Probabilities Pumping schemes - Ruby laser – Helium Neon laser.	UNIT-III: Polarization: Types of Polarization – Methods of production – Nicol Prism – Quarter wave plate and Half Wave plate- working principle of polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition ProbabilitiesPumping schemes- Ruby laser – Helium Neon laser-CO2 Laser-Applications
	UNIT-IV ELECTROMAGNETIC FIELDS: Scalar and Vector Fields – Electric Potential- Gradient, Divergence of fields – Gauss and Stokes theorems-Propagation of EM waves through dielectric medium.	UNIT-IV: Quantum Mechanics: Introduction –Matter waves – Schrödinger Time Independent and Time Dependent wave equations – Particle in a box. FREE ELECTRON THEORY: Defects of classical free electron theory –Quantum Free electron theory – concept of Fermi Energy..
	UNIT-V QUANTUM MECHANICS: Introduction - Matter waves – Schröedinger Time Independent and Time Dependent wave equations – Particle in a box. FREE ELECTRON	UNIT-V: Band Theory of Solids: Bloch's theorem (qualitative) – Kronig – Penney model (Qualitative) – energy bands in crystalline solids – classification of crystalline solids– effective mass of

	THEORY: Defects of Classical free electron theory –Quantum Free electron theory - concept of Fermi Energy.	electron & concept of hole. Semiconductor Physics: Conduction – Density of carriers in Intrinsic and Extrinsic semiconductors – Drift & Diffusion – relevance of Einstein's equation- Hall effect in semiconductors.–
	UNIT-VI BAND THEORY OF SOLIDS: Bloch's theorem (qualitative) – Kronig – Penney model – energy bands in crystalline solids – classification of crystalline solids– effective mass of electron & concept of hole. SEMICONDUCTOR PHYSICS: Conduction – Density of carriers in Intrinsic and Extrinsic semiconductors – Drift & Diffusion – relevance of Einstein's equation- Hall effect in semiconductors	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Chemistry	Applied Chemistry
Course Code	R161106/R161221	171BS1T05/ 171BS2T05
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation : Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT - I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus.

	analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Introduction, classification, examples: RDX, TNT and ammonium nitrite - rocket fuels	
	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating)	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Superconductors :- Type-I & Type-2, properties &applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors: -Type – I, Type II – Characteristics and applications Semiconductors: - Preparation of semiconductors, working of diods and transistors. Green synthesis: -Principles Liquid crystals:-Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT V: SOLID STATE CHEMISTRY Types of solids - close packing of atoms and ions - BCC , FCC, structures of rock salt - cesium chloride- spinel - normal and inverse spinels, Non-elemental	UNIT - V: Non-Conventional Energy Sources: Solar Energy: - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design,

	semiconducting Materials:- Stoichiometric, controlled valency & Chalcogen photo/semiconductors, Preparation of Semiconductors - Semiconductor Devices:- p-n junction diode as rectifier – junction transistor. Insulators (electrical and electronic applications) Magnetic materials:- Ferro and ferri magnetism. Hall effect and its applications.	working and its importance Non-conventional energy sources: (i) Hydropower include setup a hydropower plant (schematic diagram) (ii) Geothermal energy: Introduction-schematic diagram of a geothermal power plant (iii) Tidal and wave power: Introduction- Design and working-movement of tides and their effect on sea level. (iv) Ocean thermal energy: Introduction, closed-cycle, ocean thermal energy conversion (OTEC), open cycle OTEC, hybrid OTEC, schematic diagram and explanation. (v) Biomass and biofuels.
	UNIT VI: NON CONVENTIONAL ENERGY SOURCES AND STORAGE DEVICES Solar Energy: - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design, working and its importance Non-conventional energy sources: (i) Hydropower include setup a hydropower plant (schematic diagram) (ii) Geothermal energy: Introduction-schematic diagram of a geothermal power plant (iii) Tidal and wave power: Introduction- Design and working-movement of tides and their effect on sea level. (iv) Ocean thermal energy: Introduction, closed-cycle, ocean thermal energy conversion (OTEC), open cycle OTEC, hybrid OTEC, schematic diagram and explanation. (v) Biomass and biofuels Fuel cells:- Introduction - cell representation, H2-O2 fuel cell: Design and working, advantages and limitations. Types of fuel cells: Alkaline fuel cell - methanol-oxygen - phosphoric acid fuel cells - molten carbonate fuel cells.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

	Applications: Equation of continuity, potential surfaces	Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area- Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	· Engineering/Applied Chemistry Lab	Engineering Chemistry Lab
Course Code	R161227/ R161118	171BS1L01
Syllabus	1. Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc....	Exercise 1: Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc.
	2. Trial experiment - Determination of HCl using standard Na2CO3 solution	Exercise 2: Trial experiment - Determination of HCl using standard Na2CO3 solution.
	3. Determination of alkalinity of a sample containing Na2CO3 and NaOH.	Exercise 3: Preparation of Phenol - Formaldehyde resin (Bakelite).
	..4. Determination of KMnO4 using standard Oxalic acid solution	Exercise 4: Determination of KMnO4 using standard Oxalic acid solution.
	5. Determination of Ferrous iron using standard K2Cr2O7 solution	Exercise 5: Determination of ferrous iron using standard K2Cr2O7 solution.
	6. Determination of Copper using standard K2Cr2O7 solution	Exercise 6: Preparation of Bio-Diesel.
	7. Determination of temporary and permanent hardness of water using standard EDTA solution.	Exercise 7: Determination of temporary and permanent hardness of water using standard EDTA solution.
	8. Determination of Copper using standard EDTA solution	Exercise 8: Determination of Copper using standard EDTA solution.
	9. Determination of Iron by a Colorimetric method using thiocynate as reagent.	Exercise 9: Determination of Iron by a Colorimetric method using thiocynate as reagent.
	10. Determination of pH of the given sample solution using pH meter.	Exercise 10: Determination of pH of the given sample solution using pH meter.
	11. Conductometric titration between strong acid and strong base.	Exercise 11: Conduct metric titration between strong acid and strong base.
	12. Conductometric titration between strong acid and weak base.	Exercise 12: Conduct metric titration between strong acid and weak base.
	13. Potentiometric titration between strong acid and strong base.	Exercise 13: Potentiometric titration between strong acid and strong base.
	14. Potentiometric titration between	Exercise 14: Potentiometric titration

	strong acid and weak base.	between strong acid and weak base.
	15. Determination of Zinc using standard EDTA solution.	Exercise 15: Determination of Zinc using standard EDTA solution.
	16. Determination of Vitamin – C.	Exercise 16: Determination of Vitamin – C.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab-II	English Communication Skills Lab-II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

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Department of Electronics and communication Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Control Systems	Control Systems
Course Code	RT31043	R1622042
	UNIT I **INTRODUCTION** Concepts of Control Systems- Open Loop and closed loop control systems and their differences- Different examples of control systems- Classification of control systems, Feed-Back Characteristics, Effects of feedback. Mathematical models – Differential equations, Impulse Response and transfer functions - Translational and Rotational mechanical systems	**UNIT-1** **Introduction** System Control System, Open Loop Control System, Closed loop Control System, Different Examples **Mathematical models of Physical Systems** Differential equations of physical systems, Transfer functions. Block diagram Algebra, Signal flow graphs with illustrative examples **Effects of Feedback** Feedback Characteristics and its advantages, Linearizing effect of feedbac
	UNIT II **TRANSFER FUNCTION REPRESENTATION** Transfer Function of DC Servo motor - AC Servo motor- Synchro transmitter and Receiver, Block diagram representation of systems considering electrical systems as examples -Block diagram algebra – Representation by Signal flow graph - Reduction using mason's gain formula.	**UNIT-2** **Controller Components** DC Servomotor (Armature Controlled and Field Controlled) with necessary derivation for transfer function,AC Servomotor and its transfer function, AC Tachometer, Potentiometer, Synchros, AC Position ControlSystems **Time Response Analysis** Standard test Signals, Time response of first and second order systems, steady state errors and error constants, Effect of adding a zero to a system, Design specifications of second order systems, Performanceindices
	UNIT III **TIME RESPONSE ANALYSIS** Standard test signals - Time response	**UNIT-3** **Concepts of Stability and Algebraic Criteria**

	of first order systems – Characteristic Equation of Feedback control systems, Transient response of second order systems - Time domain specifications – Steady state response - Steady state errors and error constants – Effects of proportional derivative, proportional integral systems.	The concept of Stability, Necessary Conditions for Stability, Routh-Hurwitz Srability Criterion, Relative stability analysis, **The Root Locus Technique** Introduction, The Root Locus concepts, Construction of Root Loci
	UNIT IV **STABILITY ANALYSIS IN S-DOMAIN** The concept of stability – Routh's stability criterion – qualitative stability and conditional stability – limitations of Routh's stability. **Root Locus Technique:** The root locus concept - construction of root loci-effects of adding poles and zeros to G(s)H(s) on the root loci.	**UNIT-4** **Frequency response analysis** Introduction, Correlation between time and frequency response, Polar Plots, Bode Plots, Nyquist Stability Criterion
	UNIT V **FREQUENCY RESPONSE ANALYSIS** Introduction, Frequency domain specifications-Bode diagrams-Determination of Frequency domain specifications and transfer function from the Bode Diagram-Phase margin and Gain margin-Stability Analysis from Bode Plots. **STABILITY ANALYSIS IN FREQUENCY DOMAIN:** Polar Plots, Nyquist Plots Stability Analysis.	**UNIT-5** **Introduction to Design** The design problem, Preliminary consideration of classical design, Realization of basic Compensators, Cascade compensation in time domain and frequency domain, Tuning of PID Controllers
	UNIT VI **CLASSICAL CONTROL DESIGN TECHNIQUES** Compensation techniques – Lag, Lead, Lead-Lag Controllers design infrequency Domain, PID Controllers. State Space Analysis of ContinuousSystems Concepts of state, state variables and state model, derivation of state models from block diagrams, Diagonalization- Solving the Time	**UNIT-6** **State Variable Analysis and Design** Introduction, Concepts of State, State Variables and State models, State models for linear continuous-time systems, State variables and linear discrete-time systems, Solution of state equations and Concepts of Controllability and Observability.

	invariantstate Equations- State Transition Matrix and it's Properties – Concepts ofControllability and Observability.	

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Department of Electronics and communication Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Management Science	Management Science
Course Code	RT22043	R1622026
	UNIT – I: **Introduction to Management:** Concept – Nature and Importance of Management, Functions-Evaluation of Management, Motivation Theories – Leadership Styles – Decision Making Process-designing Organization Structure – Principles and types of Organization.	**UNIT I** **Introduction to Management**: Concept –nature and importance of Management –Generic Functions of Management – Evaluation of Management thought-Theories of Motivation – Decision making process-Designing organization structure- Principles of organization – Organizational typology-International Management: Global Leadership and Organizational behaviorEffectiveness(GLOBE) structure
	UNIT – II: **Operations and Project Management:** Work-Study-Statistical Quality Control Through Control Charts-Inventory Control-EOQ & ABC Analysis (Simple Problems) Project Management-PERT/CPM-Project Crashing (Simple Problem).	**UNIT II** **Operations Management**: Principles and Types of Management – Work study- Statistical Quality Control-Control charts (P-chart, R-chart, and C-chart) Simple problems- Material Management: Need for Inventory control- EOQ, ABC analysis (simple problems) and Types of ABC analysis (HML, SDE, VED, and FSN analysis).
	UNIT – III: **Functional Management:** Concept and Functions of Finance, HR, Production, Marketing Management and Services – Job Evolution and Merit Rating – Product Life Cycles – Channels of Distribution	**UNIT III** **Functional Management**: Concept of HRM, HRD and PMIR- Functions of HR Manager- Wage payment plans(Simple Problems) – Job Evaluation and Merit Rating - Marketing Management- Functions of Marketing –

	– Types/Methods of Production.	Marketing strategies based on product Life Cycle. Channels of distributions. Operationlizing change through performance management.
	UNIT – IV: **Strategic Management:** Vision, Mission, Goals, Strategy – Corporate Planning Process – Environmental Scanning – SWOT analysis – Different Steps in Strategy Formulation, Implementation and Evaluation.	**UNIT IV** **Project Management**: (PERT/CPM): Development of Network – Difference between PERT and CPM Identifying Critical Path- Probability- Project Crashing (Simple Problems)
	UNIT – V: **Business Ethics & Communications:** Ethics in Business and Management – Ethics in HRM, Finance & Marketing Management – Business Ethics & Law	**UNIT V** **Strategic Management**: Vision, Mission, Goals, Strategy – Elements of Corporate Planning Process – Environmental Scanning – SWOT analysis- Steps in Strategy Formulation and Implementation, Generic Strategy Alternatives. Global strategies, theories of Multinational Companies.
	UNIT – VI: **Contemporary Management Practices:** Basic concepts of MIS, MRP, Just- In-Time (JIT)System, Total Quality Management (TQM), Six Sigma and Capability Maturity Models (CMM) Levies, Supply Chain Management, Enterprise Resource Planning (ERP), Performance Management, Business Process Outsourcing (BPO), Business Process Re-Engineering and Bench Marking, Balance Score Card.	**UNIT VI** **Contemporary Management Practice**: Basic concepts of MIS, MRP, Justin-Time(JIT) system, Total Quality Management(TQM), Six sigma and Capability Maturity Model(CMM) Levies, Supply Chain Management , Enterprise Resource Planning (ERP), Business Process outsourcing (BPO), Business process Re-engineering and Bench Marking, Balanced Score Card.

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Date: 08-06-2017

Department of Computer Science and Engineering

Syllabus revision Index 2017-2018

S.No	Name of the course	Percentage of syllabus change
1	Mathematics – I	25%
2	Mathematics – II	20%
3	Applied Physics	20%
4	English Communication Skills Lab – I	80%
5	Computer Programming Lab	40%
6	Mathematics – III	20%
7	Environmental Studies	20%
8	Applied Chemistry	20%
9	Software Engineering	60%
10	Computer Organization	50%
11	Advanced Data Structures Lab	70%

Program Coordinator

Head of the Department

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Department of CSE
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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BS1T01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-II	Mathematics-II (except for ECE)
Course Code	R161202	171BS2T02
Syllabus	UNIT I: Solution of Algebraic and Transcendental Equations: Introduction-Bisection method – Method of false position – Iteration method – Newton Raphson method (One variable and simultaneous Equations).	UNIT I: Solution of Algebraic and Transcendental Equations and Interpolation: Introduction- Bisection method – Method of false position – Iteration method – Newton - Raphson method. Errors in polynomial interpolation – Finite differences- Forward differences-Backward differences –Central differences – Relation between operators - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.
	UNIT II: Interpolation: Introduction-Errors in polynomial interpolation – Finite differences- Forward differences, Backward differences –Central differences – Symbolic relations and separation of symbols - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.	UNIT II: Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method, Modified Euler's method – Runge - Kutta method (fourth order).
	UNIT III: Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method - RungeKutta method (second and fourth order).	UNIT III: Fourier Series: Fourier series of periodic function - Dirichlet's conditions for Fourier expansion - Functions having points of discontinuities–Change of interval – Even and odd functions – Half-range series.
	UNIT IV: Fourier Series: Introduction-Periodic functions – Fourier series of -	UNIT IV: Fourier Transforms: Fourier integral theorem (without proof) – Fourier

	periodic function - Dirichlet's conditions – Even and odd functions –Change of interval– Half-range sine and cosine series.	sine and cosine integrals - sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms.
	UNIT V: Applications of PDE: Method of separation of Variables- Solution of One dimensional Wave, Heat and two dimensional Laplace equation.	UNIT V: Applications of Partial Differential Equations: Classification of Higher order P.D.E - Method of separation of Variables- Solution of One dimensional Wave equation, Heat equation and two-dimensional Laplace equation.
	UNIT VI: Fourier Transforms: Fourier integral theorem (without proof) – Fourier sine and cosine integrals - sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Physics	Applied Physics
Course Code	R161207	171BS1T04/171BS2T04
Syllabus	UNIT-I INTERFERENCE: Principle of Superposition – Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	UNIT-I: Interference: Principle of Superposition – Coherence– Interference in thin films (reflection geometry) – Newton's rings – construction and working principle of Interferometer.
	UNIT-II DIFFRACTION: Fraunhofer diffraction at single slit - Cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes.	UNIT-II: Diffraction: Fraunhofer diffraction at single slit – Cases of double slit, N-slits, & circular aperture, grating equation – Rayleigh criterion of resolving power- Resolving power of a grating, Telescope and Microscopes
	UNIT-III POLARIZATION: Types of Polarization – Methods of production - Nicol Prism -Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition Probabilities Pumping schemes - Ruby laser – Helium Neon laser.	UNIT-III: Polarization: Types of Polarization – Methods of production – Nicol Prism – Quarter wave plate and Half Wave plate- working principle of polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition ProbabilitiesPumping schemes- Ruby laser – Helium Neon laser-CO2 Laser-Applications
	UNIT-IV ELECTROMAGNETIC FIELDS: Scalar and Vector Fields – Electric Potential- Gradient, Divergence of fields – Gauss and Stokes theorems-Propagation of EM waves through dielectric medium.	UNIT-IV: Quantum Mechanics: Introduction –Matter waves – Schrödinger Time Independent and Time Dependent wave equations – Particle in a box. FREE ELECTRON THEORY: Defects of classical free electron theory –Quantum Free electron theory – concept of Fermi Energy..
	UNIT-V QUANTUM MECHANICS: Introduction - Matter waves – Schröedinger Time Independent and Time Dependent wave equations – Particle in a box. FREE ELECTRON	UNIT-V: Band Theory of Solids: Bloch's theorem (qualitative) – Kronig – Penney model (Qualitative) – energy bands in crystalline solids – classification of crystalline solids– effective mass of

	THEORY: Defects of Classical free electron theory –Quantum Free electron theory - concept of Fermi Energy.	electron & concept of hole. Semiconductor Physics: Conduction – Density of carriers in Intrinsic and Extrinsic semiconductors – Drift & Diffusion – relevance of Einstein's equation- Hall effect in semiconductors.–
	UNIT-VI BAND THEORY OF SOLIDS: Bloch's theorem (qualitative) – Kronig – Penney model – energy bands in crystalline solids – classification of crystalline solids– effective mass of electron & concept of hole. SEMICONDUCTOR PHYSICS: Conduction – Density of carriers in Intrinsic and Extrinsic semiconductors – Drift & Diffusion – relevance of Einstein's equation- Hall effect in semiconductors	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab -I	English Communication Skills Lab -I
Course Code	R161114	171HS1L01
Syllabus	UNIT 1: 1. WHY study Spoken English? 2. Making Inqueries on the phone, thanking and responding to Thanks Practice work.	PRACTICE 1: A. Greeting, Introducing and taking leave B. Pure Vowels
	UNIT 2: 1. Responding to Requests and asking for Directions Practice work.	PRACTICE 2: A. Giving Information and Asking for Information B. Diphthongs
	UNIT 3: 1. Asking for Clarifications, Inviting, Expressing Sympathy, Congratulating 2. Apologising, Advising, Suggesting, Agreeing and Disagreeing Practice work.	PRACTICE 3: A. Inviting, Accepting and Declining Invitations B. Consonants
	UNIT 4: 1. Letters and Sounds Practice work.	PRACTICE 4: A. Commands, Instructions and Requests B. Accent and Rhythm
	UNIT 5: 1. The Sounds of English Practice work.	PRACTICE 5: A. Suggestions and Opinions B. Intonation
	UNIT 6: 1. Pronunciation 2. Stress and Intonation Practice work	

Signature of the course coordinator

Signature of the HOD

Head of the Department
Department of H & BS
Aditya Engineering College (A)

ADITYA ENGINEERING COLLEGE

An Autonomous Institution

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Aditya Nagar, ADB Road, Surampalem - 533437, Near Kakinada, E.G.Dt., Ph:99498 76662

Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has

		to generate ATM PIN number. After generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement. 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum

	returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	of individual digits of a positive integer. 5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series	**Exercise – 7:** Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and

	expansion. (use factorial function)	returning values. 7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. ◦ ◦ In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with

		Obesity: Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure 11.2) Write a C Program to Store

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day = Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student 2. Update Existing Student

		3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

Signature of the Course Coordinator

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

	Applications: Equation of continuity, potential surfaces	Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area-Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social IBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

	rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Chemistry	Applied Chemistry
Course Code	R161106/R161221	171BS1T05/ 171BS2T05
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation : Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT - I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus.

	analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Introduction, classification, examples: RDX, TNT and ammonium nitrite - rocket fuels	
	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating)	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Superconductors :- Type-I & Type-2, properties &applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors: -Type – I, Type II – Characteristics and applications Semiconductors: - Preparation of semiconductors, working of diods and transistors. Green synthesis: -Principles Liquid crystals:-Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT V: SOLID STATE CHEMISTRY Types of solids - close packing of atoms and ions - BCC , FCC, structures of rock salt - cesium chloride- spinel - normal and inverse spinels, Non-elemental	UNIT - V: Non-Conventional Energy Sources: Solar Energy: - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design,

	semiconducting Materials:- Stoichiometric, controlled valency & Chalcogen photo/semiconductors, Preparation of Semiconductors - Semiconductor Devices:- p-n junction diode as rectifier – junction transistor. Insulators (electrical and electronic applications) Magnetic materials:- Ferro and ferri magnetism. Hall effect and its applications.	working and its importance Non-conventional energy sources: (i) Hydropower include setup a hydropower plant (schematic diagram) (ii) Geothermal energy: Introduction-schematic diagram of a geothermal power plant (iii) Tidal and wave power: Introduction- Design and working-movement of tides and their effect on sea level. (iv) Ocean thermal energy: Introduction, closed-cycle, ocean thermal energy conversion (OTEC), open cycle OTEC, hybrid OTEC, schematic diagram and explanation. (v) Biomass and biofuels.
	UNIT VI: NON CONVENTIONAL ENERGY SOURCES AND STORAGE DEVICES Solar Energy: - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design, working and its importance Non-conventional energy sources: (i) Hydropower include setup a hydropower plant (schematic diagram) (ii) Geothermal energy: Introduction-schematic diagram of a geothermal power plant (iii) Tidal and wave power: Introduction- Design and working-movement of tides and their effect on sea level. (iv) Ocean thermal energy: Introduction, closed-cycle, ocean thermal energy conversion (OTEC), open cycle OTEC, hybrid OTEC, schematic diagram and explanation. (v) Biomass and biofuels Fuel cells:- Introduction - cell representation, H2-O2 fuel cell: Design and working, advantages and limitations. Types of fuel cells: Alkaline fuel cell - methanol-oxygen - phosphoric acid fuel cells - molten carbonate fuel cells.	

Signature of the course coordinator

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Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Software Engineering	Software Engineering
Course Code	RT32051	R1622051
Syllabus	**UNIT-I:** Introduction to Software Engineering: Software, Software Crisis, Software Engineering definition, Evolution of Software Engineering Methodologies, Software Engineering Challenges. Software Processes: Software Process, Process Classification, Phased development life cycle, Software Development Process Models-Process, use, applicability and Advantages/limitations	**UNIT-I:** Software and Software Engineering: The Nature of Software, The Unique Nature of WebApps, Software Engineering, Software Process, Software Engineering Practice, Software Myths. Process Models: A Generic Process Model, Process Assessment and Improvement, Prescriptive Process Models, Specialized Process Models, The Unified Process, Personal and Team Process Models, Process Terminology, Product and Process.
	UNIT-II: **Requirements Engineering:** Software Requirements, Requirements engineering Process, Requirements elicitation, Requirements Analysis, Structured Analysis, Data Oriented Analysis, Object oriented Analysis, Prototyping Analysis, Requirements Specification, Requirements Validation, requirement Management.	**UNIT-II:** Requirements Analysis And Specification: Requirements Gathering and Analysis, Software Requirement Specification (SRS), Formal System Specification. Software Design: Overview of the Design Process, How to Characterise of a Design?, Cohesion and Coupling, Layered Arrangement of Modules, Approaches to Software Design
	UNIT-III: Software Design: Software Design Process, Characteristics of Good Software Design, Design Principles, Modular Design, Design Methodologies, Structured Design, Structured Design Methodology, Transform Vs Transaction Analysis. Object-Oriented Design: Object	**UNIT-III:** **Function-Oriented Software Design:** Overview of SA/SD Methodology, Structured Analysis, Developing the DFD Model of a System, Structured Design, Detailed Design, Design Review, over view of Object Oriented design. **User Interface Design:** Characteristics

	oriented Analysis and Design Principles	of Good User Interface, Basic Concepts, Types of User Interfaces, Fundamentals of Component-based GUI Development, A User Interface Design Methodology.
	UNIT-IV: **Implementation:** Coding Principles, Coding Process, Code verification, Code documentation **Software Testing:** Testing Fundamentals, Test Planning, Black Box Testing, White Box Testing, Levels of Testing, Usability Testing, Regression testing, Debugging approaches	**UNIT-IV:** Coding And Testing: Coding, Code Review, Software Documentation, Testing, Unit Testing, Black-Box Testing, White-Box Testing, Debugging, Program Analysis Tool, Integration Testing, Testing Object-Oriented Programs, System Testing, Some General Issues Associated with Testing
	UNIT-V: **Software Project Management:** Project Management Essentials, What is Project management, Software Configuration Management. **Project Planning and Estimation:** Project Planning activities, Software Metrics and measurements, Project Size Estimation, Effort Estimation Techniques. .	**UNIT-V:** Software Reliability And Quality Management: Software Reliability, Statistical Testing, Software Quality, Software Quality Management System, ISO 9000, SEI Capability Maturity Model. Computer Aided Software Engineering: Case and its Scope, Case Environment, Case Support in Software Life Cycle, Other Characteristics of Case Tools, Towards Second Generation CASE Tool, Architecture of a Case Environment
	UNIT-VI Software Quality: Software Quality Factors, Verification & Validation, Software Quality Assurance, The Capability Maturity Model Software Maintenance: Software maintenance, Maintenance Process Models, Maintenance Cost, Reengineering, Reengineering activities, Software Reuse.	**UNIT-VI** Software Maintenance: Software maintenance, Maintenance Process Models, Maintenance Cost, Software Configuration Management. Software Reuse: what can be reused? Why almost No Reuse So Far? Basic Issues in Reuse Approach, Reuse at Organization Level.

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Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Organization	Computer Organization
Course Code	RT22054	R1622054
Syllabus	**UNIT-I:** **Basic Structure of Computers :** Computer Types, Functional unit, Basic Operational concepts, Bus structures, Data Representation: Data types, Complements, Fixed Point Representation. Floating – Point Representation. Other Binary Codes, Error Detection codes.	**UNIT-I:** **Basic Structure Of Computers:** Functional unit, Basic Operational concepts, Bus structures, System Software, Performance, The history of computer development.
	UNIT-II: **Register Transfer Language and Microoperations:** Register Transfer language. Register Transfer Bus and memory transfers, Arithmetic Micro operations, logic micro operations, shift micro operations, Arithmetic logic shift unit. **Basic Computer Organization and Design :** Instruction codes, Computer Register Computer instructions, Timing and control, Instruction cycle, Memory – Reference Instructions. Input – Output and Interrupt, Design of basic computer, Design of Accumulator Logic.	**UNIT-II:** **Machine Instruction and Programs:** Instruction and Instruction Sequencing: Register Transfer Notation, Assembly Language Notation, Basic Instruction Types, Addressing Modes, Basic Input/output Operations, The role of Stacks and Queues in computer programming equation. Component of Instructions: Logic Instructions, shift and Rotate Instructions
	UNIT-III: **Central Processing Unit :** General Register Organization, STACK organization. Instruction formats. Addressing modes. DATA Transfer and manipulation. Program control. Reduced Instruction set computer.**Micro Programmed**	**UNIT-III:** Type of Instructions: Arithmetic and Logic Instructions, Branch Instructions, Addressing Modes, Input/output Operations

	Control : Control memory, Address sequencing, micro program example, design of control unit	
	UNIT-IV: **Computer Arithmetic :** Addition and subtraction, multiplication Algorithms, Division Algorithms, Floating – point Arithmetic operations. Decimal Arithmetic unit, Decimal Arithmetic operations.	**UNIT-IV:** **Input/Output Organization:** Accessing I/O Devices, Interrupts: Interrupt Hardware, Enabling and Disabling Interrupts, Handling Multiple Devices, Direct Memory Access, Buses: Synchronous Bus, Asynchronous Bus, Interface Circuits, Standard I/O Interface: Peripheral Component Interconnect (PCI) Bus, Universal Serial Bus (USB)
	UNIT-V: **The Memory System :** Memory Hierarchy, Main memory, Auxiliary memory, Associative Memory, Cache Memory, Virtual Memory.	**UNIT-V:** **The Memory Systems:** Basic memory circuits, Memory System Consideration, Read- Only Memory: ROM, PROM, EPROM, EEPROM, Flash Memory, Cache Memories: Mapping Functions, INTERLEAVING **Secondary Storage:** Magnetic Hard Disks, Optical Disks,
	UNIT-VI Input-Output Organization : Peripheral Devices, Input-Output Interface, Asynchronous data transfer, Modes of Transfer, Priority Interrupts, Direct memory Access. Multi Processors :Introduction, Characteristics or Multiprocessors, Interconnection Structures, Inter processor Arbitration.	**UNIT-VI** Processing Unit: Fundamental Concepts: Register Transfers, Performing An Arithmetic Or Logic Operation, Fetching A Word From Memory, Execution of Complete Instruction, Hardwired Control, Micro programmed Control: Microinstructions, Micro program Sequencing, Wide Branch Addressing Microinstructions with next –Address Field

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Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Advanced Data Structures Lab	Advanced Data Structures Lab
Course Code	RT22056	R1622057
Syllabus	1. To perform various operations i.e., insertions and deletions on AVL trees. 2. To implement operations on binary heap. i) Vertex insertion ii) Vertex deletion iii) Finding vertex iv) Edge addition and deletion 3. To implement Prim's algorithm to generate a min-cost spanning tree. 4. To implement Krushkal's algorithm to generate a min-cost spanning tree. 5. To implement Dijkstra's algorithm to find shortest path in the graph. 6. To implementation of Static Hashing (Use Linear probing for collision resolution) 7. To implement of Huffmann coding. 8. To implement of B-tree.	1. To implement functions of Dictionary using Hashing (division method, Multiplication method, Universal hashing) 2. To perform various operations i.e, insertions and deletions on AVL trees 3. To perform various operations i.e., insertions and deletions on 2-3 trees. 4. To implement operations on binary heap. 5. To implement operations on graphs i) vertex insertion ii) Vertex deletion iii) finding vertex iv)Edge addition and deletion 6. To implement Depth First Search for a graph non recursively. 7. To implement Breadth First Search for a graph non recursively. 8. To implement Prim's algorithm to generate a min-cost spanning tree. 9. To implement Krushkal's algorithm to generate a min-cost spanning tree. 10. To implement Dijkstra's algorithm to find shortest path in the graph. 11. To implement pattern matching using Boyer-Moore algorithm. 12. To implement Knuth-Morris-Pratt algorithm for pattern matching.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics – II	Mathematics – II
Course Code	R161110	171BS1T02
Syllabus	**UNIT-I:** Solution of Algebraic and Transcendental Equations: Introduction- Bisection method – Method of false position – Iteration method – Newton-Raphson method (One variable and simultaneous Equations).	**UNIT-I:** Solution of Algebraic and Transcendental Equations and Interpolation: Introduction- Bisection method – Method of false position – Iteration method – Newton - Raphson method. Errors in polynomial interpolation – Finite differences-Forward differences-Backward differences –Central differences – Relation between operators - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.
	UNIT-II: **Interpolation:** Introduction- Errors in polynomial interpolation – Finite differences-Forward differences- Backward differences –Central differences – Symbolic relations and separation of symbols - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.	**UNIT-II:** Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method, Modified Euler's method – Runge - Kutta method (fourth order).

	UNIT-III Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method - Runge-Kutta method (second and fourth order).	**UNIT-III:** **Fourier Series:** Fourier series of periodic function - Dirichlet's conditions for Fourier expansion - Functions having points of discontinuities–Change of interval – Even and odd functions – Half-range series.
	UNIT-IV: **Fourier Series:** Introduction- Periodic functions – Fourier series of -periodic function - Dirichlet's conditions –Even and odd functions –Change of interval– Half-range sine and cosine series.	**UNIT-IV:** **Fourier Transforms**: Fourier integral theorem (without proof) – Fourier sine and cosine integrals - sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms.
	UNIT-V: Applications of PDE: Method of separation of Variables-Solution of One-dimensional Wave, Heat and two-dimensional Laplace equation.	**UNIT-V Applications of Partial Differential Equations:** Classification of Higher order P.D.E - Method of separation of Variables- Solution of One-dimensional Wave equation, Heat equation and two-dimensional Laplace equation

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Physics	Applied Physics
Course Code	R161104	171BS1T04
Syllabus	**UNIT-I:** **INTERFERENCE:** Principle of Superposition–Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	**UNIT-I:** Interference: Principle of Superposition – Coherence– Interference in thin films (reflection geometry) – Newton's rings – construction and working principle of Interferometer.
	UNIT-II: **DIFFRACTION:** Fraunhofer diffraction at single slit - Cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes	**UNIT-II:** Diffraction: Fraunhofer diffraction at single slit – Cases of double slit, N-slits, & circular aperture, Grating equation – Rayleigh criterion of resolving power-Resolving power of a grating, Telescope and Microscopes
	UNIT-III POLARIZATION: Types of Polarization – Methods of production - Nicol Prism -Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition Probabilities- Pumping schemes - Ruby laser – Helium Neon laser.	**UNIT-III** **Polarization:** Types of Polarization – Methods of production – Nicol Prism – Quarter wave plate and Half Wave plate-working principle of polarimeter (Sacharimeter). LASERS: Characteristics– Stimulated emission – Einstein's Transition Probabilities-Pumping schemes- Ruby laser – Helium Neon laser-CO2 Laser-Applications
	UNIT-IV: ELECTROMAGNETIC FIELDS: Scalar and Vector Fields – Electric Potential-Gradient, Divergence of	**UNIT-IV:** **Quantum Mechanics**: Introduction – Matter waves – Schrödinger Time Independent and Time Dependent wave equations – Particle in a box. FREE

	fields – Gauss and Stokes theorems-Propagation of EM waves through dielectric medium.	ELECTRON THEORY: Defects of classical free electron theory –Quantum Free electron theory – concept of Fermi Energy.
	UNIT-V: **Quantum Mechanics:** Introduction - Matter waves – Schröedinger Time Independent and Time Dependent wave equations – Particle in a box. FREE ELECTRON THEORY: Defects of Classical free electron theory –Quantum Free electron theory - concept of Fermi Energy.	**UNIT-V:** **Band Theory of Solids:** Bloch's theorem (qualitative) – Kronig – Penney model (Qualitative) – energy bandsin crystalline solids – classification of crystalline solids– effective mass of electron & concept of hole. **Semiconductor Physics**: Conduction – Density of carriers in Intrinsic and Extrinsic semiconductors – Drift & Diffusion – relevance of Einstein's equation- Hall effect in semiconductors.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab – I	English Communication Skills Lab – I
Course Code	R161114	171HS1L01
Syllabus	**UNIT-I:** 1. WHY study Spoken English? 2. Making Inqueries on the phone, thanking and responding to Thanks Practice work.	**UNIT-I:** A. Greeting, Introducing and taking leave B. Pure Vowels
	UNIT-II: 1. Responding to Requests and asking for Directions Practice work.	**UNIT-II:** A. Giving Information and Asking for Information B. Diphthongs
	UNIT-III 1. Asking for Clarifications, Inviting, Expressing Sympathy, Congratulating 2. Apologising, Advising, Suggesting, Agreeing and Disagreeing Practice work.	**UNIT-III:** A. Inviting, Accepting and Declining Invitations B. Consonants
	UNIT-IV: 1. Letters and Sounds Practice work.	**UNIT-IV:** A. Commands, Instructions and Requests B. Accent and Rhythm
	UNIT-V: 1. The Sounds of English Practice work.	**UNIT-V:** A. Suggestions and Opinions B. Intonation

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has to generate ATM PIN number. After

		generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement. 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and returning values.	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum of individual digits of a positive integer.

	b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series expansion. (use factorial function)	**Exercise – 7:** Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and returning values.

		7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. • • In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with Obesity:

		Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	11.2) Write a C Program to Store Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day = Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student

		2. Update Existing Student 3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics – III	Mathematics – III
Course Code	R161201	171BS2T06
Syllabus	**UNIT-I:** **Linear systems of equations:** Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods.Applications: Finding the current in electrical circuits.	**UNIT-I:** Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT-II: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	**UNIT-II:** **Inverse Laplace Transforms :** Inverse Laplace transforms – Convolution theorem (with out proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform of f(t) using symbolic toolbox, Solving initial value problems using 'dsolve') **Applications:** Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT-III: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	**UNIT-III:** Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions- Applications: Finding Areas and Volumes.

	UNIT-IV: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions- Evaluation of improper integrals. Applications: Evaluation of integrals.	**UNIT-IV:** **Vector Differentiation:** Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator -Vector identities. **Applications:** Equation of continuity, potential surfaces
	UNIT-V: . Gradient- Divergence- Curl - Laplacian and second order operators - Vector identities. Applications: Equation of continuity, potential surfaces	**UNIT-V:** **Vector Integration:** Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and Gauss Divergence theorem (without proof) and related problems. .
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area- Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161203	171HS2T02
Syllabus	**UNIT-I:** Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	**UNIT-I:** **Ecosystems:** Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT-II: Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water	**UNIT-II:** **Natural Resources:** Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water

	– Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT-III: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social- Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	**UNIT-III:** Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity.
	UNIT-IV: **Environmental Pollution:** Definition, Cause, effects and control measures of Airpollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies.	**UNIT-IV:** **Environmental Pollution:** Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style.

	Impact of Fire Crackers on Men and his well being. **Solid Waste Management:** Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	**Solid Waste Management:** Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT-V: . **Social Issues and the Environment:** Urban problems related to energy - Water conservation, rain water harvesting-Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	**UNIT**-V: **Social Issues and the Environment:** Urban problems related to energy - Water conservation, rain water harvesting-Resettlement and rehabilitation of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management
	UNIT-VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Applied Chemistry	Applied Chemistry
Course Code	R161211	171BS2T05
Syllabus	**UNIT-I:** HIGH POLYMERS AND PLASTICS Polymerisation : Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	**UNIT-I:** **High Polymers and Plastics:** Polymerisation: Introduction- Mechanism of polymerization - Stereo regular polymers -Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers
	UNIT-II: ***Fuels***:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining –	**UNIT-II:** **Fuel Technology:** Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels –

	Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus – Numerical problems on combustion. ***Explosives:-*** Introduction, classification, examples: RDX, TNT and ammonium nitrite – rocket fuels.	Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus.
	UNIT-III: Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells – Zinc – air cells. *Corrosion:-* Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings – Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating)	**UNIT-III:** Electrochemical Cells And Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT-IV: ***Nano materials:-*** Introduction – Sol-gel method & chemical reduction	**UNIT-IV:** **Chemistry of Advanced Materials:**

	method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications ***Liquid crystals:-*** Introduction – Types – Applications ***Superconductors*** :- Type-I & Type-2, properties &applications ***Green synthesis:-*** Principles - 3or 4 methods of synthesis with examples – R4M4 principles	Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors:-Type –I, Type II – Characteristics and applications Semi conductors:- Preparation of semiconductors, working of diods and transistors. Green synthesis:-Principles Liquid crystals:-Introduction – Types – Applications Fuel cells:- Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT-V: Types of solids - close packing of atoms and ions - BCC , FCC, structures of rock salt – cesium chloride- spinel - normal and inverse spinels, Non-elemental ***semiconducting Materials***:- Stoichiometric, controlled valency & Chalcogen photo/semiconductors, Preparation of Semiconductors - Semiconductor Devices:- p-n junction diode as rectifier – junction transistor. ***Insulators*** (electrical and electronic applications) ***Magnetic materials:-*** Ferro and ferri magnetism. Hall effect and its applications. .	**UNIT**-V: . **Non Conventional Energy Sources :** Solar Energy: - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design, working and its importance Non-conventional energy sources:
	UNIT VI: Non Conventional Energy Sources And Storage Devices *Solar Energy:* - Introduction, application of solar energy, conversion of solar energy (Thermal conversion & photo conversion) – photovoltaic cell: design, working and its importance *Non-conventional energy sources:* (i) Hydropower include setup a hydropower plant (schematic diagram)	

	(ii) Geothermal energy: Introduction-schematic diagram of a geothermal power plant (iii) Tidal and wave power: Introduction- Design and working-movement of tides and their effect on sea level. (iv) Ocean thermal energy: Introduction, closed-cycle, ocean thermal energy conversion (OTEC), open cycle OTEC, hybrid OTEC, schematic diagram and explanation. (v) Biomass and biofuels *Fuel cells:-* Introduction - cell representation, H2-O2 fuel cell: Design and working, advantages and limitations. Types of fuel cells: Alkaline fuel cell - methanol-oxygen - phosphoric acid fuel cells - molten carbonate fuel cells.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Software Engineering	Software Engineering
Course Code	RT32051	R1622051
Syllabus	**UNIT-I:** Introduction to Software Engineering: Software, Software Crisis, Software Engineering definition, Evolution of Software Engineering Methodologies, Software Engineering Challenges. Software Processes: Software Process, Process Classification, Phased development life cycle, Software Development Process Models-Process, use, applicability and Advantages/limitations	**UNIT-I:** Software and Software Engineering: The Nature of Software, The Unique Nature of WebApps, Software Engineering, Software Process, Software Engineering Practice, Software Myths. Process Models: A Generic Process Model, Process Assessment and Improvement, Prescriptive Process Models, Specialized Process Models, The Unified Process, Personal and Team Process Models, Process Terminology, Product and Process.
	UNIT-II: **Requirements Engineering:** Software Requirements, Requirements engineering Process, Requirements elicitation, Requirements Analysis, Structured Analysis, Data Oriented Analysis, Object oriented Analysis, Prototyping Analysis, Requirements Specification, Requirements Validation, requirement Management.	**UNIT-II:** Requirements Analysis And Specification: Requirements Gathering and Analysis, Software Requirement Specification (SRS), Formal System Specification. Software Design: Overview of the Design Process, How to Characterise of a Design?, Cohesion and Coupling, Layered Arrangement of Modules, Approaches to Software Design
	UNIT-III: Software Design: Software Design Process, Characteristics of Good Software Design, Design Principles, Modular Design, Design Methodologies, Structured Design, Structured Design Methodology, Transform Vs Transaction Analysis.	**UNIT-III:** **Function-Oriented Software Design:** Overview of SA/SD Methodology, Structured Analysis, Developing the DFD Model of a System, Structured Design, Detailed Design, Design Review, over view of Object Oriented design.

	Object-Oriented Design: Object oriented Analysis and Design Principles	**User Interface Design**: Characteristics of Good User Interface, Basic Concepts, Types of User Interfaces, Fundamentals of Component-based GUI Development, A User Interface Design Methodology.
	UNIT-IV: **Implementation:** Coding Principles, Coding Process, Code verification, Code documentation **Software Testing:** Testing Fundamentals, Test Planning, Black Box Testing, White Box Testing, Levels of Testing, Usability Testing, Regression testing, Debugging approaches	**UNIT-IV:** Coding And Testing: Coding, Code Review, Software Documentation, Testing, Unit Testing, Black-Box Testing, White-Box Testing, Debugging, Program Analysis Tool, Integration Testing, Testing Object-Oriented Programs, System Testing, Some General Issues Associated with Testing
	UNIT-V: **Software Project Management**: Project Management Essentials, What is Project management, Software Configuration Management. **Project Planning and Estimation**: Project Planning activities, Software Metrics and measurements, Project Size Estimation, Effort Estimation Techniques. .	**UNIT-V:** Software Reliability And Quality Management: Software Reliability, Statistical Testing, Software Quality, Software Quality Management System, ISO 9000, SEI Capability Maturity Model. Computer Aided Software Engineering: Case and its Scope, Case Environment, Case Support in Software Life Cycle, Other Characteristics of Case Tools, Towards Second Generation CASE Tool, Architecture of a Case Environment
	UNIT-VI Software Quality: Software Quality Factors, Verification & Validation, Software Quality Assurance, The Capability Maturity Model Software Maintenance: Software maintenance, Maintenance Process Models, Maintenance Cost, Reengineering, Reengineering activities, Software Reuse.	**UNIT-VI** Software Maintenance: Software maintenance, Maintenance Process Models, Maintenance Cost, Software Configuration Management. Software Reuse: what can be reused? Why almost No Reuse So Far? Basic Issues in Reuse Approach, Reuse at Organization Level.

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Department of Petroleum Technology

Syllabus revision Index 2017-2018

S.No	Name of the course	Percentage of syllabus change
1.	English-I	65%
2.	English Communication Skills Lab-I	10%
3.	English-II	55%
4.	English Communication Skills Lab-II	40%
5.	Mathematics-I	40%
6.	Mathematics-II	10%
7.	Mathematics-III	40%
8.	Engineering Chemistry	25%
9.	Engineering Chemistry Lab	20%
10.	Computer Programming Lab	40%
11.	Engineering Physics	25%
12.	Engineering Physics Lab	10%
13.	Environmental Studies	20%
14.	Process Heat Transfer	10%
15.	Probability & Statistics	30%

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2017-2018

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	17IHS1T01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW-J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	. UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists.	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab -I	English Communication Skills Lab -I
Course Code	R161114	171HS1L01
Syllabus	UNIT 1: 1. WHY study Spoken English? 2. Making Inqueries on the phone, thanking and responding to Thanks Practice work.	PRACTICE 1: A. Greeting, Introducing and taking leave B. Pure Vowels
	UNIT 2: 1. Responding to Requests and asking for Directions Practice work.	PRACTICE 2: A. Giving Information and Asking for Information B. Diphthongs
	UNIT 3: 1. Asking for Clarifications, Inviting, Expressing Sympathy, Congratulating 2. Apologising, Advising, Suggesting, Agreeing and Disagreeing Practice work.	PRACTICE 3: A. Inviting, Accepting and Declining Invitations B. Consonants
	UNIT 4: 1. Letters and Sounds Practice work.	PRACTICE 4: A. Commands, Instructions and Requests B. Accent and Rhythm
	UNIT 5: 1. The Sounds of English Practice work.	PRACTICE 5: A. Suggestions and Opinions B. Intonation
	UNIT 6: 1. Pronunciation 2. Stress and Intonation Practice work	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English -I	English-II
Course Code	R161101	171HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. TECHNOLOGY WITH A HUMAN FACE (Detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. CLIMATE CHANGE AND HUMAN STRATEGY (Detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. EMERGING TECHNOLOGIES (Detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. THE SECRET OF WORK (Detailed) 2. THE SCARECROW (Non-Detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. WORK BRINGS SOLACE (Detailed) 2. A VILLAGE LOST TO THE NATION (Non-Detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab-II	English Communication Skills Lab-II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Chemistry	Engineering Chemistry
Course Code	R161105	171BS1T03
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation:- Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers :- Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT- I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques) - Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels – Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas, LPG	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the

	and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Rocket fuels	combustion of a fuel – Flue gas analysis – Orsat apparatus.
	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion :- Definition – Theories of Corrosion (chemical & electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Super conductors:-Type –I, Type II – Characteristics and applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors:-Type – I, Type II – Characteristics and applications Semi conductors: - Preparation of semiconductors, working of diodes and transistors. Green synthesis:-Principles Liquid crystals:-Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT V: WATER TECHNOLOGY Hard water:- Reasons for hardness – units of hardness - determination of hardness and alkalinity - Water for steam generation - Boiler troubles – Priming and	UNIT - V: Water Technology Hard water:- Reasons for hardness – units of hardness - determination of hardness andalkalinity - Water for steam generation - Boiler troubles – Priming and Foaming, Scale

	Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis. .	formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.
	UNIT VI: CHEMISTRY OF ENGINEERING MATERIALS AND FUEL CELLS Refractories: - Definition, characteristics, classification, properties, failure of refractories Lubricants: - Definition, function, Theory and mechanism of lubricants, properties (Definition and importance) Cement: - Constituents, manufacturing, hardening and setting, deterioration of cement Insulators: - Thermal and electrical insulators Fuel cells: - Hydrogen Oxygen fuel cells – Methanol Oxygen fuel cells	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering/Applied Chemistry Lab	Engineering Chemistry Lab
Course Code	R161227/ R161118	171BS1L01
Syllabus	1. Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc....	Exercise 1: Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc.
	2. Trial experiment - Determination of HCl using standard Na2CO3 solution	Exercise 2: Trial experiment - Determination of HCl using standard Na2CO3 solution.
	3. Determination of alkalinity of a sample containing Na2CO3 and NaOH.	Exercise 3: Preparation of Phenol - Formaldehyde resin (Bakelite).
	..4. Determination of KMnO4 using standard Oxalic acid solution	Exercise 4: Determination of KMnO4 using standard Oxalic acid solution.
	5. Determination of Ferrous iron using standard K2Cr2O7 solution	Exercise 5: Determination of ferrous iron using standard K2Cr2O7 solution.
	6. Determination of Copper using standard K2Cr2O7 solution	Exercise 6: Preparation of Bio-Diesel.
	7. Determination of temporary and permanent hardness of water using standard EDTA solution.	Exercise 7: Determination of temporary and permanent hardness of water using standard EDTA solution.
	8. Determination of Copper using standard EDTA solution	Exercise 8: Determination of Copper using standard EDTA solution.
	9. Determination of Iron by a Colorimetric method using thiocynate as reagent.	Exercise 9: Determination of Iron by a Colorimetric method using thiocynate as reagent.
	10. Determination of pH of the given sample solution using pH meter.	Exercise 10: Determination of pH of the given sample solution using pH meter.
	11. Conductometric titration between strong acid and strong base.	Exercise 11: Conduct metric titration between strong acid and strong base.
	12. Conductometric titration between strong acid and weak base.	Exercise 12: Conduct metric titration between strong acid and weak base.
	13. Potentiometric titration between strong acid and strong base.	Exercise 13: Potentiometric titration between strong acid and strong base.
	14. Potentiometric titration between	Exercise 14: Potentiometric titration

	strong acid and weak base.	between strong acid and weak base.
	15. Determination of Zinc using standard EDTA solution.	Exercise 15: Determination of Zinc using standard EDTA solution.
	16. Determination of Vitamin – C.	Exercise 16: Determination of Vitamin – C.

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Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has

		to generate ATM PIN number. After generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement. 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum

	returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	of individual digits of a positive integer. 5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series	**Exercise – 7:** Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and

	expansion. (use factorial function)	returning values. 7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. • • In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with

		Obesity: Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure 11.2) Write a C Program to Store

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day = Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student 2. Update Existing Student

		3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Physics	Engineering Physics
Course Code	R161204	171BS2T07
Syllabus	UNIT-I INTERFERENCE: Principle of Superposition – Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	UNIT-I: Interference: Principle of Superposition – Coherence – Interference in thin films (reflection geometry)— Newton's rings – construction and basic principle of Interferometer.
	UNIT-II DIFFRACTION: Fraunhofer diffraction at single slit cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes	UNIT-II: Diffraction: Fraunhofer diffraction at single slit - Cases of double slit, N-slits, & circular aperture, Grating equation – Rayleigh criterion of resolving power- Resolving power of a grating, Telescope and Microscopes.
	UNIT-III POLARIZATION: Types of Polarization-production - Nicol Prism - Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter) LASERS: Characteristics– Stimulated emission – Einstein's Transition ProbabilitiesPumping schemes - Ruby laser – Helium Neon laser.	UNIT-III: Polarization: Types of Polarization-production - Nicol Prism -Quarter wave plateand Half Wave plateworking principle of polarimeter (Sacharimeter) Lasers: Characteristics– Stimulated emission – Einstein's Transition Probabilities- Pumping schemes- Ruby laser – Helium Neon laser-CO2 Laser-Applications
	UNIT-IV ACOUSTICS: Reverberation time - Sabine's formula – Acoustics of concert-hall. ULTRASONICS: Production - Ultrasonic transducers- Non-Destructive Testing – Applications	UNIT-IV: Acoustics: Reverberation time - Sabine's formula – Acoustics of concert-hall. Ultrasonics: Production - Ultrasonic transducers- Non-Destructive Testing-Applications. Crystallography & x-ray diffraction: Basis and lattice – Crystal Systems – Bravais Lattice - Symmetry elements- Unit cellpacking fraction – coordination number- Miller indices – Separation between successive (h k l) planes – Bragg's law-Bragg's x-ray spectrometer.

	UNIT-V CRYSTALLOGRAPHY & X-RAY DIFFRACTION: Basis and lattice – Bravais systems Symmetry elements- Unit cell-packing fraction – coordination number-Miller indices – Separation between successive (h k l) planes – Bragg's law NUCLEAR ENERGY – SOURCE OF POWER: Mass defect & Binding Energy – Fusion and Fission as sources – Fast breeder Reactors.	UNIT-V: Magnetism: Classification based on Field, Temperature and order/disorder – atomic origin – Ferromagnetism-Hysteresis- applications of magnetic materials (Para &Ferro). Dielectrics: Electric Polarization – Dielectric in DC fields – Internal field –Clausius Mossoti Equation – Dielectric loss- Ferroelectric Hysteresis and applications.
	UNIT-VI MAGNETISM: Classification based on Field, Temperature and order/disorder –atomic origin – Ferromagnetism- Hysteresis- applications of magnetic materials (Para &Ferro).. DIELECTRICS: Electric Polarization – Dielectrics in DC and AC fields – Internal field – Clausius Mossoti Equation - Loss, Breakdown and strength of dielectric materials – Ferroelectric Hysteresis and applications.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BS1T01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-II	Mathematics-II (except for ECE)
Course Code	R161202	171BS2T02
Syllabus	UNIT I: Solution of Algebraic and Transcendental Equations: Introduction-Bisection method – Method of false position – Iteration method – Newton Raphson method (One variable and simultaneous Equations).	UNIT I: Solution of Algebraic and Transcendental Equations and Interpolation: Introduction- Bisection method – Method of false position – Iteration method – Newton - Raphson method. Errors in polynomial interpolation – Finite differences- Forward differences-Backward differences –Central differences – Relation between operators - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.
	UNIT II: Interpolation: Introduction-Errors in polynomial interpolation – Finite differences- Forward differences, Backward differences –Central differences – Symbolic relations and separation of symbols - Differences of a polynomial-Newton's formulae for interpolation – Interpolation with unequal intervals - Lagrange's interpolation formula.	UNIT II: Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method, Modified Euler's method – Runge - Kutta method (fourth order).
	UNIT III: Numerical Integration and solution of Ordinary Differential equations: Trapezoidal rule- Simpson's 1/3rd and 3/8th rule-Solution of ordinary differential equations by Taylor's series-Picard's method of successive approximations-Euler's method - RungeKutta method (second and fourth order).	UNIT III: Fourier Series: Fourier series of periodic function - Dirichlet's conditions for Fourier expansion - Functions having points of discontinuities–Change of interval – Even and odd functions – Half-range series.
	UNIT IV: Fourier Series: Introduction-Periodic functions – Fourier series of -	UNIT IV: Fourier Transforms: Fourier integral theorem (without proof) – Fourier

	periodic function - Dirichlet's conditions – Even and odd functions –Change of interval– Half-range sine and cosine series.	sine and cosine integrals - sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms.
	UNIT V: Applications of PDE: Method of separation of Variables- Solution of One dimensional Wave, Heat and two dimensional Laplace equation.	UNIT V: Applications of Partial Differential Equations: Classification of Higher order P.D.E - Method of separation of Variables- Solution of One dimensional Wave equation, Heat equation and two-dimensional Laplace equation.
	UNIT VI: Fourier Transforms: Fourier integral theorem (without proof) – Fourier sine and cosine integrals - sine and cosine transforms – properties – inverse transforms – Finite Fourier transforms.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision,
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

	Applications: Equation of continuity, potential surfaces	Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area-Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social lBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

	rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Probability & Statistics	Probability & Statistics
Course Code	R1621011/R1622271	171BS3T10/171BS4T10
Syllabus	UNIT I: Discrete Random variables and Distributions: Introduction-Random variables- Discrete Random variable-Distribution function Expectation-Moment Generating function-Moments and properties. Discrete distributions: Binomial, Poisson and Geometric distributions and their fitting to data.	UNIT I: Random variables and Distributions Review of elementary probability, Random variables- Discrete and Continuous Random variable-Distribution function-Expectation, variance, Moment Generating function – Discrete Distributions- Binomial, Poisson Continuous Distributions -Normal Distribution.
	UNIT II: Continuous Random variable and distributions: Introduction-Continuous Random variable-Distribution function-Expectation-Moment Generating function-Moments and properties. Continuous distribution: Uniform, Exponential and Normal distributions, Normal approximation to Binomial distribution -Weibull, Gamma distribution.	UNIT II: Sampling Theory Introduction - Population and samples- Sampling distribution of means (known and unknown), proportion, sampling distribution of sums and difference-Central limit theorem. Point and interval estimation for means and proportions.
	UNIT III: Sampling Theory: Introduction - Population and samples- Sampling distribution of means (σ known)-Central limit theorem- t-distribution- Sampling distribution of means (σ unknown)-Sampling distribution of variances – χ^2 and F-distributions- Point estimation-Maximum error of estimate - Interval estimation.	UNIT III: Tests of Hypothesis Introduction – Statistical hypothesis-Errors of sampling, level of significance - One tail and two-tail tests- Testing of hypothesis concerning single mean, proportion, two means and two proportions using Z-test. Testing of hypothesis concerning single mean, two means using t test. Independence of attributes by χ 2 –test-ANOVA for one-way and two-way classified data.
	UNIT IV: Tests of Hypothesis: Introduction –Hypothesis-Null and Alternative Hypothesis- Type I and Type II errors –Level of significance - One tail and two-tail tests- Tests concerning one mean	UNIT IV: Correlation and Regression Introduction – Simple correlation-properties-Pearson and rank correlation Regression – straight line and quadratic curve by method of least squares.

	and proportion, two means- Proportions and their differences- ANOVA for one-way and two-way classified data.	
	UNIT V: Curve fitting and Correlation: Introduction - Fitting a straight line – Second degree curve-exponential curve-power curve by method of least squares-Goodness of fit. Correlation and Regression – Properties.	UNIT V: Statistical Quality Control Methods Introduction - Methods for preparing control charts – Problems using x-bar, p, R charts and attribute charts
	UNIT VI: Statistical Quality Control Methods: Introduction - Methods for preparing control charts – Problems using x-bar, p, R charts and attribute charts.	

Signature of the course coordinator

Signature of the HOD

Head of the Department
Department of H & BS
Aditya Engineering College (A9

Program Name : B.Tech. in Petroleum Technology

Syllabus Revision for the Academic Year 2017-2018				
S.No	Semester	Course Code	Course Name	% of content revised for the existing year
1	I	171HS1T01	English - I	65
2	I	171BS1T01	Mathematics - I	40
3	I	171HS1T02	Environmental Studies	20
4	I	171BS1T03	Engineering Chemistry	25
5	I	171ES1T02	Engineering Mechanics	0
6	I	171ES1T01	Computer Programming	0
7	I	171HS1L01	English Communication Skills Lab - I	10
8	I	171BS1L01	Engineering Chemistry Lab	20
9	I	171ES1L01	Computer Programming Lab	40
10	II	171HS2T03	English - II	55
11	II	171BS2T06	Mathematics - III	40
12	II	171BS2T02	Mathematics - II	10
13	II	171BS2T07	Engineering Physics	25
14	II	171ES2T03	Engineering Drawing	0
15	II	171ES2T07	Elements Of Mechanical Engineering	0
16	II	171HS2L02	English Communication Skills Lab - II	40
17	II	171BS2L02	Engineering Physics Lab	10
18	II	171ES2L02	Engineering Workshop And IT Workshop	0
19	III	R1621081	Complex Variables	0
20	III	R1621012	Basic Electrical And Electronics Engineering	0
21	III	R1621272	General Geology	0
22	III	R1621273	Surveying And Offshore Structures	0
23	III	R1621084	Chemical Process Calculations	0
24	III	R1621271	Materials Science And Engineering	0
25	III	R1621085	Basic Engineering (Mech. + Elec.) Lab	0
26	III	R1621274	Geology And Surveying Lab	0
27	III	R1621075	Managerial Economics And Financial Analysis	0
28	IV	R1622271	Probability And Statistics	30
29	IV	R1622272	Momentum Transfer	0
30	IV	R1622273	Petroleum Geology	0
31	IV	R1622274	Thermodynamics For Petroleum Engineers	0
32	IV	R1622275	Process Heat Transfer	10
33	IV	R1622276	Petroleum Exploration	0
34	IV	R1622277	Momentum Transfer Lab	0
35	IV	R1622278	Process Heat Transfer Lab	0
36	IV	R1621019	Professional Ethics And Human Values	0
37	V	RT31086	Process Instrumentation	0
38	V	RT31271	Petroleum Exploration	0
39	V	RT31272	Well Logging And Formation Evaluation	0
40	V	RT31273	Drilling Technology	0
41	V	RT31274	Well Engineering	0

S.No	Semester	Course Code	Course Name	% of content revised for the existing year
42	V	RT31275	Process Dynamics And Control	0
43	V	RT31277	Instrumentation And Process Control Lab	0
44	V	RT31278	Drilling Fluids Lab	0
45	VI	RT32271	Well Completions	0
46	VI	RT32272	Petroleum Reservior Engineering-I	0
47	VI	RT32273	Petroleum Production Engineering And Design	0
48	VI	RT32274	Petroleum Refinery And Petrochemical Engineering	0
49	VI	RT32275	Surface Production Operations	0
50	VI	RT32277	Petroleum Analysis Lab	0
51	VI	RT32278	Drilling Simulation Lab	0
52	VI	RT32056	IPR Patents	0
53	VII	RT41271	Integrated Asset Management	0
54	VII	RT41272	Enhanced Oil Recovery Techniques	0
55	VII	RT41273	HSE And FE In Petroleum Industry	0
56	VII	RT41274	Petroleum Reservoir Engineering - II	0
57	VII	RT41016F	Green Fuel Technologies	0
58	VII	RT41016A	Energy Management	0
59	VII	RT41016B	Fundamentals Of Petroleum Industry	0
60	VII	RT41016C	Offshore Enginnering	0
61	VII	RT41016D	Pipeline Enginnering	0
62	VII	RT41279	Coal Bed Methane Engineering	0
63	VII	RT4127L	Petroleum Equipment Design And Simulation Lab	0
64	VII	RT4127M	Petroleum Reservoir Engineering Lab	0
65	VII	RT4127N	Presentation Of Sip Report	0
66	VIII	RT42275	Project	0
67	VIII	RT42271	Petroleum Economics And Regulations And Policies	0
68	VIII	RT42272A	Reservoir Modeling And Simulation	0
69	VIII	RT42272B	Horizontal Well Technology	0
70	VIII	RT42272C	Lng-Processes And Transportation And Storage	0
71	VIII	RT42273A	Reservoir Stimulation	0
72	VIII	RT42273B	Subsea Engineering	0
73	VIII	RT42273C	Fundamentals Of Multiphase Flow	0
74	VIII	RT42274A	Natural Gas Hydrates	0
75	VIII	RT42274B	Advanced Natural Gas Engineering	0
76	VIII	RT42274C	Petroleum Biotechnology	0

Total number of courses in the academic year 2017-2018	= 76
Number of courses having revision in syllabus content >/= 20% in the academic year 2017-2018	= 11
Percentage of syllabus revision carried out in the academic year 2017-2018 = (11/76)*100	= 14.47%

Program Coordinator

Head of the Department

Head of the Department
Department of Petroleum Technology
Aditya Engineering College (A)
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Department of Petroleum Technology

Date: 01-06-2017

Minutes of the I meeting of BOS scheduled on 29-05-2017

The I meeting of the BOS of PT was held virtually on 29-05-2017at 9.30 AM through Microsoft Teams. Prof R. Giri Prasad, Chairperson presided over the meeting.

Agenda 1.1: Welcome address by Chair Person.

Dr. R. Giri Prasad, BOS Chairperson invited the distinguished members of BOS to the I BOS Meeting.

Agenda 1.2: Discussion and ratification of the Vision and Mission of the department and Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs) of the Programs under the Department.

The BOS members have ratified the Vision and Mission of the department and Program Educational Objectives (PEOs), Program Outcomes (POs) and Program Specific Outcomes (PSOs) of the Programs under the Department.

Agenda 1.3: Discussion on proposed AR17 Program Structures of B. Tech (PT), M. Tech (PE) ratification of the same

The BOS members have ratified the AR17 Program Structures of B. Tech (PT), M. Tech (PE). The percentage of courses revised in this academic year 2017-2018 for B. Tech (PT) is 14.47% and M. Tech (PE) is 8.69 %.The list of courses revised is enclosed as annexure-I

Agenda 1.4: Discussion on proposed AR17 B. Tech (PT), M. Tech (PE) programs I, II & III semesters syllabus, and ratification of the same.

The BOS members have ratified the AR17 B. Tech, M. Tech, programs I, II & III semesters syllabus.

Agenda 1.5: Ratification of the proposed model question papers for sessional and external examinations of AR17 B. Tech (PT), M. Tech (PE) programs.

The BOS members have ratified the proposed model question papers for sessional and external examinations of AR17B.Tech (PT), M. Tech (PE) programs.

Agenda 1.6: Finalization of Experts from reputed institutions for setting question paper and valuation of answer scripts.

The BOS members have expressed regarding finalization of experts from reputed institutions for setting question paper and valuation of answer scripts.

Agenda 1.7: Analysis of Results

The BOS members have discussed regarding analysis of results of every semester.

Agenda 1.8: Analysis of Students Feedback & Action Taken Report.

The BOS members have discussed regarding analysis of Students Feedback & Action Taken Report.

Agenda 1.9: Analysis of Stakeholder's Feedback on Curriculum

The BOS chairperson presented the feedback on curriculum from stake holders. The BOS members noted the same and approved the feedback on curriculum. The Action Taken Report on Stakeholders Feedback is enclosed as Annexure-II.

Agenda 1.10: Any other item/s.

The BOS members have discussed and suggested to reduce Employability skills credits from 4 to 2 and to increase credits for main project.
The BOS members have discussed and suggested the courses which increases the opportunities of the students to get place in the core companies.

Agenda 1.11: Scheduling of the next BOS meeting.

The next BOS meeting is tentatively scheduled in the month of November 2017.

Agenda 1.12: Vote of Thanks

Dr. R. Giri Prasad, BOS Chairperson presented the Vote of thanks.

BOS Chairperson

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Department of Petroleum Technology

Annexure-I

List of Courses Revised in the Academic Year 2017-2018

S. No	Program	Semester	Course Code	Course Name
1.	B. Tech (PT)	I	171HS1T01	English - I
2.	B. Tech (PT)	I	171BS1T01	Mathematics - I
3.	B. Tech (PT)	I	171HS1T02	Environmental Studies
4.	B. Tech (PT)	I	171BS1T03	Engineering Chemistry
5.	B. Tech (PT)	II	171HS1L01	English Communication Skills Lab - I
6.	B. Tech (PT)	II	171BS1L01	Engineering Chemistry Lab
7.	B. Tech (PT)	II	171ES1L01	Computer Programming Lab
8.	B. Tech (PT)	II	171HS2T03	English - II
9.	B. Tech (PT)	II	171BS2T06	Mathematics - III
10.	B. Tech (PT)	II	171BS2T02	Mathematics - II
11.	B. Tech (PT)	II	171BS2T07	Engineering Physics
12.	B. Tech (PT)	II	171HS2L02	English Communication Skills Lab - II
13.	B. Tech (PT)	II	171BS2L02	Engineering Physics Lab
14.	B. Tech (PT)	IV	R1622271	Probability and Statistics
15.	B. Tech (PT)	IV	R1622275	Process Heat Transfer
16.	M. Tech (PE)	II	172PE2E02	Optimization of Oil and Gas Production
17.	M. Tech (PE)	II	172PE2E05	Deep Water Technologies

BOS Chairperson

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Annexure II

Action Taken Report on Stakeholders Feedback in the Academic Year 2017 2018

S. No	Agenda Item No.	Stakeholders Recommended	Action Taken
1.	1.10	Employer suggested employability skill courses	As per discussions employability skills will be introduced
2.	1.1.3	Suggested to introduce Student practical based learning	Students are encouraged to do internships and also been determined to schedule several industrial visits for students.
3.	1.9	It is better to have electives in relation with the technological advancements	According to suggestions technical courses will be introduced in the curriculum.
4.	1.3	Suggested to offer more elective courses	As per discussions elective courses are offered in course structure
5.	1.8	Faculty- student interaction may be enhanced.	There is currently a faculty interaction hour when students can have their questions answered. Mentoring ideas also strengthen the faculty interaction period.
6.	1.10	Provide campus trainings on aptitude and reasoning	As per suggestions and discussions made, placement training sessions will be conducted in association with APITA and APSSDC.
7.	1.10	Requested to have many training in technical areas.	It was decided to place more emphasis on developing technical expertise and communication abilities.
8.	1.9	Revision of curriculum & syllabi of B. Tech. programmes	The revised syllabi of Professional Elective courses offered to B.Tech. Petroleum Technology are given
9.	1.6	Change in question paper pattern of semester end examinations	To overcome the deficiency, new question paper patterns were formulated for continuous assessments and semester end examinations.
10.	1.8	Suggested to conduct orientation on faculty and students on outcome based education	It was decided to organise outcome-based education on its significance for professors and students.

11.	1.3	Suggested to revise drilling technology area for employability	As per suggestions and discussions made subject revision will be implemented
12.	1.10	Student participation is required for the project to be completed successfully.	Projects are encouraged for students, and various industry visits will be planned .
13.	1.6	Change in question paper pattern of semester end examinations	As per suggestions and discussions with experts to overcome the deficiency, new question paper patterns were formulated for continuous assessments and semester end examinations.
14.	1.3	Suggested to offer more elective courses	As per suggestions and discussions with experts, elective courses will be introduced .
15.	1.10	Many technical training sessions were requested	As per suggestions and discussions with experts It was decided to prioritise the development of technical expertise and communication skills.

BOS Chairperson

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Dt-08-06-2017

Department of Mining Engineering

Syllabus revision Index

2017-2018

S.No	Name of the course	Percentage of syllabus change
1	English-I	65
2	Mathematics-I	30
3	Engineering Chemistry	33
4	Environmental Studies	20
5	English -II	55
6	Mathematics-III	40
7	Engineering Physics	25
8	English - Communication Skills Lab – II	40

Signature of the course coordinator

Signature of the HOD

Head of the Department

DEPARTMENT OF MINING ENGINEERING

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Department of Mining Engineering

2017-2018

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	171HS1T01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW- J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BS1T01
Syllabus	**UNIT I:** Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits-Chemical reactions.	**Unit 1** Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equations- Equations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	**UNIT II:** Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)-Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function-Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	**UNIT III:** **Linear systems of equations:** Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits
	UNIT IV: Partial differentiation: Introduction-Homogeneous function-Euler's theorem-Total derivative-Chain rule Generalized Mean value theorem for single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence-Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	**UNIT IV:** **Eigen values - Eigen vectors and Quadratic forms:** Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton theorem (without proof) - Inverse and powers of a matrix by using Cayley -Hamilton theorem-Diagonalization- Quadratic forms-Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be

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		implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	**UNIT V:** **Partial differentiation and Partial differential equations** Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions – solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by), sin (ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

Signature of the course coordinator

Signature of the HOD

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Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Chemistry	Engineering Chemistry
Course Code	R161105	171BS1T03
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation:- Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers :- Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT- I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques) - Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels – Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas, LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Rocket fuels	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus.

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Syllabus	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion :- Definition – Theories of Corrosion (chemical & electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Super conductors:-Type –I, Type II – Characteristics and applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors:-Type –I, Type II – Characteristics and applications Semi conductors: - Preparation of semiconductors, working of diodes and transistors. Green synthesis:-Principles Liquid crystals:- Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.

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Syllabus	UNIT V: WATER TECHNOLOGY Hard water:- Reasons for hardness – units of hardness - determination of hardness and alkalinity - Water for steam generation - Boiler troubles – Priming and Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.	UNIT - V: Water Technology Hard water:-Reasons for hardness – units of hardness - determination of hardness andalkalinity - Water for steam generation - Boiler troubles – Priming and Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.
	UNIT VI: CHEMISTRY OF ENGINEERING MATERIALS AND FUEL CELLS Refractories: - Definition, characteristics, classification, properties, failure of refractories Lubricants: - Definition, function, Theory and mechanism of lubricants, properties (Definition and importance) Cement: - Constituents, manufacturing, hardening and setting, deterioration of cement Insulators: - Thermal and electrical insulators Fuel cells: - Hydrogen Oxygen fuel cells – Methanol Oxygen fuel cells	

Signature of the course coordinator

Signature of the HOD

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Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure-Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides,	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land

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	soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
Syllabus	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social lBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy - Water conservation, rain water harvesting-Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife

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	environmental legislation. -Public awareness.	Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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Regulation	Pre-Revision	Post-Revision
Course Title	ENGLISH –I	English-II
Course Code	R161101	171HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. Technology with a human face (detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. Climate change and human strategy (detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. Emerging technologies (detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. The secret of work (detailed) 2. the scarecrow (non-detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. Work brings solace (detailed) 2. a village lost to the nation (non-detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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Regulation	Pre-Revision	Post-Revision
Course Title	MATHEMATICS-III	MATHEMATICS-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods.Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem-Diagonalization- Quadratic forms-Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functionsEvaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence-Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient-Divergence- Curl - Laplacian and second order operators -Vector identities. Applications: Equation of continuity, potential surfaces	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area- Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Physics	Engineering Physics
Course Code	R161204	171BS2T07
Syllabus	UNIT-I INTERFERENCE: Principle of Superposition – Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	UNIT-I: Interference: Principle of Superposition – Coherence – Interference in thinfilms (reflection geometry)— Newton's rings – construction and basic principle of Interferometer.
	UNIT-II DIFFRACTION: Fraunhofer diffraction at single slit cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes	UNIT-II: Diffraction: Fraunhofer diffraction at single slit - Cases of double slit, N-slits, & circular aperture, Grating equation – Rayleigh criterion of resolving power-Resolving power of a grating, Telescope and Microscopes.
	UNIT-III POLARIZATION: Types of Polarization-production - Nicol Prism - Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter) LASERS: Characteristics– Stimulated emission – Einstein's Transition ProbabilitiesPumping schemes - Ruby laser – Helium Neon laser.	UNIT-III: Polarization: Types of Polarization-production - Nicol Prism -Quarter wave plateand Half Wave plateworking principle of polarimeter (Sacharimeter) Lasers: Characteristics– Stimulated emission – Einstein's Transition Probabilities-Pumping schemes- Ruby laser – Helium Neon laser-CO2 Laser-Applications
	UNIT-IV ACOUSTICS: Reverberation time - Sabine's formula – Acoustics of concert-hall. ULTRASONICS: Production - Ultrasonic transducers- Non-Destructive Testing – Applications	UNIT-IV: Acoustics: Reverberation time - Sabine's formula – Acoustics of concert-hall. Ultrasonics: Production - Ultrasonic transducers- Non-Destructive Testing-Applications. Crystallography & x-ray diffraction: Basis and lattice – Crystal Systems – Bravais Lattice - Symmetry elements- Unit cellpacking fraction – coordination number- Miller indices – Separation between successive (h k l) planes – Bragg's law-Bragg's x-ray spectrometer.
	UNIT-V CRYSTALLOGRAPHY & X-RAY DIFFRACTION: Basis and lattice – Bravais systemsSymmetry elements-Unit cell- packing fraction – coordination number- Miller indices – Separation between successive (h k l) planes – Bragg's law NUCLEAR ENERGY – SOURCE OF POWER: Mass defect & Binding Energy – Fusion and Fission as sources – Fast breeder Reactors.	UNIT-V: Magnetism: Classification based on Field, Temperature and order/disorder – atomicorigin – Ferromagnetism- Hysteresis-applications of magnetic materials (Para &Ferro). Dielectrics: Electric Polarization – Dielectric in DC fields – Internal field – Clausius Mossoti Equation – Dielectric loss-Ferroelectric Hysteresis and applications.
	UNIT-VI MAGNETISM: Classification based on Field, Temperature and order/disorder – atomic origin – Ferromagnetism-	

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	Hysteresis- applications of magnetic materials (Para &Ferro).. DIELECTRICS: Electric Polarization – Dielectrics in DC and AC fields – Internal field – Clausius Mossoti Equation - Loss, Breakdown and strength of dielectric materials – Ferroelectric Hysteresis and applications.	

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Regulation	Pre-Revision	Post-Revision
Course Title	English – Communication Skills Lab – II	English - Communication Skills Lab – II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

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Syllabus revision Index (2017-18)

S.No	Name of the course	Course code	Percentage of syllabus change
1	English-I	171HS1T01	65%
2	Mathematics-I	171BS1T01	40%
3	Environmental Studies	171HS1T02	25%
4	Engineering Chemistry	171BS1T03	25%
5	Mathematics-II(except for ECE)	171BS1T02/171BS2T02	10%
6	Mathematics-II(ECE)	171BS1T02	60%
7	English Communication Skills Lab-I	171HS1L01	10%
8	English-II	171HS2T03	55%
9	Applied Physics	171BS1T04/171BS2T04	18%
10	Applied Chemistry	171BS1T05/ 171BS2T05	25%
11	Mathematics-III	171BS2T06	40%
12	Engineering Physics	171BS2T07	10%
13	English Communication Skills Lab-II	171HS2L02	40%
14	Engineering Chemistry Lab	171BS1L01/171BS2L01	20%
15	Applied Chemistry Lab	171BS1L03/171BS2L03	20%
16	Engineering Physics Lab	171BS1L02/171BS2L02	10%
17	Applied Physics Lab	171BS1L04/171BS2L04	10%

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	171HS1T01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW-J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	. UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists.	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BSIT01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)-Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Chemistry	Engineering Chemistry
Course Code	R161105	171BS1T03
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation:- Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers :- Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT- I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques) - Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels – Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas, LPG	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the

	and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Rocket fuels	combustion of a fuel – Flue gas analysis – Orsat apparatus.
	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion :- Definition – Theories of Corrosion (chemical & electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Super conductors:-Type –I, Type II – Characteristics and applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors:-Type – I, Type II – Characteristics and applications Semi conductors: - Preparation of semiconductors, working of diodes and transistors. Green synthesis:-Principles Liquid crystals:-Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT V: WATER TECHNOLOGY Hard water:- Reasons for hardness – units of hardness - determination of hardness and alkalinity - Water for steam generation - Boiler troubles – Priming and	UNIT - V: Water Technology Hard water:- Reasons for hardness – units of hardness - determination of hardness andalkalinity - Water for steam generation - Boiler troubles – Priming and Foaming, Scale

	Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.	formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.
	UNIT VI: CHEMISTRY OF ENGINEERING MATERIALS AND FUEL CELLS Refractories: - Definition, characteristics, classification, properties, failure of refractories Lubricants: - Definition, function, Theory and mechanism of lubricants, properties (Definition and importance) Cement: - Constituents, manufacturing, hardening and setting, deterioration of cement Insulators: - Thermal and electrical insulators Fuel cells: - Hydrogen Oxygen fuel cells – Methanol Oxygen fuel cells	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
	UNIT – II Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental	UNIT – II: Natural Resources: Natural resources and associated problems Forest resources – Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people Water resources – Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources

	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
	UNIT – III Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity- classification - Value of biodiversity: consumptive use, productive use, social IBiodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.	UNIT – III: Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity classification Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-spots of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts - Endangered and endemic species of India – Conservation of biodiversity
	UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.	UNIT – IV: Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Style. Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.
	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

	rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English -I	English-II
Course Code	R161101	171HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. TECHNOLOGY WITH A HUMAN FACE (Detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. CLIMATE CHANGE AND HUMAN STRATEGY (Detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. EMERGING TECHNOLOGIES (Detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. THE SECRET OF WORK (Detailed) 2. THE SCARECROW (Non-Detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. WORK BRINGS SOLACE (Detailed) 2. A VILLAGE LOST TO THE NATION (Non-Detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

	Applications: Equation of continuity, potential surfaces	Gauss Divergence theorem (without proof) and related problems.
	UNIT VI: Vector Integration: Line integral – Work done – Potential function – Area-Surface and volume integrals Vector integral theorems: Greens, Stokes and Gauss Divergence theorems (without proof) and related problems. Applications: Work done, Force.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Physics	Engineering Physics
Course Code	R161204	171BS2T07
Syllabus	UNIT-I INTERFERENCE: Principle of Superposition – Coherent Sources – Interference in thin films (reflection geometry) – Newton's rings – construction and basic principle of Interferometers.	UNIT-I: Interference: Principle of Superposition – Coherence – Interference in thin films (reflection geometry)— Newton's rings – construction and basic principle of Interferometer.
	UNIT-II DIFFRACTION: Fraunhofer diffraction at single slit cases of double slit, N-slits & Circular Aperture (Qualitative treatment only)-Grating equation - Resolving power of a grating, Telescope and Microscopes	UNIT-II: Diffraction: Fraunhofer diffraction at single slit - Cases of double slit, N-slits, & circular aperture, Grating equation – Rayleigh criterion of resolving power- Resolving power of a grating, Telescope and Microscopes.
	UNIT-III POLARIZATION: Types of Polarization-production - Nicol Prism - Quarter wave plate and Half Wave plate – Working principle of Polarimeter (Sacharimeter) LASERS: Characteristics– Stimulated emission – Einstein's Transition ProbabilitiesPumping schemes - Ruby laser – Helium Neon laser.	UNIT-III: Polarization: Types of Polarization-production - Nicol Prism -Quarter wave plateand Half Wave plateworking principle of polarimeter (Sacharimeter) Lasers: Characteristics– Stimulated emission – Einstein's Transition Probabilities- Pumping schemes- Ruby laser – Helium Neon laser- CO2 Laser-Applications
	UNIT-IV ACOUSTICS: Reverberation time - Sabine's formula – Acoustics of concert-hall. ULTRASONICS: Production - Ultrasonic transducers- Non-Destructive Testing – Applications	UNIT-IV: Acoustics: Reverberation time - Sabine's formula – Acoustics of concert-hall. Ultrasonics: Production - Ultrasonic transducers- Non-Destructive Testing- Applications. Crystallography & x-ray diffraction: Basis and lattice – Crystal Systems – Bravais Lattice - Symmetry elements- Unit cellpacking fraction – coordination number- Miller indices – Separation between successive (h k l) planes – Bragg's law-Bragg's x-ray spectrometer.

	UNIT-V CRYSTALLOGRAPHY & X-RAY DIFFRACTION: Basis and lattice – Bravais systems Symmetry elements- Unit cell-packing fraction – coordination number-Miller indices – Separation between successive (h k l) planes – Bragg's law NUCLEAR ENERGY – SOURCE OF POWER: Mass defect & Binding Energy – Fusion and Fission as sources – Fast breeder Reactors.	UNIT-V: Magnetism: Classification based on Field, Temperature and order/disorder – atomic origin – Ferromagnetism-Hysteresis- applications of magnetic materials (Para &Ferro). Dielectrics: Electric Polarization – Dielectric in DC fields – Internal field –Clausius Mossoti Equation – Dielectric loss- Ferroelectric Hysteresis and applications.
	UNIT-VI MAGNETISM: Classification based on Field, Temperature and order/disorder –atomic origin – Ferromagnetism- Hysteresis- applications of magnetic materials (Para &Ferro).. DIELECTRICS: Electric Polarization – Dielectrics in DC and AC fields – Internal field – Clausius Mossoti Equation - Loss, Breakdown and strength of dielectric materials – Ferroelectric Hysteresis and applications.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab-II	English Communication Skills Lab-II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

M. Kumar

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Department of Agricultural Engineering

Syllabus revision Index 2017-18

S.No	Name of the course	Percentage of syllabus change
1	English- I	65
2	Mathematics – I	40
3	Environmental Studies	20
4	Engineering Chemistry	25
5	Engineering Chemistry Lab	20
6	Computer Programming Lab	40
7	English_II	55
8	Mathematics - III	40
9	English Communication Skills Lab – II	40
10	Theory of Machines	20

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English-II	English-I
Course Code	R161201	171HS1T01
Syllabus	UNIT 1: 1. ' The Greatest Resource-Education' from English Encounters 2. ' A P J Abdul Kalam' from The Great Indian Scientists.	UNIT-I: 1. IN LONDON: M.K.GANDHI (Detailed) 2. G.D. NAIDU (Non-Detailed)
	UNIT 2: 1. ' A Dilemma' from English Encounters 2. 'C V Raman' from The Great Indian Scientists.	UNIT-II: 1. THE KNOWLEDGE SOCIETY- APJ ABDUL KALAM (Detailed) 2. G.R. GOPINATH (Non-Detailed)
	UNIT 3: 1. 'Cultural Shock': Adjustments to new Cultural Environments from English Encounters. 2. 'Homi Jehangir Bhabha' from The Great Indian Scientists.	UNIT-III: 1. THE SCIENTIFIC POINT OF VIEW-J.B.S. HALDANE (Detailed) 2. J.C. BOSE (Non-Detailed)
	. UNIT 4: 1. 'The Lottery' from English Encounters. 2. 'Jagadish Chandra Bose' from The Great Indian Scientists.	UNIT-IV: 1. MAN'S PERIL-BERTRAND RUSSELL (Detailed) 2. HOMI JEHANGIR BHABHA (Non-Detailed)
	UNIT 5: 1. ' The Health Threats of Climate Change' from English Encounters 2. ' Prafulla Chandra Ray' from The Great Indian Scientists.	UNIT-V: 1. LUCK—MARK TWAIN (Detailed) 2. A SHADOW (Non-Detailed)
	UNIT 6: 1. ' The Chief Software Architect' from English Encounters 2. ' Srinivasa Ramanujan' from The Great Indian Scientists.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-I	Mathematics-I
Course Code	R161102	171BS1T01
Syllabus	UNIT I: Differential equations of first order and first degree: Linear-Bernoulli-Exact-Reducible to exact. Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories- Electrical circuits- Chemical reactions.	UNIT I: Differential equations of first order and first degree: Linear differential equations - Bernoulli differential equation - Exact differential equationsEquations reducible to exact (Type-1, Type-2, Type-3, Type-4) Applications: Newton's Law of cooling-Law of natural growth and decay-Orthogonal trajectories.
	UNIT II: Linear differential equations of higher order: Non-homogeneous equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)- Method of Variation of parameters. Applications: LCR circuit, Simple Harmonic motion.	UNIT II: Linear differential equations of higher order: Linear differential equations of higher order with constant coefficients with RHS term of the type eax, sin ax, cos ax, polynomials in x, eax V(x), xV(x)-Method of Variation of parameters, Method of undetermined coefficients. *(MATLAB Exercise: Introduction to MAT LAB commands and Solution of Initial Value Problems using the command 'dsolve') Applications: Electric circuits, simple harmonic motion.
	UNIT III: Laplace transforms: Laplace transforms of standard functions-Shifting theorems - Transforms of derivatives and integrals – Unit step function –Dirac's delta function- Inverse Laplace transforms– Convolution theorem (with out proof). Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.	UNIT III: Linear systems of equations: Rank of a matrix - Echelon form-Normal form – Solution of linear systems – Gauss elimination method - Gauss Seidal method. Applications: Finding the current in electrical circuits.
	UNIT IV: Partial differentiation: Introduction- Homogeneous function-Euler's theorem-Total derivative-Chain ruleGeneralized Mean value theorem for	UNIT IV: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties of eigen values (without proof) – Cayley -Hamilton

	single variable (without proof)-Taylor's and Mc Laurent's series expansion of functions of two variables– Functional dependence- Jacobian. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints).	theorem (without proof) - Inverse and powers of a matrix by using Cayley - Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form using orthogonal transformation– Nature of the quadratic form. *(MATLAB Exercise: All Basic Operations on matrices are to be implemented using MATLAB including computation of rank, computation of eigen values and eigen vectors)
	UNIT V: First order Partial differential equations: Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation and nonlinear (standard types) equations.	UNIT V: Partial differentiation and Partial differential equations: Homogeneous function-Euler's theorem-Total derivative-Chain rule-Taylor's and Maclaurin's series expansion of functions of two variables– Functional dependence Jacobian. Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions –solutions of first order linear (Lagrange) equation, nonlinear (standard types) equations. Applications: Maxima and Minima of functions of two variables without constraints and Lagrange's method (with constraints). *(MATLAB Exercise: To Plot graphs of various single and multivariable functions using MATLAB and analyze their maxima and minima graphically).
	UNIT VI: Higher order Partial differential equations: Solutions of Linear Partial differential equations with constant coefficients. RHS term of the type e^(ax+by) , sin(ax+by), cos(ax+by), x^m y^n Classification of second order partial differential equation	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Environmental Studies	Environmental Studies
Course Code	R161108	171HS1T02/171HS2T02
Syllabus	UNIT – I Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance –Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, Carbon Credits, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information Technology in Environment and human health. Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. – Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.	UNIT –I: Ecosystems: Scope of environmental studies, Structure- Producers, consumers and decomposers Function – Food chain, Food web, Tropic structure and Energy flow in the ecosystem Ecological pyramids, nutrient recycling, primary and secondary production, ecosystem regulation. Ecological succession Terrestrial ecosystem and aquatic ecosystem - Introduction, types, characteristic features.
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	effects of extracting and using mineral resources, Sustainable mining of Granite, Literate, Coal, Sea and River sands. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources Vs Oil and Natural Gas Extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.	Food resources: World food problems, changes caused by non-agriculture activities effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources vs oil and natural gas extraction. Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification. Role of an individual in , conservation of natural resources. Equitable use of resources for sustainable lifestyles.
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	UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and	UNIT – V: Social Issues and the Environment Urban problems related to energy -Water conservation, rain water harvesting Resettlement and rehabilitation

	rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.	of people; its problems and concerns. Global challenges Environmental ethics: Issues and possible solutions. Environmental Protection Act - Air (Prevention and Control of Pollution) Act. – Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. - Public awareness and Environmental management.
	UNIT – VI Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Engineering Chemistry	Engineering Chemistry
Course Code	R161105	171BS1T03
Syllabus	UNIT I: HIGH POLYMERS AND PLASTICS Polymerisation:- Introduction- Mechanism of polymerization - Stereo regular polymers – methods of polymerization (emulsion and suspension) -Physical and mechanical properties – Plastics as engineering materials : advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (4/5 techniques)- Preparation, properties and applications of polyethene, PVC, Bakelite Teflon and polycarbonates Elastomers :- Natural rubber- compounding and vulcanization – Synthetic rubbers : Buna S, Buna N, Thiokol and polyurethanes – Applications of elastomers. Composite materials & Fiber reinforced plastics – Biodegradable polymers – Conducting polymers.	UNIT- I: High Polymers and Plastics: Polymerization: Introduction- Mechanism of polymerization - Stereo regular polymers - Physical and mechanical properties – Plastics as engineering materials: advantages and limitations – Thermoplastics and Thermosetting plastics – Compounding and fabrication (compression moulding, injection moulding, extrusion moulding and transfer moulding techniques) - Preparation, properties and applications of polyethene, PVC, Bakelite and polycarbonates. Elastomers – Natural rubber- compounding and vulcanization – Synthetic rubbers: Buna S, Buna N, Thiokol – Applications of elastomers. Biodegradable polymers.
	UNIT II: FUEL TECHNOLOGY Fuels – Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Bomb calorimeter – Numerical problems – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas, LPG	UNIT - II: Fuel Technology: Fuels:- Introduction – Classification – Calorific value - HCV and LCV – Dulong's formula – Coal — Proximate and ultimate analysis – Significance of the analyses – Liquid fuels – Petroleum- Refining – Cracking – Synthetic petrol –Petrol knocking – Diesel knocking - Octane and Cetane ratings – Anti-knock agents – Power alcohol – Bio-diesel – Gaseous fuels – Natural gas. LPG and CNG – Combustion – Calculation of air for the

	and CNG – Combustion – Calculation of air for the combustion of a fuel – Flue gas analysis – Orsat apparatus – Numerical problems on combustion. Explosives:- Rocket fuels	combustion of a fuel – Flue gas analysis – Orsat apparatus.
	UNIT III: ELECTROCHEMICAL CELLS AND CORROSION Galvanic cells - Reversible and irreversible cells – Single electrode potential – Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Ni-Cd cells - Ni-Metal hydride cells - Li cells - Zinc – air cells. Corrosion :- Definition – Theories of Corrosion (chemical & electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Design and material selection – Cathodic protection - Protective coatings: – Surface preparation – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).	UNIT - III: Electrochemical Cells and Corrosion: Galvanic cells - Reversible and irreversible cells – Single electrode potential- Electro chemical series and uses of this series- Standard electrodes (Hydrogen and Calomel electrodes) - Concentration Cells – Batteries: Dry Cell - Li cells - Zinc – air cells. Corrosion:- Definition – Theories of Corrosion (electrochemical) – Formation of galvanic cells by different metals, by concentration cells, by differential aeration and waterline corrosion – Passivity of metals – Pitting corrosion - Galvanic series – Factors which influence the rate of corrosion - Protection from corrosion – Cathodic protection - Protective coatings: – Metallic (cathodic and anodic) coatings - Methods of application on metals (Galvanizing, Tinning, Electroplating, Electroless plating).
	UNIT IV: CHEMISTRY OF ADVANCED MATERIALS Nano materials:- Introduction – Sol-gel method & chemical reduction method of preparation – Characterization by BET method and TEM methods - Carbon nano tubes and fullerenes: Types, preparation, properties and applications Liquid crystals:- Introduction – Types – Applications Super conductors:-Type –I, Type II – Characteristics and applications Green synthesis:- Principles - 3or 4 methods of synthesis with examples – R4M4 principles	UNIT - IV: Chemistry of Advanced Materials: Nano materials:-Introduction – Sol-gel method - Carbon nano tubes and fullerenes: Types, preparation, properties and applications. Super conductors:-Type – I, Type II – Characteristics and applications Semi conductors: - Preparation of semiconductors, working of diodes and transistors. Green synthesis:-Principles Liquid crystals:-Introduction – Types – Applications Fuel cells: - Introduction - cell representation, H2-O2fuel cell: Design and working, advantages and Limitations. Types of fuel cells: methanol-oxygen fuel cells.
	UNIT V: WATER TECHNOLOGY Hard water:- Reasons for hardness – units of hardness - determination of hardness and alkalinity - Water for steam generation - Boiler troubles – Priming and	UNIT - V: Water Technology Hard water:- Reasons for hardness – units of hardness - determination of hardness andalkalinity - Water for steam generation - Boiler troubles – Priming and Foaming, Scale

	Foaming, Scale formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.	formation, Boiler corrosion, Caustic embrittlement - Internal treatments - Softening of Hard water : Lime – Soda process, Zeolite process and numerical problems based on these processes and Ion Exchange process - Water for drinking purposes- Purification – Sterilization and disinfection : Chlorination, Break point chlorination and other methods – Reverse Osmosis and Electro Dialysis.
	UNIT VI: CHEMISTRY OF ENGINEERING MATERIALS AND FUEL CELLS Refractories: - Definition, characteristics, classification, properties, failure of refractories Lubricants: - Definition, function, Theory and mechanism of lubricants, properties (Definition and importance) Cement: - Constituents, manufacturing, hardening and setting, deterioration of cement Insulators: - Thermal and electrical insulators Fuel cells: - Hydrogen Oxygen fuel cells – Methanol Oxygen fuel cells	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	· Engineering/Applied Chemistry Lab	Engineering Chemistry Lab
Course Code	R161227/ R161118	171BS1L01
Syllabus	1. Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc....	Exercise 1: Introduction to Chemistry laboratory – Molarity, Normality, Primary, secondary standard solutions, Volumetric titrations, Quantitative analysis, Qualitative analysis, etc.
	2. Trial experiment - Determination of HCl using standard Na2CO3 solution	Exercise 2: Trial experiment - Determination of HCl using standard Na2CO3 solution.
	3. Determination of alkalinity of a sample containing Na2CO3 and NaOH.	Exercise 3: Preparation of Phenol - Formaldehyde resin (Bakelite).
	..4. Determination of KMnO4 using standard Oxalic acid solution	Exercise 4: Determination of KMnO4 using standard Oxalic acid solution.
	5. Determination of Ferrous iron using standard K2Cr2O7 solution	Exercise 5: Determination of ferrous iron using standard K2Cr2O7 solution.
	6. Determination of Copper using standard K2Cr2O7 solution	Exercise 6: Preparation of Bio-Diesel.
	7. Determination of temporary and permanent hardness of water using standard EDTA solution.	Exercise 7: Determination of temporary and permanent hardness of water using standard EDTA solution.
	8. Determination of Copper using standard EDTA solution	Exercise 8: Determination of Copper using standard EDTA solution.
	9. Determination of Iron by a Colorimetric method using thiocynate as reagent.	Exercise 9: Determination of Iron by a Colorimetric method using thiocynate as reagent.
	10. Determination of pH of the given sample solution using pH meter.	Exercise 10: Determination of pH of the given sample solution using pH meter.
	11. Conductometric titration between strong acid and strong base.	Exercise 11: Conduct metric titration between strong acid and strong base.
	12. Conductometric titration between strong acid and weak base.	Exercise 12: Conduct metric titration between strong acid and weak base.
	13. Potentiometric titration between strong acid and strong base.	Exercise 13: Potentiometric titration between strong acid and strong base.
	14. Potentiometric titration between	Exercise 14: Potentiometric titration

	strong acid and weak base.	between strong acid and weak base.
	15. Determination of Zinc using standard EDTA solution.	Exercise 15: Determination of Zinc using standard EDTA solution.
	16. Determination of Vitamin – C.	Exercise 16: Determination of Vitamin – C.

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Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Programming Lab	Computer Programming Lab
Course Code	R161119	171ES1L01
Syllabus	**Exercise - 1** Basics a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line	**Exercise - 1** Introduction to C Programming 1.1) Introduction about Editors –Turbo, vi, Emacs 1.2) C Program to Perform Addition, Subtraction, Multiplication and Division of two numbers from Command line 1.3) Write a C Program to Calculate area of a Triangle using Heron's formula.
	Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa	**Exercise – 2:** Basic Math 2.1) Write a C Program to Find Whether the Given Year is a Leap Year or not. 2.2) Write a C Program to convert Celsius to Fahrenheit and vice versa. 2.3) Write a C Program to find largest of three numbers using ternary operator.
	Exercise - 3 Control Flow - I a) Write a C Program to Find Whether the Given Year is a Leap Year or not. b) Write a C Program to Add Digits & Multiplication of a number	**Exercise – 3:** Control Flow - I 3.1) Write a C program to find the roots of a Quadratic Equation. 3.2) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case. 3.3) Scenario - 1 ATM PIN GENERATION: Aditya purchased a credit card. He has to generate a PIN number to access the ATM and Net banking for which OTP was sent to his registered mobile number. Using this OTP number he has

		to generate ATM PIN number. After generating PIN number, he can use it for further transactions. Maximum login he can make is 3 times. Sample Input: OTP: 6732 If valid Enter PIN: 8858 Confirm your PIN: 8858 Sample output: valid/Invalid PIN generated successfully. Note: OTP is hard coded. 3.4) Scenario - 2 RESET PASSWORD: Sindhuja was using Syndicate Bank's Online Account. She wanted to pay her bills through Online. But she forget her password. Now she has to reset the password. For resetting the password, she has to select reset option from the Menu. NOTE: using switch case. Sample input: 1. Fast withdrawal 2. Mini Statement. 3. Balance Enquiry 4. Reset Password Enter your choice: 4 Sample Output: Reset password: New password: ***** Confirm password: *****
	Exercise – 4 Control Flow - II a) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle	**Exercise –4:** Control Flow - II 4.1) Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number 4.2) Write a C program to print Floyd Triangle 4.3) Write a C Program to print Pascal Triangle
	Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and	**Exercise – 5:** Control Flow – III 5.1) Write a C program to find the sum

	returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion.	of individual digits of a positive integer. 5.2) Write a C program to check whether given number is palindrome or not. 5.3) Write a C program to read two numbers, x and n, and then compute the sum of the geometric progression 1+x+x2 +x3 +.....+xn. 5.4) Scenario - 3 Student Attendance report Generation: Some of the school staff had failed to maintain the attendance of the students, causing lack of essential records related to students attendance that should be submitted in a parents meet. The school management has decided to automate the process in order to maintain the attendance of every student effectively. You are asked to write a program to the above scenario and display whether the student is allowed to write the Exam or not.
	Exercise – 6 Control Flow - III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case b) Write a C Program to convert decimal to binary and hex (using switch call function the function)	**Exercise 6:** Arrays Demonstration of arrays 6.1) Linear Search. 6.2) Bubble Sort. 6.3) Operations on Matrix. 6.4) Scenario – 4 Celebrity of the Week: Red FM has launched a program called Celebrity of the week in their channel. Listeners are given a toll free number where they can listen to list of celebrities. Listeners can choose their favourite celebrity from the list and vote for him/her. The votes are validated from Monday to Saturday. The one with highest votes is called as "Celebrity of the Week" and his/her songs are played in the program, which is aired on Sundays. Now write a program to find the celebrity of the week.
	Exercise – 7 Functions - Continued Write a C Program to compute the values ofsin x and cos x and e^x values using Series	**Exercise – 7:** Functions 7.1) Write a C Program to demonstrate parameter passing in Functions and

	expansion. (use factorial function)	returning values. 7.2) Write a C Program to find Fibonacci, Factorial of a number with Recursion and without Recursion. 7.3) Scenario – 5 SELF DRIVE RENTAL Sadiq and his friends are going to Banglore. But they don't have a vehicle in Banglore. For that they go to rental cars to take car for rent. You have find out what is total amount of car's rent. The car's rentals and rules are as follows. i) Minimum booking is 4. ii) There are 3 types of cars iii) There are 3 categories in cars rental FOR SWIFT, • • In LTTE 5 kms are free for one hour and Rs.70 per one hour, if they exceed 5kmph, then Rs.12 per km. • • In CLASS, 10 kms are free for one hour and Rs.90 per one hour, if they exceed 10kmph, then Rs.12 per km. • • In XL, 15 kms are free for one hour and Rs.110 per one hour, if they exceed 15kmph, then Rs.12 per km.
	Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.	**Exercise – 8:** Strings 8.1) Implementation of string manipulation operations with library function. 8.2) Implementation of string manipulation operations without library function. i. copy ii. concatenate iii. length iv. compare i. copy ii. concatenate iii. length iv. compare 8.3) Verify whether the given string is a palindrome or not 8.4) Scenario – 6 Word with

		Obesity: Jeeth is a fun loving and active boy. He likes to play with words and numbers. One day Jeeth and his friends attended a seminar, which was conducted in his school. The Seminar was about "Causes of obesity in children and its effects". Jeeth and his friend Ram are not interested in listening to the seminar, so he thought of giving a puzzle to Ram. Jeeth gave some words to Ram and wanted him to find the word with Obesity. Ram was confused and asking your help. Write a program to find the weights of the words and display the word with highest weight (word with obesity).
	Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function	**Exercise – 9:** Arrays and Pointers 9.1) Write a C Program to Access Elements of an Array Using Pointer 9.2) Write a C Program to find the sum of numbers with arrays and pointers.
	Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.	**Exercise – 10:** Dynamic Memory Allocations 10.1) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. 10.2)Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
	Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program,	**Exercises – 11:** **Structures:** 11.1) Write a C Program to Store Information of a book Using Structure 11.2) Write a C Program to Store

	allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs	Information Using Structures with Dynamically Memory Allocation 11.3) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function 11.4) Scenario – 7 Library Management Shilpa student of PGEC got the Library Card. She wants to lend the books from the Library. The college gave two cards to each and every student. The students can lend only two books at a time and it has to be returned back after 15 days. If the books are not returned late fee will be collected for no. of days the books were returned after the due date. Late fee per day is Rs.50/- Sample Input. Enter the name of student, Roll No. Branch, Section, Year, DOL, DOR, Sample output No. of days returned after the due date = 5 Late fee per day = Rs. 50 Fine paid by the student is 5 * 50 =250.
	Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare	**Exercise -12:** Files 12.1) Write a C program to open a file and to print the contents of the file on screen. 12.2) Write a C program to copy content of one file to another file. 12.3) Write a C program to merge two files and store content in another file. 12.4) Scenario – 8 Student Information System Using Files: Lakshya International school was recently established and having large no of admissions. The school management wanted the Student information to be computerized and wanted to maintain in a simple and in effective manner. You are asked to develop Student Information System using Files to perform the following tasks 1. Add New Student 2. Update Existing Student

		3. Delete Existing Student 4. Retrieve A Particular/All Students Sample Input: Choose the task you want to perform: 1. Add 2. Update 3. Delete 4. Retrieve Your choice: 1 Enter student details: Name: Akhil Age: 5 Class: 1 Sample Output: Student details added
	Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files	
	Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.	
	Exercise – 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessaryDevice Drivers.	
	Exercise – 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) SpreadSheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effectivepresentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewallsettings. Installing application software, system software & tools.	

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Department of Humanities & Basic Sciences

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English -I	English-II
Course Code	R161101	171HS2T03
Syllabus	UNIT I: 1. 'Human Resources' from English for Engineers and Technologists. 2. 'An Ideal Family' from Panorama: A Course on Reading	UNIT-I: 1. TECHNOLOGY WITH A HUMAN FACE (Detailed) 2. AN IDEAL FAMILY (Non-Detailed)
	UNIT 2: 1. ' Transport: Problems and Solutions' from English for Engineers and Technologists. 2. 'War' from 'Panorama : A Course on Reading'	UNIT-II: 1. CLIMATE CHANGE AND HUMAN STRATEGY (Detailed) 2. WAR (Non-Detailed)
	UNIT 3: 1. 'Evaluating Technology' from English for Engineers and Technologists. 2. 'The Verger' from 'Panorama : A Course on Reading	UNIT-III: 1. EMERGING TECHNOLOGIES (Detailed) 2. THE VERGER (Non-Detailed)
	UNIT 4: 1. 'Alternative Sources of Energy' from English for Engineers and Technologists. 2. ' The Scarecrow' from Panorama : A Course on Reading	UNIT-IV: 1. THE SECRET OF WORK (Detailed) 2. THE SCARECROW (Non-Detailed)
	UNIT 5: 1. 'Our Living Environment' from English for Engineers and Technologists. 2. 'A Village Host to Nation' from Panorama : A Course on Reading	UNIT-V: 1. WORK BRINGS SOLACE (Detailed) 2. A VILLAGE LOST TO THE NATION (Non-Detailed)
	UNIT 6: 1. ' Safety and Training' from English for Engineers and Technologists. 2. 'Martin Luther King and Africa' from Panorama : A Course on Reading	

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Mathematics-III	Mathematics-III
Course Code	R161203	171BS2T06
Syllabus	UNIT I: Linear systems of equations: Rank-Echelon form-Normal form – Solution of linear systems – Gauss elimination - Gauss Jordon- Gauss Jacobi and Gauss Seidal methods. Applications: Finding the current in electrical circuits.	UNIT - I: Laplace transforms: Laplace transforms of standard functions-First Shifting theorem, Change of scale, Multiplication with t, Division by t - Transforms of derivatives and integrals – Unit step function –Dirac's delta function, Periodic functions.
	UNIT II: Eigen values - Eigen vectors and Quadratic forms: Eigen values - Eigen vectors– Properties – Cayley-Hamilton theorem - Inverse and powers of a matrix by using Cayley-Hamilton theorem- Diagonalization- Quadratic forms- Reduction of quadratic form to canonical form – Rank - Positive, negative and semi definite - Index – Signature. Applications: Free vibration of a two-mass system.	UNIT- II: Inverse Laplace transforms: Inverse Laplace transforms – Convolution theorem (without proof), Second shifting theorem. *(MATLAB Exercise: Computing Laplace transform off (t) using symbolic toolbox, Solving initial value problems using 'dsolve') Applications: Evaluating improper integrals, solving initial value problems using Laplace transforms.
	UNIT III: Multiple integrals: Curve tracing: Cartesian, Polar and Parametric forms. Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration. Applications: Finding Areas and Volumes.	UNIT - III: Multiple integrals and Beta, Gamma functions: Multiple integrals: Double and triple integrals – Change of variables – Change of order of integration, Beta and Gamma functions- Properties - Relation between Beta and Gamma functions Applications: Finding Areas and Volumes.
	UNIT IV: Special functions: Beta and Gamma functions- Properties - Relation between Beta and Gamma functions. Evaluation of improper integrals. Applications: Evaluation of integrals.	UNIT - IV: Vector Differentiation: Gradient - Directional Derivatives - Divergence- Curl - Laplacian operator - Vector identities. Applications: Equation of continuity, potential surfaces
	UNIT V: Vector Differentiation: Gradient- Divergence- Curl - Laplacian and second order operators -Vector identities.	UNIT - V: Vector Integration: Line integral – Work done - Surface and volume integrals, Green's Theorem, Stokes Theorem and

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	English Communication Skills Lab-II	English Communication Skills Lab-II
Course Code	R161221	171HS2L02
Syllabus	UNIT 1: 1. Debating Practice work	PRACTICE 1: Body Language
	UNIT 2: 1. Group Discussions Practice work	PRACTICE 2: Dialogues
	UNIT 3: 1. Presentation Skills Practice work	PRACTICE 3: Presentation Skills
	UNIT 4: 1. Interview Skills Practice work	PRACTICE 4: Group Discussion
	UNIT 5: 1. Email, 2. Curriculum Vitae Practice work	PRACTICE 5: Interviews and Telephonic Interviews.
	UNIT 6: 1. Idiomatic Expressions 2. Common Errors in English Practice work	PRACTICE 6: Debates

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S.No.	Regulation	Pre-Revision	Post-Revision
	Course Title	Theory of Machines	Theory of Machines
11	**Course Code**	R1622353	**171ES2T08**
	Syllabus	**Unit–I:** Introduction, Element, Link, Pairs. Kinematics Chains and Pairs-Types, lower and higher pairs. Mechanism – types and inversions. Lower and higher pairs. Four bar chain, slider crank chain and their inversions - Determination of velocity and acceleration using graphical (relative velocity and acceleration) methods. Instantaneous center – Lindring.	**Unit–I:** Introduction, Elements, links, pairs, kinematics pairs chains and mechanisms. Classification of pairs and mechanisms. Lower and higher pairs. Four bar chain, slider crank chain and their inversions. Determination of velocity and acceleration using graphical (relative velocity and acceleration) method.
		Unit II Types of gears, Law of gearing. Velocity of sliding between two teeth in mesh Involute and cucloidal profile for gear teeth. Spur gear, nomenclature, interference and undercutting. Introduction to helical, spiral, bevel and worm gear. Simple, compound, reverted and epicyclical gear trains - Determining the velocity ratio by tabular method. Turning moment Diagrams, Coefficient of fluctuation of speed and energy	**Unit II** Belt drives, types of drives. Belt materials, Length of belt, Power transmission, Velocity ratio Effect of centrifugal tension Creep and slip on power transmission. Chain drives. Types of friction, laws of dry friction, Rolling friction, Anti-friction bearings.
		Unit-III: Weight of fly wheel, flywheel applications. Belt drives, types of drives. Belt materials, Length of belt, Power transmitted, Velocity ratio, Belt size for flat and v-belts	**Unit-III:** Types of gears. Law of gearing, velocity of sliding between two teeth in mesh. Involute and cycloidal profile for gear teeth. Spur gear, nomenclature, interference and undercutting. Introduction to helical, spiral, bevel and worm gear. Simple, compound, reverted, and epicyclic trains. Determining velocity ratio by tabular method.

		Units-IV: Effect of centrifugal tension, creep and slop on power transmission, chain drives Types of friction, Laws of dry fiction, Friction of pivots and collars. Single disc, Multiple disc and cone clutches. Rolling friction, Anti-friction bearings	**Units-IV:** Types of governors. constructional details and analysis of Watt/Centrifugal governors – spread of governors. Effect of friction, Sensitiveness, stability, hunting, isochronisms, power and effort of a governor.
		Unit -V Types of Governors, Constructional details and analysis of Watt, Porter and Proell governors – Spread of governors. Effect of friction, controlling force, curves, sensitiveness, stability, hunting, Isochronism's, power and effort of a governor, **Unit-VI:** Static and dynamic balancing, Balancing of rotating masses in one and different planes, Partial primary balancing of reciprocating masses. Cams and Foversees	**Unit -V** Static and dynamic balancing. Balancing of rotating masses in one and different planes. Partial primary balancing of reciprocating masses. Weight of flywheel, flywheel applications.

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Department of Civil Engineering

Syllabus revision Index for the Academic Year 2017-2018 M.Tech Structural Engineering

S.No	Name of the course	Percentage of syllabus change
1	Experimental Analysis 172SE1E01	20
2	Structural Optimization 172SE1E02	30
3	Analysis & Design of Tall Buildings 172SE1E05	20
4	Plastics Analysis & Designing 172SE1E06	20

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Dept. of Civil Engineering
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Department of Civil Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	EXPERIMENTAL STRESS ANALYSIS	EXPERIMENTAL STRESS ANALYSIS
Course Code	172SE1E01	172SE1E01
Syllabus	UNIT-I Introduction and Strain Measurement Methods Model & Prototype Dimensional analysis-Factors influencing model design – Scale factors and Model material properties – Methods of model design. Definition of strain and its relation to experimental determinations - properties of strain gauge systems – Mechanical, Optical, Acoustic and Pneumatic types.	UNIT-I **Introduction and Strain Measurement Methods** Model & Prototype Dimensional analysis-Factors influencing model design – Scale factors and Model material properties – Methods of model design. Definition of strain and its relation to experimental determinations - properties of strain gauge systems – Mechanical, Optical, Acoustic and Pneumatic types.
	UNIT-II Electrical Resistance Strain Gauges Introduction – gauge construction strain gauge adhesives - mounting methods – gauge sensitivities and gage factor – performance characteristics of wire and foil strain gauges – environmental effects. Analysis of strain gauge data – the three-element rectangular rosette – the delta rosette – correction for transverse sensitivity.	UNIT-II **Electrical Resistance Strain Gauges** Introduction – gauge construction strain gauge adhesives - mounting methods – gauge sensitivities and gage factor – performance characteristics of wire and foil strain gauges – environmental effects. Analysis of strain gauge data – the three-element rectangular rosette – the delta rosette – correction for transverse sensitivity.
	UNIT –III Non – Destructive Testing Introduction – objectives of non destructive testing. Ultrasonic pulse velocity method – Rebound Hammer method (Concrete hammer) – Acoustic Emissionapplication to assessment of concrete quality	UNIT –III **Non – Destructive Testing** Introduction – objectives of non destructive testing. Ultrasonic pulse velocitymethod – Rebound Hammer method (Concrete hammer) – Acoustic Emission- application to assessment of concrete quality.

	UNIT-IV Theory of Photo Elasticity Introduction – temporary double refraction – Index ellipsoid and stress ellipsoid – the stress optic law – effects of stressed model in a polariscope for various arrangements - fringe sharpening.	UNIT-IV **Distress Measurements and Control** Diagnosis of distress in structures - Crack observation and measurements - Corrosion of Reinforcement in concrete - Half cell, construction and use - Damage identification - Controlled blasting for demolition - Techniques for residual stress measurements.
	UNIT-V Two Dimensional Photo Elasticity Introduction–iso-chromatic fringe patterns – isoclinic fringe patterns – compensation techniques – calibration methods – separation methods – materials for photo-elasticity – properties of photo-elastic materials.	UNIT-V **Two Dimensional Photo Elasticity** Introduction–iso-chromatic fringe patterns – isoclinic fringe patterns – compensation techniques – calibration methods – separation methods – materials for photo- elasticity – properties of photo-elastic materials.

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Department of Civil Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	STRUCTURAL OPTMIZATION	STRUCTURAL OPTMIZATION
Course Code	172SE1E02	172SE1E02
Syllabus	UNIT-I Introduction Need and scope for optimization – statements of optimization problems- Objective function and its surface design variables-constraints and constraint surface- Classification of optimization problems (various functions continuous, discontinuous and discrete) and function behavior (monotonic and unimodal).	**UNIT-I Introduction** Need and scope for optimization – statements of optimization problems- Objectivefunction and its surface design variables-constraints and constraint surface- Classification of optimization problems (various functions continuous, discontinuous and discrete) and function behavior (monotonic and unimodal). Design methodology- Civil engineering case study - Optimality criteria - Lagrange multiplier method - Kuhntucker Criteria.
	UNIT-II Classical Optimization Techniques Differential calculus method, multi variable optimization by method of constrained variation and Lagrange multipliers (generalized problem) Khun-Tucker conditions of optimality -Fully stressed design and optimality criterion based algorithmsintroduction, characteristics of fully stressed design th	**UNIT-II ClassicalOptimization Techniques** Differential calculus method, multi variable optimization by method of constrained variation and Lagrange multipliers (generalized problem) Khun-Tucker conditions of optimality -Fully stressed design and optimality criterion based

	penalty function methods.	
	UNIT-IV Linear Programming Definitions and theorems-Simplex method-Duality in Linear programmingPlastic analysis and Minimum weight design and rigid frame.	**UNIT-IV** **LinearProgramming** Definitionsandtheorems-Simplexmethod-DualityinLinear programming-Plasticanalysis andMinimum weightdesign andrigidframe.
	UNIT-V Introduction to Quadratic Programming Geometric programming-and dynamic programming-Design of beams and frames using dynamic programming technique.	**UNIT-V** **Non Traditional Methods** Genetic Algorithm - Terminology - Natural Law of Evolutions - Genetic operators - steps for solution of problems – Simulated Annealing - Algorithm - Boltzman's equation - ANT Colony optimization - Algorithm - Pheromone trail - Travelling salesman problem - Introduction to TABU search - sample problem – Artificial Neural Network - Application characteristics.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	ANALYSIS AND DESIGN OF TALL BUILDINGS	ANALYSIS AND DESIGN OF TALL BUILDINGS
Course Code	172SE1E05	172SE1E05
Syllabus	UNIT-I Design Philosophies and Materials Modern concepts – High Performance Concrete, Fibre Reinforced Concrete, Light weight concrete, Self Compacting Concrete	**UNIT-I** **Design Philosophies and Materials** Modern concepts – High Performance Concrete, Fibre Reinforced Concrete, Light weight concrete, Self Compacting Concrete.
	UNIT-II Gravity Loading Dead load, Live load, Impact load, Construction load, Sequential loading. Wind Loading – Static and Dynamic Approach, Analytical method, Wind Tunnel- Experimental methods. Earthquake Loading – Equivalent lateral Load analysis, Response Spectrum Method, Combination of Loads	**UNIT-II** **Gravity Loading** Dead load, Live load, Impact load, Construction load, Sequential loading. Wind Loading – Static and Dynamic Approach, Analytical method, Wind Tunnel Experimental methods. Earthquake Loading – Equivalent lateral Load analysis, Response Spectrum Method, Combination of Loads
	UNIT –III Behavior of Structural Systems Factors affecting the growth, height and structural form, Behaviour of Braced frames, Rigid Frames, In-filled frames, Shear walls, Coupled Shear walls, Wall–Frames, Tubular, Outrigger braced, Hybrid systems.	**UNIT –III** **Behavior of Structural Systems** Factors affecting the growth, height and structural form, Behaviour of Braced frames, Rigid Frames, In-filled frames, Shear walls, Coupled Shear walls, Wall–Frames, Tubular, Outrigger braced, Hybrid

		systems.
	UNIT-IV Analysis and Design Modelling for approximate analysis, Accurate analysis and reduction techniques, Analysis of structures as an integral unit, Analysis for member forces, drift and twist. Computerized 3D analysis. Design for differential movement, Creep and Shrinkage effects, Temperature Effects and Fire Resistance.	**UNIT-IV** **Analysis and Design** Modelling for approximate analysis, Accurate analysis and reduction techniques, Analysis of structures as an integral unit, Analysis for member forces, drift and twist. Computerized 3D analysis. Design for differential movement, Creep and Shrinkage effects, Temperature Effects and Fire Resistance.
	UNIT-V Stability Analysis Overall buckling analysis of frames, wall–frames, Approximate methods, Second order effect of gravity loading, P–Delta Effects, Simultaneous first order and PDelta analysis, Translational instability, Torsional Instability, Out of plumb effects, Effect of stiffness of members and foundation rotation in stability of structures	**UNIT-V** **Analysis and Behaviour of Tall Buildings** Linear and Non-linear behavior - Material non-linearity - Geometric non-linearity - Rigid and Elastic Supports - First Order Elastic Analysis - Second Order Elastic Analysis - First order Inelastic Analysis - Second order Inelastic Analysis - Behavior of Structural forms in Tall buildings - Rigid frame, Braced Frames, Shear Walls, Core walls, Tubular, Belt truss, Outrigger (Concepts only)

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	PLASTIC ANALYSIS AND DESIGN	PLASTIC ANALYSIS AND DESIGN
Course Code	172SE1E06	172SE1E06
Syllabus	UNIT-I Introduction and Basic Hypothesis Concepts of stress and strain – relation of steel Moment curvature relation- basic difference between elastic and plastic analysis with examples- Yield condition, idealizations, collapse criteria- Virtual work in the elastic-plastic state-Evaluation of fully plastic moment and shape factors for the various practical sections	**UNIT-I** **Introduction and Basic Hypothesis** Concepts of stress and strain – relation of steel Moment curvature relation- basic difference between elastic and plastic analysis with examples- Yield condition, idealizations, collapse criteria- Virtual work in the elastic-plastic state-Evaluation of fully plastic moment and shape factors for the various practical sections.
	UNIT-II Method of Limit Analysis Introduction to limit analysis of simply supported fixed beams and continuous beams, Effect of partial fixity and end, invariance of collapse loads, basic theorems of limit analysis, rectangular portal frames, gable frames, grids, superposition of mechanisms, drawing statistical bending moment diagrams for checks.	**UNIT-II** **Method of Limit Analysis** Introduction to limit analysis of simply supported fixed beams and continuous beams, Effect of partial fixity and end, invariance of collapse loads, basic theorems of limit analysis, rectangular portal frames, gable frames, grids, superposition of mechanisms, drawing statistical bending moment diagrams for checks.
	UNIT –III Limit Design Principles Basic principles, limit design theorems,	**UNIT –III** **Limit Design Principles**

	application of limit design theorems, trial and error method, method of combining mechanisms, plastic moment distribution method, load replacement method, continuous beams and simple frames designs using above principles.	Basic principles, limit design theorems, application of limit design theorems, trial and error method, method of combining mechanisms, plastic moment distribution method, load replacement method, continuous beams and simple frames designs using above principles.
	UNIT-IV: Deflection in Plastic Beams and Frames Load deflection relations for simply supported beams, deflection of simple pin based and fixed based portal frames, method of computing deflections.	**UNIT-IV:** **Deflection in Plastic Beams and Frames** Load deflection relations for simply supported beams, deflection of simple pin based and fixed based portal frames, method of computing deflections.
	UNIT-V Minimum Weight Design Introduction to minimum Weight and linear Weight functions- Foulkes theorems and its geometrical analogue and absolute minimum weight design.	**UNIT-V** **Detailing and Field Practices** Detailing for ductility - Measures of ductility - Flexural yielding in frames and walls - Flexural members in ductile frames - Columns and frame members subject to bending and axial load - Joints in ductile frames - shear walls - Fire resistance of structural members - Code requirements - Quality control of concrete

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Department of Electrical and Electronics Engineering

(Power Electronics and Drives)

Syllabus revision Index for 2017-2018

S. No	Name of the course	Percentage of syllabus change
1	Modern Control Theory	20
2	Optimization Techniques	20
3	Artificial Intelligence Techniques	20
4	HVDC Transmission	20

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Department of Electrical and Electronics Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	**Modern Control Theory**	**Modern Control Theory**
Course Code	**I5614**	**172PD1E01**
Syllabus	**UNIT –1: State Variable Analysis** The concept of state – State Equations for Dynamic systems – State diagram - Linear Continuous time model for physical systems – Existence and Uniqueness of Solutions to Continuous – Time State Equations – Solutions – Linear Time Invariant Continuous – Time State Equations – State transition matrix and it's properties	**UNIT - I: State Variable Analysis:** Introduction, concepts of state, state variables and state model, state-space representation for linear continuous-time systems and discrete-time systems. Time, domain solution of state equations: Solution of homogeneous state equations, state transition matrix, evaluation of matrix exponential (eAt), solution of non- homogeneous state equations
	UNIT – 2: State Variable Techniques: General concept of Controllability - General concept of Observability Controllability tests for Continuous &Time Invariant systems - Observability tests for Continuous &Time Invariant systems - Controllability and Observability of state model in Jordan Canonical form - Controllability and Observability Canonical forms of State model – State feedback controller design through pole assignment.	**UNIT - II: State Variable Techniques:** General concept of Controllability - General concept of Observability Controllability tests for Continuous &Time Invariant systems - Observability tests for Continuous &Time Invariant systems - Controllability and Observability of state model in Jordan Canonical form - Controllability and Observability Canonical forms of State model - State feedback controller design through pole assignment.
	UNIT – 3: Non Linear Systems – I: Introduction – Non Linear Systems – Types of Non – Linearities – Saturation – Dead – Zone – Backlash – Jump Phenomenon etc; - Singular Points – Introduction to Linearization of nonlinear systems, properties of Non Linear Systems – Describing	**UNIT - III: Non Linear Systems – I:** Introduction - Non Linear Systems - Types of Non - Linearities - Saturation – Dead - Zone - Backlash - Jump Phenomenon etc; - Singular Points - Introduction to Linearization of nonlinear systems, properties of Non Linear Systems - Describing function -

	function – describing function analysis of nonlinear systems- Stability analysis of Non – Linear systems through describing functions.	describing function analysis of nonlinear systems- Stability analysis of Non - Linear systems through describing functions.
	UNIT – 4: Non Linear Systems – II: Introduction to phase – plane analysis, Method of Isoclines for Constructing Trajectories, singular points, phase – plane analysis of nonlinear control systems.	**UNIT - IV: Non Linear Systems – II:** Introduction to phase - plane analysis, Method of Isoclines for Constructing Trajectories, singular points, phase - plane analysis of nonlinear control systems.
	UNIT – 5: Stability Analysis: Stability in the sense of Lyapunov, Lyapunov's stability and Lyapunov's instability theorems – Stability Analysis of the Linear Continuous time invariant systems by Lyapunov second method –Generation of Lyapunov functions – Variable gradient method – Krasooviski's method.	**UNIT -V: Stability Analysis:** Stability in the sense of Lyapunov, Lyapunov's stability and Lyapunov's instability theorems - Stability Analysis of the Linear Continuous time invariant systems by Lyapunov second method - Generation of Lyapunov functions - Variable gradient method - Krasooviski's method.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	OPTIMIZATION TECHNIQUES	OPTIMIZATION TECHNIQUES
Course Code	I5616	172PD1E03
Syllabus	**UNIT – I: Introduction and Classical Optimization Techniques:** Statement of an Optimization problem – design vector – design constraints – constraint surface – objective function – objective function surfaces – classification of Optimization problems. Single variable Optimization – multi variable Optimization without constraints – necessary and sufficient conditions for minimum/maximum – multivariable Optimization with equality constraints. Solution by method of Lagrange multipliers – multivariable Optimization with inequality constraints – Kuhn – Tucker conditions.	**UNIT - I: Introduction and Classical Optimization Techniques:** Statement of an Optimization problem - design vector - design constraints – constraint surface - objective function - objective function surfaces - classification of Optimization problems. Single variable Optimization - multi variable Optimization without constraints - necessary and sufficient conditions for minimum/maximum - multivariable Optimization with equality constraints. Solution by method of Lagrange multipliers
	UNIT – II: Linear Programming Standard form of a linear programming problem – geometry of linear programming problems – definitions and theorems – solution of a system of linear simultaneous equations – pivotal reduction of a general system of equations – motivation to the simplex method – simplex algorithm - Duality in Linear Programming – Dual Simplex method.	**UNIT- II: Linear Programming:** Standard form of a linear programming problem - geometry of linear programming problems - definitions and theorems - solution of a system of linear simultaneous equations - pivotal reduction of a general system of equations - motivation to the simplex method - simplex algorithm - Duality in Linear Programming - Dual Simplex method.
	UNIT – III: Nonlinear Programming: Unconstrained cases - One – dimensional minimization methods:	**UNIT - III: Nonlinear Programming:** Unconstrained cases - One - dimensional minimization methods: Classification, Fibonacci method and

	Classification, Fibonacci method and Quadratic interpolation method - Univariate method, Powell's method and steepest descent method. Constrained cases - Characteristics of a constrained problem, Classification, Basic approach of Penalty Function method; Basic approaches of Interior and Exterior penalty function methods. Introduction to convex Programming Problem.	Quadratic interpolation method - Univariate method, Powell's method and steepest descent method. Quadratic programming with Kuhn-Tucker conditions and Wolfe's modified simplex method, Geometric programming.
	UNIT – IV: Introduction to Evolutionary Methods: Evolutionary programming methods - Introduction to Genetic Algorithms (GA)– Control parameters –Number of generation, population size, selection, reproduction, crossover and mutation – Operator selection criteria – Simple mapping of objective function to fitness function – constraints – Genetic algorithm steps – Stopping criteria –Simple examples.	**UNIT- IV: Introduction to Evolutionary Methods:** Evolutionary programming methods - Introduction to Genetic Algorithms (GA)- Control parameters -Number of generation, population size, selection, reproduction, crossover and mutation - Operator selection criteria - Simple mapping of objective function to fitness function - constraints - Genetic algorithm steps - Stopping criteria - Simple examples.
	UNIT – V: Introduction to Swarm Intelligence Systems: Swarm intelligence programming methods - Basic Partial Swarm Optimization – Method – Characteristic features of PSO procedure of the global version – Parameters of PSO (Simple PSO algorithm – Operators selection criteria – Fitness function constraints) – Comparison with other evolutionary techniques – Engineering applications of PSO.	**UNIT- V : Introduction to Swarm Intelligence Systems:** Swarm intelligence programming methods - Basic Partial Swarm Optimization - Method -Characteristic features of PSO procedure of the global version - Parameters of PSO (Simple PSO algorithm - Operators selection criteria - Fitness function constraints) Economic Load Dispatch and Unit commitment problem using dynamic programming, GA and particle swam optimization techniques

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	**Artificial Intelligence Techniques**	**Artificial Intelligence Techniques**
Course Code	**I4308**	**172PD1E05**
Syllabus	**UNIT – 1: Introduction to Neural Networks** Introduction, Humans and Computers, Biological Neural Networks, Historical development of neural network, Terminology and Topology, Biological and artificial neuron models, Basic learning laws.	**UNIT - I: Introduction to Neural Networks** History Of Neural Networks, Structure And Functions Of Biological And Artificial Neuron, Neural Network Architectures, Characteristics Of ANN, Basic Learning Laws and Methods.
	UNIT- 2: Feed Forward Neural Networks Introduction, Perceptron models: Discrete, continuous and multi-category, Training algorithms: Discrete and Continuous Perceptron Networks, Perceptron convergence theorem, Limitations and applications of the Perceptron model, Generalized delta learning rule, Feedforward recall and error back propagation training-Radial basis function algorithms-Hope field networks	**UNIT -II: Feed Forward Neural Networks:** Introduction, Perceptron models: Discrete, continuous and multi-category, Training algorithms: Discrete and Continuous Perceptron Networks, Perceptron convergence theorem, Limitations and applications of the Perceptron model, Generalized delta learning rule, Feed forward recall and error back propagation training-Radial basis function algorithms-Hope field networks
	UNIT -3: Genetic algorithms &Modelling-Introduction-encoding-fitness function-reproduction operators-genetic operators-cross over and mutation-generational cycle-convergence of genetic algorithm	**UNIT- III: Genetic algorithms and Modeling:** introduction-encoding-fitness function-reproduction operators-genetic operators-cross over and mutation-generational cycle-convergence of genetic algorithm.
	UNIT – 4:Classical and Fuzzy Sets Introduction to classical sets - properties, operations and relations; Fuzzy sets, membership, Uncertainty, operations, properties, fuzzy relations,	**UNIT- IV: Classical and Fuzzy Sets:** Introduction to classical sets - properties, operations and relations; Fuzzy sets, membership, Uncertainty, operations, properties, fuzzy relations,

	cardinalities, membership functions. Fuzzy Logic System Components- Fuzzification, Membership value assignment, development of rule base and decision making system, defuzzification to crisp sets, defuzzification methods.	cardinalities, membership functions. Fuzzy Logic System Components- Fuzzification, Membership value assignment, development of rule base and decision making system, de fuzzification to crisp sets, de fuzzification methods.
	UNIT-5: Application of AI Techniques: Design of PI controller for speed control of DC motor using neural networks and fuzzy logic-PWM Controllers -Selected harmonic elimination PWM- Space vector PWM using neural network.	**UNIT -V: Application of AI Techniques:** Design of PI controller for speed control of DC motor using neural networks and fuzzy logic-PWM Controllers -Selected harmonic elimination PWM- Space vector PWM using neural network.

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Department of Electrical and Electronics Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	**HVDC Transmission**	**HVDC Transmission**
Course Code	**I4309**	**172PD1E06**
Syllabus	**UNIT-I: EHV AC Transmission:** Limitation of EHV AC Transmission, Advantages of HVDC Technical economical reliability aspects. HVDC Transmission: General considerations, Power Handling Capabilities of HVDC Lines, Basic Conversion principles, static converter configuration. Types of HVDC links-Apparatus and its purpose.	**UNIT–I: Introduction:** DC Power transmission technology–Comparison of AC and DC transmission–Application of DC transmission–Description of DC transmission system–Planning for HVDC transmission–Modern trends in HVDC technology–DC breakers–Operating problems– HVDC transmission based on VSC –Types and applications of MTDC systems.
	UNIT-II: Static Power Converters: 6-pulse bridge circuit and 12-pulse converters, converter station and Terminal equipment, commutation process, Rectifier and inverter operation, equivalent circuit for converter - special features of converter transformers. Comparison of the perform of diametrical connection with 6-pulse bridge circuit	**UNIT-II: Static Power Converters**: 6-pulse bridge circuit and 12-pulse converters, converter station and Terminal equipment, commutation process, Rectifier and inverter operation, equivalent circuit for converter - special features of converter transformers. Comparison of the perform of diametrical connection with 6-pulse bridge circuit
	UNIT –III: Control of HVDC Converters and systems: Constant current, constant extinction angle and constant Ignition angle control. Individual phase control and equidistant firing angle control, DC power flow control. Factors responsible for generation of Harmonics voltage and current harmonics effect of variation of α and μ. Filters Harmonic elimination.	**UNIT –III: Control of HVDC Converters and systems:** Constant current, constant extinction angle and constant Ignition angle control. Individual phase control and equidistant firing angle control, DC power flow control. Factors responsible for generation of Harmonics voltage and current harmonics effect of variation of α and μ. Filters Harmonic elimination.

	UNIT-IV: HV AC and DC systems: Interaction between HV AC and DC systems - Voltage interaction, Harmonic instability problems and DC power modulation. Development of DC circuit Breakers, Multi- terminal DC links and systems; series, parallel and series parallel systems, their operation and control.	**UNIT-IV: HV AC and DC systems:** Interaction between HV AC and DC systems - Voltage interaction, Harmonic instability problems and DC power modulation. Development of DC circuit Breakers, Multi- terminal DC links and systems; series, parallel and series parallel systems, their operation and control.
	UNIT-V: Transient over voltages in HV DC systems: Over voltages due to disturbances on DC side, over voltages due to DC and AC side line faults. Converter faults and protection in HVDC Systems: Converter faults, over current protection - valve group, and DC line protection, circuit breakers. Over voltage protection of converters, surge arresters.	**UNIT-V: Transient over voltages in HV DC systems**: Over voltages due to disturbances on DC side, over voltages due to DC and AC side line faults. Converter faults and protection in HVDC Systems: Converter faults, over current protection - valve group, and DC line protection, circuit breakers. Over voltage protection of converters, surge arresters.

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Department of Petroleum Technology

Syllabus revision Index for 2017-2018

S.No	Name of the course	Percentage of syllabus change
1	Optimization Of Oil And Gas Production	20
2	Deep Water Technologies	20

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Aditya Engineering College (A)
SURAMPALEM-5 437

Department of Petroleum Technology

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Optimization Of Oil And Gas Production	Optimization Of Oil And Gas Production
Course Code		172PE2E02
Syllabus	UNIT-V: Production Stimulation: Well problem identification- sick well analysis;, Matrix acidizing-Design for sandstone & carbonate reservoirs, Hydraulic fracturing – formation fracture pressure, geometry, productivity of fractured wells, hydro-fracture design, selection of fracturing fluid, propant, post frac evaluation.	UNIT-V: Field Development: Planning and Field Management-Short Term Optimization of Well Performance-Long Term Optimization of Well Performance-Productivity of Horizontal Wells.

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Department of Petroleum Technology

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Deep Water Technologies	Deep Water Technologies
Course Code		172PE2E05
Syllabus	UNIT-V: Hydrates: Physics and Phase Behavior; Hydrate Prevention; Hydrate Remediation; Hydrate Control Design Philosophies.	UNIT-V: Deep-water pipelines, Umbilical's & emerging Deep-water Technologies: Issues in Deep-water pipeline design, Rigid and Flexible flow lines, pipe-in-pipe, Deep-water Risers and their configurations, Pipeline installation methods, Umbilical's-functions, configurations and installation, Flow assurance strategies. Innovative floating production concepts, subsea processing, subsea separation and any innovations.

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Department of Electronics and communication Engineering

Syllabus revision Index (E.S.)

2017-18

S.No	Name of the course	Percentage of syllabus change
1	Embedded System Design	20
2	Real Time Operating Systems	20
3	Soft Computing Techniques	50
4	Embedded systems laboratory	66

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Department of Electronics and communication Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Embedded System Design	Embedded System Design
Course Code	I5501	172EM1T02
syllabus	**UNIT-I: Introduction** An Embedded System-Definition, Examples, Current Technologies, Integration in system Design, Embedded system design flow, hardware design concepts, software development, processor in an embedded system and other hardware units, introduction to processor based embedded system design concepts.	**UNIT-I** **Introduction to Embedded Systems:** Definition of Embedded System, Embedded Systems Vs General Computing Systems, History of Embedded Systems, Classification, Major Application Areas, Purpose of embedded systems, characteristics and quality attributes of embedded systems.
	UNIT-II: Embedded Hardware Embedded hardware building blocks, Embedded Processors – ISA architecture models, Internal processor design, processor performance, Board Memory – ROM, RAM, Auxiliary Memory, Memory Management of External Memory, Board Memory and performance. Embedded board Input / output – Serial versus Parallel I/O, interfacing the I/O components, I/O components and performance, Board buses – Bus arbitration and timing, Integrating the Bus with other board components, Bus performance.	**UNIT-II** **Embedded Hardware:** Embedded hardware building blocks, Embedded Processors – ISA architecture models, Internal processor design, processor performance, Board Memory – ROM, RAM, Auxiliary Memory, Memory Management of External Memory, Board Memory and performance. Embedded board Input / output – Serial versus Parallel I/O, interfacing the I/O components, I/O components and performance, Board buses – Bus arbitration and timing, Integrating the Bus with other board components, Bus performance.
	UNIT-III: Embedded Software Device drivers, Device Drivers for interrupt-Handling, Memory device drivers, On-board bus device drivers, Board I/O drivers, Explanation about above drivers with	**UNIT-III** **Embedded Software:** Device drivers, Device Drivers for interrupt-Handling, Memory device drivers, On-board bus device drivers, Board I/O drivers, Explanation about

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	suitable examples. Embedded operating systems – Multitasking and process Management, Memory Management, I/O and file system management, OS standards example – POSIX, OS performance guidelines, Board support packages, Middleware and Application Software – Middle ware, Middleware examples, Application layer software examples.	above drivers with suitable examples. Embedded operating systems – Multitasking and process Management, Memory Management, I/O and file system management, OS standards example – POSIX, OS performance guidelines, Board support packages, Middleware and Application Software – Middle ware, Middleware examples, Application layer software examples.
	UNIT-IV: Embedded System Design, Development, Implementation and Testing Embedded system design and development lifecycle model, creating an embedded system architecture, introduction to embedded software development process and tools- Host and Target machines, linking and locating software, Getting embedded software into the target system, issues in Hardware-Software design and co-design. Implementing the design-The main software utility tool, CAD and the hardware, Translation tools, Debugging tools, testing on host machine, simulators, Laboratory tools, System Boot-Up.	**UNIT-IV** **Embedded System Design, Development, Implementation and Testing:**Embedded system design and development lifecycle model, creating embedded system architecture, introduction to embedded software development process and tools- Host and Target machines, linking and locating software, getting embedded software into the target system, issues in Hardware-Software design and co-design. Implementing the design-The main software utility tool, CAD and the hardware, Translation tools, Debugging tools, testing on host machine, simulators, Laboratory tools, System Boot-Up.
	UNIT-V: Embedded System Design-Case Studies Case studies- Processor design approach of an embedded system – Power PC Processor based and Micro Blaze Processor based Embedded system design on Xilinx platform-NiosII Processor based Embedded system design on Altera platform-Respective Processor architectures should be taken into consideration while designing an Embedded System.	**UNIT-V** **Embedded System Design-Case Studies:** Case studies- Processor design approach of an embedded system –Power PC Processor based and Micro Blaze Processor based Embedded system design on Xilinx platform-NiosII Processor based Embedded system design on Altera platform-Respective Processor architectures should be taken into consideration while designing an Embedded System

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	EMBEDDED REAL TIME OPERATING SYSTEMS	REAL TIME OPERATING SYSTEMS
Course Code	I5502	172EM1T03
syllabus	**UNIT-I: Introduction** OS Services, Process Management, Timer Functions, Event Functions, Memory Management,Device, File and IO Systems Management, Interrupt Routines in RTOS Environment andHandling of Interrupt Source Calls, Real-Time Operating Systems, Basic Design Using anRTOS, RTOS Task Scheduling Models, Interrupt Latency and Response of the Tasks as Performance Metrics, OS Security Issues.	**UNIT-I** **Introduction:** OS Services, Process Management, Timer Functions, Event Functions, Memory Management, Device, File and IO Systems Management, Interrupt Routines in RTOS Environment and Handling of Interrupt Source Calls, Real-Time Operating Systems, Basic Design Using an RTOS, RTOS Task Scheduling Models, Interrupt Latency and Response of the Tasks as Performance Metrics, OS Security Issues.
	UNIT-II: RTOS Programming Basic Functions and Types of RTOS for Embedded Systems, RTOS mCOS-II, RTOS Vx Works, Programming concepts of above RTOS with relevant Examples, Programming concepts of RTOS Windows CE, RTOS OSEK, RTOS Linux 2.6.x and RTOS RT Linux.	**UNIT-II** **Real Time Operating Systems:** Brief History of OS, Defining RTOS, basic Functions and Types of RTOS for Embedded Systems, The Scheduler, Objects, Services, Characteristics of RTOS, Defining a Task, tasks States and Scheduling, Task Operations, Structure, Synchronization, Communication and Concurrency. Defining Semaphores, Operations and Use, Defining Message Queue, States, Content, Storage, Operations and Use, all the functions using RTOS MUCOS-II.
	UNIT-III: Program Modeling – Case Studies	**UNIT-III** **Program Modelling:**

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	Case study of embedded system design and coding for an Automatic Chocolate Vending Machine (ACVM) Using Mucos RTOS, case study of digital camera hardware and software architecture, case study of coding for sending application layer byte streams on a TCP/IP Network Using RTOS Vx Works, Case Study of Embedded System for an Adaptive Cruise Control (ACC) System in Car, Case Study of Embedded System for a Smart Card, Case Study of Embedded System of Mobile Phone Software for Key Inputs.	Case Studies: Case study of embedded system design and coding for an Automatic Chocolate Vending Machine (ACVM) Using Mucos RTOS, case study of digital camera hardware and software architecture, case study of sending application layer byte streams on a TCP/IP Network, Case Study of Embedded System for an Adaptive Cruise Control (ACC) System in Car, Case Study of Embedded System for a Smart Card, Case Study of Embedded System of Mobile Phone.
	UNIT-IV: Target Image Creation & Programming in Linux Off-The-Shelf Operating Systems, Operating System Software, Target Image Creation for Window XP Embedded, Porting RTOS on a Micro Controller based Development Board.Overview and programming concepts of Unix/Linux Programming; Shell Programming, System Programming.	**UNIT-IV** **Target Image Creation & Programming in Linux:** Off-The-Shelf Operating Systems, Operating System Software, Target Image Creation for Window XP Embedded, Porting RTOS on a Micro Controller based Development Board.Overview and programming concepts of Unix/Linux Programming, Shell Programming, System Programming. Embedded Systems.
	UNIT-V: Programming in RT Linux Overview of RT Linux, Core RT Linux API, Program to display a message periodically, semaphore management, Mutex, Management, Case Study of Appliance Control by RT Linux System.	**UNIT-V** **Programming in RT Linux:** Overview of RT Linux, Core RT Linux API, Program to display a message periodically, semaphore management, Mutex, Management, Case Study of Appliance Control by RT Linux System.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Soft Computing Techniques	Soft Computing Techniques
Course Code	I6807	172EM1E03
syllabus	**UNIT –I:** **Introduction:** Approaches to intelligent control, Architecture for intelligent control, Symbolic reasoning system, Rule-based systems, the AI approach, Knowledge representation - Expert systems.	**UNIT-I** **Introduction:** Approaches to intelligent control, Architecture for intelligent control, Symbolic reasoning system, Rule-based systems, the AI approach, Knowledge representation – Expert systems.
	UNIT –II: **Artificial Neural Networks:** Concept of Artificial Neural Networks and its basic mathematical model, McCulloch-Pitts neuron model, simple perceptron, Adaline and Madaline, Feed-forward Multilayer Perceptron, Learning and Training the neural network, Data Processing: Scaling, Fourier transformation, principal-component analysis and wavelet transformations, Hopfield network, Self-organizing network and Recurrent network, Neural Network based controller.	**UNIT-II** **Artificial Neural Networks:** Concept of Artificial Neural Networks and its basic mathematical model, McCulloch-Pitts neuron model, **Learning Process**: - error–correction learning, Hebbian learning, competitive learning, Boltzmann learning, the credit-assignment problem, supervised learning, and other learning techniques. **Single Neuron/Perceptron networks**: - training methodology, typical application to linearly separable problems. Feed-forward Multilayer Perceptron, Multilayer Perceptron: - Back propagation algorithm, virtues and limitation of BP algorithm, modifications to back-propagation, Hopfield network, Self-organizing network and Recurrent network.
	UNIT –III: **Fuzzy Logic System:** Introduction to crisp sets and fuzzy sets, basic fuzzy set operation and approximate reasoning, Introduction	**UNIT–III** **Fuzzy Logic System:** Introduction to Fuzzy systems, Membership function, basic fuzzy set operation and approximate reasoning,

	to fuzzy logic modeling and control, Fuzzification, inferencing and defuzzification, Fuzzy knowledge and rule bases, Fuzzy modeling and control schemes for nonlinear systems, Self-organizing fuzzy logic control, Fuzzy logic control for nonlinear time delay system.	Introduction to fuzzy logic modeling and control, Fuzzification, inferencing and de-fuzzification, Fuzzy modeling and control schemes for nonlinear systems, Self-organizing fuzzy logic control.
	UNIT –IV: **Genetic Algorithm:** Basic concept of Genetic algorithm and detail algorithmic steps, Adjustment of free parameters, Solution of typical control problems using genetic algorithm, Concept on some other search techniques like Tabu search and anD-colony search techniques for solving optimization problems.	**UNIT-IV** **Genetic** Algorithm: Basic concept of Genetic algorithm and detail algorithmic steps, Basic concepts, Search space, working principle. **Encoding**: binary, Octal, Hexadecimal, permutation, Value and Tree. **Decoding**, fitness function, Selection: Roulette wheel, Boltzmann, Tournament, Rank and Steady-state. Elitism, **Crossover**: single-point, two-point, multi-point, uniform, matrix and crossover rate, **Mutation**: mutation, mutation rate. **Ant colony optimization**: Ant foraging behavior, combinatorial optimization, Routing in communication network, traveling sales man problem.
	UNIT –V: **Applications:** GA application to power system optimisation problem, Case studies: Identification and control of linear and nonlinear dynamic systems using MATLAB-Neural Network toolbox, Stability analysis of Neural-Network interconnection systems, Implementation of fuzzy logic controller using MATLAB fuzzy-logic toolbox, Stability analysis of fuzzy control systems.	**UNIT-V** **Applications:** GA: function optimization, adaptive system identification, and Application of ANN and Fuzzy systems to non-stationary time series prediction; pattern classification, control; communication engineering, system identification and pattern classification.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	EMBEDDED SYSTEM DESIGN LABORATORY	EMBEDDED SYSTEMS LABORATORY
Course Code	J5505	172EM1L01
syllabus	**Part-I: Experiments using ARM-926 with PERFECT RTOS** 1. Register a new command in CLI. 2. Create a new Task. 3. Interrupt handling. 4. Allocate resource using semaphores. 5. Share resource using MUTEX. 6. Avoid deadlock using BANKER'S algorithm. 7. Synchronize two identical threads using MONITOR. 8. Reader's Writer's Problem for concurrent Tasks. **Part-II Experiments on ARM-CORTEX processor using any open source RTOS.** (Coo-Cox-Software-Platform) 1. Implement the interfacing of display with the ARM- CORTEX processor. 2. Interface ADC and DAC ports with the Input and Output sensitive devices. 3. Simulate the temperature DATA Logger with the SERIAL communication with PC. 4. Implement the developer board as a modem for data communication using serial port communication between two PC's.	**List of Experiments:** 1. LED Blinking. 2. ASCII to Decimal vice versa conversion. 3. Basic Arithmetic operations. 4. PWM (Motor application). 5. Serial Communication (USART). 6. ADC and DAC implementation. 7. JTAG Debugger. 8. Seven segment display interfacing. 9. LCD display interfacing. 10. 3x4 keyboard interfacing. 11. Encryption and decryption of serial communication of characters (data) from the system to PC RS232C COM port 12. CAN Controlled Traffic Lights

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Syllabus revision Index (V.L.S.I.D.)

2017-18

S.No	Name of the course	Percentage of syllabus change
1	Soft Computing Techniques	50
2	Low Power VLSI Design	30
3	Back end VLSI Design Laboratory	60

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Soft Computing Techniques	Soft Computing Techniques
Course Code	I6807	172EM1E03
Syllabus	**UNIT –I:** **Introduction:** Approaches to intelligent control, Architecture for intelligent control, Symbolic reasoning system, Rule-based systems, the AI approach,Knowledge representation - Expert systems.	**UNIT-I:** **Introduction:** Approaches to intelligent control, Architecture for intelligent control, Symbolic reasoning system, Rule-based systems, the AI approach, Knowledge representation – Expert systems.
	UNIT –II: **Artificial Neural Networks:** Concept of Artificial Neural Networks and its basic mathematical model, McCulloch-Pitts neuron model, simple perceptron, Adaline and Madaline, Feed-forward Multilayer Perceptron, Learning and Training the neural network, Data Processing: Scaling, Fourier transformation, principal-component analysis and wavelet transformations, Hopfield network, Self-organizing network and Recurrent network, Neural Network based controller.	**UNIT-II:** **Artificial Neural Networks:** Concept of Artificial Neural Networks and its basic mathematical model, McCulloch-Pitts neuron model, **Learning Process**: - error–correction learning, Hebbian learning, competitive learning, Boltzmann learning, the credit-assignment problem, supervised learning, and other learning techniques. **Single Neuron/Perceptron networks**: - training methodology, typical application to linearly separable problems. Feed-forward Multilayer Perceptron, Multilayer Perceptron: - Back propagation algorithm, virtues and limitation of BP algorithm, modifications to back-propagation, Hopfield network, Self-organizing network and Recurrent network.
	UNIT –III: **Fuzzy Logic System:** Introduction to crisp sets and fuzzy sets, basic fuzzy set operation and approximate reasoning,	**UNIT–III:** **Fuzzy Logic System:** Introduction to Fuzzy systems, Membership function, basic fuzzy set operation and approximate reasoning,

	Introduction to fuzzy logic modeling and control,Fuzzification, inferencing and defuzzification, Fuzzy knowledge and rule bases, Fuzzy modeling and control schemes for nonlinear systems, Self-organizing fuzzy logic control, Fuzzy logic control for nonlinear timedelay system.	Introduction to fuzzy logic modeling and control, Fuzzification, inferencing and de-fuzzification, Fuzzy modeling and control schemes for nonlinear systems, Self-organizing fuzzy logic control.
	UNIT –IV: **Genetic Algorithm:** Basic concept of Genetic algorithm and detail algorithmic steps, Adjustment of free parameters, Solution of typical control problems using genetic algorithm, Concept on some other search techniques like Tabu search and anD-colony search techniques for solving optimization problems.	**UNIT-IV:** **Genetic** Algorithm: Basic concept of Genetic algorithm and detail algorithmic steps, Basic concepts, Search space, working principle. **Encoding**: binary, Octal, Hexadecimal, permutation, Value and Tree. **Decoding**, fitness function, Selection: Roulette wheel, Boltzmann, Tournament, Rank and Steady-state. Elitism, **Crossover**: single-point, two-point, multi-point, uniform, matrix and crossover rate, **Mutation**: mutation, mutation rate. **Ant colony optimization**: Ant foraging behavior, combinatorial optimization, Routing in communication network, traveling sales man problem.
	UNIT –V: **Applications:** GA application to power system optimisation problem, Case studies: Identification and control of linear and nonlinear dynamic systems using MATLAB-Neural Network toolbox, Stability analysis of Neural-Network interconnection systems, Implementation of fuzzy logic controller using MATLAB fuzzy-logic toolbox, Stability analysis of fuzzy control systems.	**UNIT-V:** **Applications:** GA: function optimization, adaptive system identification, and Application of ANN and Fuzzy systems to non-stationary time series prediction; pattern classification; control; communication engineering; system identification and pattern classification.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Low Power VLSI Design	Low Power VLSI Design
Course Code	J6806	172VD2T06
Syllabus	**UNIT-I: Fundamentals of Low Power VLSI Design** Need for Low Power Circuit Design, Sources of Power Dissipation – Switching Power Dissipation, Short Circuit Power Dissipation, Leakage Power Dissipation, Glitching Power Dissipation, Short Channel Effects – Drain Induced Barrier Lowering and Punch Through, Surface Scattering, Velocity Saturation, Impact Ionization, Hot Electron Effect.	**UNIT-I** **Fundamentals of Low Power VLSI Design:** Basics of MOS circuits: MOS Transistor structure and device modeling, MOS Inverters, MOS, Combinational Circuits – Different Logic Families. Need for Low Power Circuit Design. Sources of Power dissipation: Dynamic Power Dissipation, Short Circuit Power, Switching Power, Glitch Power, and Static Power Dissipation. Short Channel Effects –Drain Induced Barrier Lowering and Punch Through, Surface Scattering, Velocity Saturation, Impact Ionization, Hot Electron Effect.
	UNIT-II: Low-Power Design Approaches **Low-Power Design through Voltage Scaling** – VTCMOS circuits, MTCMOS circuits, Architectural Level Approach – Pipelining and Parallel Processing Approaches. **Switched Capacitance Minimization Approaches** System Level Measures, Circuit Level Measures, Mask level Measures.	**UNIT-II** **Low-Power Design Approaches:** Low-Voltage Low-Power Design Techniques –Trends of Technology and Power Supply Voltage, Low-Voltage Low-Power Logic Styles. . **Low-Power Design through Voltage Scaling:** VTCMOS circuits, MTCMOS circuits, Architectural Level Approach – Pipelining and Parallel Processing Approaches. Switched Capacitance Minimization Approaches: System Level Measures, Circuit Level Measures and Masklevel Measures.
	UNIT-III: Low-Voltage Low-Power Adders	**UNIT-III** **Low-Voltage Low-Power Adders**

	Introduction, Standard Adder Cells, CMOS Adder's Architectures – Ripple Carry Adders, Carry Look-Ahead Adders, Carry Select Adders, Carry Save Adders, Low-Voltage Low-Power Design Techniques –Trends of Technology and Power Supply Voltage, Low-Voltage Low-Power Logic Styles.	**&Multipliers:** Introduction, Standard Adder Cells, CMOS Adder's Architectures – Ripple Carry Adders, Carry Look-Ahead Adders, Carry Select Adders, Carry Save Adders, Introduction, Overview of Multiplication, different types of Multiplier Architectures, Baugh-Wooley Multiplier, Booth Multiplier.
	UNIT-IV: Low-Voltage Low-Power Multipliers Introduction, Overview of Multiplication, Types of Multiplier Architectures, Braun Multiplier, Baugh-Wooley Multiplier, Booth Multiplier, Introduction to Wallace Tree Multiplier.	**UNIT-IV** **Low-Voltage Low-Power Memories:** Basics of ROM, Low-Power ROM Technology, Future Trend and Development of ROMs, Basics of SRAM, Memory Cell, Pre-charge and Equalization Circuit, Low-Power SRAM Technologies, Basics of DRAM, Self-Refresh Circuit, Future Trend and development of DRAM.
	UNIT-V: Low-Voltage Low-Power Memories Basics of ROM, Low-Power ROM Technology, Future Trend and Development of ROMs, Basics of SRAM, Memory Cell, Precharge and Equalization Circuit, Low-Power SRAM Technologies, Basics of DRAM, Self-Refresh Circuit, Future Trend and Development of DRAM.	**UNIT V** **Energy recovery and low power latches and Flip Flops:** Energy Recovery Circuit Design: Design with Partially Reversible Logic-Need for Low Power Latches and Flip Flops- Evolution of Latches and Flip Flops-Quality Measures for Latches and Flip Flops.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Back end VLSI Design Laboratory	Back end VLSI Design Laboratory
Course Code	J5704	172VD2L02
Syllabus	**PART-A: VLSI Lab (Back-end Environment)** **The students are required to design and implement the Layout of the following experiments of any FIVE using CMOS 130nm Technology with appropriate** Industrial standard software **List of Experiments:** 9. Inverter Characteristics. 10. Full Adder. 11. RS-Latch, D-Latch and Clock Divider. 12. Synchronous Counter and Asynchronous Counter. 13. Static RAM Cell. 14. Dynamic RAM Cell. 15. ROM 16. Digital-to-Analog-Converter. 17. Analog-to-Digital Converter. **PART-B: Mixed Signal Simulation** **The students are required to perform the following experimental concepts with suitable complexity of mixed-signal application based circuits of any FOUR (circuits consisting of both analog and digital parts) using necessary appropriate** Industrial standard software **List of experimental Concepts:**	**List of Experiments:** **1. Digital circuit simulation:** a. Design and verify the functional response of Shift Register by describing it in Verilog HDL. b. Design and verify the functional response of Adders by describing it in Verilog HDL. **2. IIR/FIR design using Matlab Simulink** **Note:-**The students are required to design schematics and implement the layout of the following experiments using CMOS 130nm Technology with Mentor Graphics Tool. **3. Schematics and its functional response verification for the following Circuits** **a**. CMOS Inverter **b**. Universal gates **c**. Full Adder. **d**. D-latch **e**. Ring Counter **f**. Differential Amplifier **g**. SRAM **4. Layout extraction for the following Circuits** **a**. CMOS Inverter **b**. Universal gates **c**. Full Adder. **d**. D-latch **e**. Ring Counter **f**. Differential Amplifier **g**. SRAM **5. Performing DRC for the following Circuits** **a**. CMOS Inverter **b**. Universal gates **c**. Full Adder. **d**. D-latch **e**. Ring Counter **f**. Differential Amplifier

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	Analog circuit simulation. Digital circuit simulation. Mixed signal simulation. Layout Extraction. Parasitic values estimation from layout. Layout Vs Schematic. Net List Extraction. Design Rule Checks	**g**. SRAM **6. Performing LVS / Net list extraction for the following Circuits** **a**. CMOS Inverter **b**. Universal gates **c**. Full Adder. **d**. D-latch **e**. Ring Counter **f**. Differential Amplifier **g**. SRAM **7. PEX estimation for the following logic circuits** **a**. CMOS Inverter **b**. Universal gates **c**. Full Adder. **d**. D-latch **e**. Ring Counter **f**. Differential Amplifier **g**. SRAM

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Department of Mechanical Engineering

M.Tech-Thermal Engineering

Syllabus revision Index (2017-18)

S. No	Name of the course	Percentage of syllabus change
1	Refrigeration& Cryogenics	20
2	Solar Energy Technology	20

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Refrigeration& Cryogenics	Refrigeration& Cryogenics
Course Code	I2106	171TE1E02
Syllabus	**UNIT-I:** **Vapour Compression Refrigeration Systems:** Analysis of vapour compression refrigeration cycle. Compound Vapour Compression System: Removing of flash gas inter cooling compound compression ultra water inter cooler - liquid flash cooler flash inlet cooler, multiple evaporator and compression systems, one compressor system individual compressors compound compression cascade systems.	**UNIT-I:** **Vapour Compression Refrigeration Systems:** Analysis of vapour compression refrigeration cycle. Compound Vapour Compression System: Removing of flash gas inter cooling compound compression ultra water inter cooler - liquid flash cooler flash inlet cooler, multiple evaporator and compression systems, one compressor system individual compressors compound compression cascade systems.
	UNIT-II: **Absorption Refrigeration System With Multiple Evaporators:** Three fluid absorption systems-the Lithium Bromide water absorption system, Steam jet water vapour systems thermoelectric refrigeration systems vortex refrigeration system pulse tube refrigeration. Desirable properties of refrigerants designation of refrigerants inorganic, halo carbon refrigerants inorganic halo carbon reactions-secondary refrigerants reaction of refrigerants with moisture and oil properties of mixtures of refrigerants ozone depletion potential and global warming potential of CFC refrigerants substitutes for CFC refrigerants.	**UNIT-II:** **Absorption Refrigeration System With Multiple Evaporators:** Three fluid absorption systems-the Lithium Bromide water absorption system, Steam jet water vapour systems thermoelectric refrigeration systems vortex refrigeration system pulse tube refrigeration. Desirable properties of refrigerants designation of refrigerants inorganic, halo carbon refrigerants inorganic halo carbon reactions- secondary refrigerants reaction of refrigerants with moisture and oil properties of mixtures of refrigerants ozone depletion potential and global warming potential of CFC refrigerants substitutes for CFC refrigerants.

	UNIT –III: **Cryogenics:** Introduction necessity of low temperature - Multistage Refrigeration system -Cascade system. Manufacture of dry ice-Joule Thompson coefficient, Liquefaction of air, Lined system-Analysis- Dual pressure cycle analysis-Liquefaction of Hydrogen and Helium problems.	**UNIT –III:** **Cryogenics:** Introduction necessity of low temperature - Multistage Refrigeration system -Cascade system. Manufacture of dry ice-Joule Thompson coefficient, Liquefaction of air, Lined system-Analysis- Dual pressure cycle analysis-Liquefaction of Hydrogen and Helium problems.
	UNIT-IV: **Application of Lower Temperatures:** Effects on the properties of metals-strength-Thermal properties-super conductivity-super fluidity. Applications like expansion fitting cryobiology-cryosurgery - space research computers underground power lines.	**UNIT-IV:** **Cryogenic Instrumentation:** Cryogenic Temperature Sensors, Cryogenic Liquid mass measurement in Storage Tanks and smaller Propeller Tanks, Thermo Couples, Semi Conductor Thermometry, Cryogenic Instrumentation for pressure and flow measurement.
	UNIT-V: **Low Temperature Insulation:** Reflective insulation-Evacuated powders-Rigid foams-Super insulation, cooling by adiabatic demagnetization - Gas separation and cryogenic systems separation of gasesRectifying columns- Air separating- single and double columns Air separation plant, Storage and handling of cryogenic liquids - Dewar's and other types of containers.	**UNIT-V:** **Application of Lower Temperatures:** Effects on the properties of metals-strength-Thermal properties-super conductivity-super fluidity Low Temperature Insulation: Reflective insulation-Evacuated powders-Rigid foams-Super insulation, cooling by adiabatic demagnetization - Gas separation and cryogenic systems separation of gases.

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1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	**Solar Energy Technology**	**Solar Energy Technology**
Course Code	**I12110**	**172TE2E06**
Syllabus	**UNIT-I:** **Introduction:** Solar energy option, specialty and potential, Sun, Earth Solar radiation, beam and diffuse, measurement, estimation of average solar radiation on horizontal and tilted surfaces, problems, applications. Capturing solar radiation physical principles of collection, types, liquid flat plate collectors, construction details, and performance analysis, concentrating collection, flat plate collectors with plane reflectors, cylindrical parabolic collectors, orientation and tracking, performance analysis.	**UNIT-I:** **Introduction:** Solar energy option, specialty and potential, Sun, Earth Solar radiation, beam and diffuse, measurement, estimation of average solar radiation on horizontal and tilted surfaces, problems, applications. Capturing solar radiation physical principles of collection, types, liquid flat plate collectors, construction details, and performance analysis, concentrating collection, flat plate collectors with plane reflectors, cylindrical parabolic collectors, orientation and tracking, performance analysis.
	UNIT-II: **Design of Solar Water Heating System and Layout:** Power generation, solar central receiver system, Heliostats and Receiver, Heat transport system, solar distributed receiver system, Power cycles, working fluids and prime movers, concentration ratio.	**UNIT-II:** **Design of Solar Water Heating System and Layout:** Power generation, solar central receiver system, Heliostats and Receiver, Heat transport system, solar distributed receiver system, Power cycles, working fluids and prime movers, concentration ratio.
	Unit-III: **Thermal Energy Storage:** Introduction, Need for, Methods of sensible heat storage using solids and liquids, packed bed storage, Latent heat storage – working principle, construction, application and limitations. Other solar devices – stills, air heaters, dryers, Solar Ponds & Solar Refrigeration, active and passive heating systems.	**Unit-III:** **Thermal Energy Storage:** Introduction, Need for, Methods of sensible heat storage using solids and liquids, packed bed storage, Latent heat storage – working principle, construction, application and limitations. Other solar devices – stills, air heaters, dryers, Solar Ponds & Solar Refrigeration, active and passive heating systems.

	Unit-IV: **Direct Energy Conversion:** Solid-state principles, semiconductors, solar cells, performance, modular construction, applications. conversion efficiencies calculations.	**Unit-IV:** **Direct Energy Conversion:** Solid-state principles, semiconductors, solar cells, performance, modular construction, applications. conversion efficiencies calculations. Economics: Principles of Economic Analysis – Discounted cash flow – Solar system – life cycle costs – cost benefit analysis.
	UNIT-V: **Economics:** Principles of Economic Analysis – Discounted cash flow – Solar system – life cycle costs – cost benefit analysis and optimization – cost based analysis of water heating and photo voltaic applications.	**Unit-V** **Applications of Solar energy:** Solar Water Heating, Solar Furnaces, Solar Pumping, Solar Electric Power Generation, Solar Thermal Power Production, Solar Buildings. Use of flat plate and solar collectors in thermal power plants.

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Department of Computer Science and Engineering

Syllabus revision Index 2017-2018

S.No	Name of the course	Percentage of syllabus change
1	Computer Organization and Architecture	40%
2	Computer Networks	50%

Program Coordinator

Head of the Department

Head of the Department
Department of CSE
ADITYA ENGINEERING COLLEGE (A)

Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Organization and Architecture	Computer Organization and Architecture
Course Code	I5802	172CO1T03
Syllabus	**UNIT-I:** Number Systems And Computer Arithmetic Signed And Unsigned Numbers, Addition and Subtraction, Multiplication, Division, Floating Point Representation Logical Operation, Gray Code, BCD Code, Error Detecting Codes. Boolean Algebra, Simplification of Boolean Expressions- Maps.	**UNIT-I:** **Number Systems and Basic Operational Concepts** Number Systems And Computer Arithmetic Signed And Unsigned Numbers Addition and Subtraction, Multiplication, Division, Floating Point Representation. Basic Operational Concept, Bus Structures. Register Transfer Language, Register Transfer, Bus and Memory Transfers, Micro operations, Types of Micro operations.
	UNIT-II: Combinational and Sequential Circuits Decoders, Encoders, Multiplexers, Half and Full Adders, Shift Registers, Flip-Flops, Binary Counters, Memory Unit.	**UNIT-II:** **Instructions and Register Organization** Instruction codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Instruction Types. General Register Organization, Stack Organization, Instruction formats, Addressing modes, RISC and CISC Computers.
	UNIT-III: Memory Organisation Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory, Virtual Memory Concept.	**UNIT-III:** **Memory Organization Memory Hierarchy** Main Memory, Auxiliary Memory, Associative Memory, Cache Memory, Virtual Memory Concepts.
	UNIT-IV: ALU Design Addition and Subtraction, Sign and Unsigned	**UNIT-IV:** **ALU Design** Addition and Subtraction Sign and Unsigned Numbers,

	Numbers, Multiplication and Division Algorithms, BCD Adders.	Multiplication and Division Algorithms, BCD Adders.
	UNIT-V: Input –Output Organisation Peripheral Devices, Input-Output Interface, Asynchronous data transfer, Modes of Transfer, Priority Interrupts, DMA, Input Output Processor, Serial Communication.	**UNIT-V:** **Input – Output Organization** Peripheral Devices, Input-Output Interface, Asynchronous data transfer, Modes of Transfer, Priority Interrupts, DMA, Input Output Processor, Serial Communication.

Signature of the Course Coordinator

Signature of the HOD

Department of Computer Science and Engineering

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Computer Networks	Computer Networks
Course Code	J5801	172CO1T05
Syllabus	**UNIT-I:** Introduction: Network Topologies WAN, LAN, MAN. Reference models- The OSI Reference Modelthe TCP/IP Reference Model - A Comparison of the OSI and TCP/IP Reference Models	**UNIT-I:** **Introduction to Network Topologies and Reference models** Network Topologies WAN, LAN, MAN. Reference models- The OSI Reference Model-the TCP/IP Reference Model - A Comparison of the OSI and TCP/IP Reference Models. Examples of Networks: Novell Networks, Arpanet, Internet
	UNIT-II: Physical Layer – Fourier Analysis – Bandwidth Limited Signals – The Maximum Data Rate of a Channel - Guided Transmission Media, Digital Modulation and Multiplexing: Frequency Division Multiplexing, Time Division Multiplexing, Code Division Multiplexing Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols, Sliding Window Protocols	**UNIT-II:** **Physical Layer** Introduction, Guided Transmission Media, Multiplexing: frequency division multiplexing, wave length division multiplexing, synchronous time division multiplexing, statistical time division multiplexing, introduction to switching: Circuit Switched Networks, Datagram Networks, Virtual Circuit Networks., Code Division Multiplexing.
	UNIT-III: The Data Link Layer - Services Provided to the Network Layer – Framing – Error Control – Flow Control, Error Detection and Correction – Error-Correcting Codes – Error Detecting Codes, Elementary Data Link Protocols- A Utopian Simplex Protocol-A Simplex Stop and Wait Protocol for an Error free channel-A Simplex Stop and Wait	**UNIT-III:** **The Data Link Layer** Design Issues ,Services Provided to the Network Layer – Framing – Error Control – Flow Control, Error Detection and Correction – Error-Correcting Codes – Error Detecting Codes, CRC, Hamming code , Elementary Data Link Layer protocols: simplex protocol, Simplex stop and wait, Simplex protocol for Noisy Channel. Sliding

	Protocol for a Noisy Channel, Sliding Window Protocols-A One Bit Sliding Window Protocol-A Protocol Using Go-Back-N- A Protocol Using Selective Repeat	window protocol: One bit, Go back N, Selective repeat-Stop and wait protocol , HDLC, point to point protocol (PPP).
	UNIT-IV: The Medium Access Control Sublayer-The Channel Allocation Problem-Static Channel Allocation-Assumptions for Dynamic Channel Allocation, Multiple Access Protocols-Aloha-Carrier Sense Multiple Multiple Access Protocols-Collision-Free Protocols-Limited Contention Protocols-Wireless LAN Protocols, Ethernet-Classic Ethernet Physical Layer-Classic Ethernet MAC Sublayer Protocol-Ethernet Performance-Fast Ethernet Gigabit Ethernet-10-Gigabit Ethernet-Retrospective on Ethernet, Wireless Lans-The 802.11 Architecture and Protocol Stack-The 802.11 Physical Layer-The802.11 MAC Sublayer Protocol-The 805.11 Frame Structure-Services	**UNIT-IV:** **Random Access** ALOHA, MAC addresses, Carrier sense multiple access (CSMA), CSMA with Collision Detection, CSMA with Collision Avoidance, Controlled Access: Reservation, Polling, Token Passing, Channelization: frequency division multiple access(FDMA), time division multiple access(TDMA), code division multiple access(CDMA). Network Layer: Virtual circuit and Datagram subnets-Routing algorithm shortest path routing, Flooding, Hierarchical routing, Broad cast, Multi cast, distance vector routing.
	UNIT-V: Design Issues-The Network Layer Design Issues – Store and Forward Packet Switching-Services Provided to the Transport layer- Implementation of Connectionless Service-Implementation of Connection Oriented Service-Comparison of Virtual Circuit and Datagram Networks, Routing Algorithms-The Optimality principle-Shortest path Algorithm, Congestion Control Algorithms- Approaches to Congestion Control-Traffic Aware Routing-Admission Control-Traffic Throttling-Load Shedding.	**UNIT-V:** **IEEE Standards and Application Layer** Data link layer, physical layer, Manchester encoding, Standard Ethernet: MAC sub layer, physical layer, Fast Ethernet: MAC sub layer, physical layer, IEEE-802.11: Architecture, MAC sub layer, addressing mechanism, frame structure. Application layer (WWW and HTTP): ARCHITECTURE: Client (Browser), Security, DNS, SNMP, Email, The wireless web : WAP—The Wireless Application Protocol

Signature of the course coordinator

Signature of the HOD

Department of M.Tech (Software Engineering)

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Big Data Analytics	Big Data Analytics
Course Code	162SO1T04	172SO1T04
Syllabus	**UNIT-I:** Dictionaries and Hashing: Sets, Dictionaries, Hash Tables, Open Hashing, Closed Hashing (Rehashing Methods), Different Hash Functions(Division Method, Multiplication Method, Mid-Square Method, Folding Method), Secure Hash Functions, Collision Resolution Techniques - Open Addressing and Closed Addressing, Dynamic Hashing.	**UNIT-I:** External Sorting: Introduction, K-way Merge Sort, Buffer Handling for parallel Operation, Run Generation, Optimal Merging of Runs, Huffman Tree. Hashing: Introduction to Static Hashing, Hash Tables, Hash Functions, Different Hash Functions, Collision Resolution Techniques, Dynamic Hashing
	UNIT-II: Introduction to Non linear Data Structures: Trees: Introduction, Types of Trees, Creating a Binary tree, Traversing a Binary Tree, Applications of Binary Tree. Priority Queues: Introduction, Binary Heaps, Basic Heap Operations, Applications of Priority Queues.	**UNIT-II:** Priority Queues (Heaps): Introduction, Binary Heaps-Model and Simple Implementation, Basic Heap Operations, Other Heap Operations, Applications of Priority Queues, Binomial Heaps (or Queues), Binomial Heap Structure and Implementation, Binomial Queue Operations.
	UNIT-III: Efficient Binary Search Trees: Binary Search Trees, Operations on Binary Search Trees, Self- balancing Binary Search Trees, AVL Trees- Operations on AVL Trees Multi-way Search Trees: B-Trees, B+ Trees.	**UNIT-III:** Efficient Binary Search Trees: Self-balancing Binary Search Tree, AVL Trees, Rotations-LL, RR, LR and RL, Searching, Insertion, Deletion operations on AVL Trees, Red-Black Tree, Properties and Representation of Red-Black Trees, Insertion and deletion operations on Red-Black Trees, Applications of Red-Black Trees.
	UNIT-IV: Graphs: Graph Terminology, Representations of Graphs, Graph Traversal Algorithms,	**UNIT-IV:** Multiway Search Trees: M-Way Search Trees Definition and Properties, B-Tree Definition and

	Minimum Cost Spanning Tree-Kruskal's and Prim's algorithms, Shortest Path Algorithm Dijkstr's Algorithm, Applications of Graphs.	Properties, Searching, Insertion and Deletion operations on B-Trees, B+ Tree, Insertion and Deletion operations on B+ Trees. Digital Search Structures: Introduction to Digital Search Tree, Operations on Digital Search Trees- Insertion, Searching, and Deletion.
	UNIT-V: Pattern matching algorithms: The Boyer –Moore algorithm, The Knuth-Morris- Pratt algorithm Tries: Definition, Digital Search Tree-Operations on Digital Search Tree, Binary trie and Patricia. .	**UNIT**-V: Digital Search Structures: Binary Tries, Compressed Binary Trie, Patricia, Searching Patricia, inserting into Patricia, delete a node from Patricia, Multiway Tries- Definition, Searching a Trie, Compressed Tries, Compressed Tries with Digit Numbers-Searching, Insertion, Deletion. String Processing: String Operations, Brute-Force Pattern Matching, The BoyerMoore Algorithm, The Knuth-Morris-Pratt Algorithm, The Longest Common Subsequence Problem (LCS). .

Signature of the Course Coordinator

Signature of the HOD

Head of the Department
Department of IT
Aditya Engineering Colleg

Department of M.Tech (Software Engineering)

1.1.2. Table-Prior/Post revision of syllabus

Regulation	Pre-Revision	Post-Revision
Course Title	Cloud Computing	Cloud Computing
Course Code	162CO2E08	172CO2E08
Syllabus	**UNIT-I:** Basic Structure Of Computers: Functional unit, Basic Operational concepts, Bus structures, System Software, Performance, The history of computer development.	**UNIT-I:** Basic Structure of Computers: Computer Types, Functional Units, Basic Operational Concepts, Bus structures, Software, Performance, Historical Perspective. Machine Instruction and Programs: Instructions and Instruction Sequencing, Addressing Modes, Basic Input/output Operations, Stacks and Queues, Additional Instructions.Case Study: ARM, Motorola and Intel Instruction sets.
	UNIT-II: Machine Instruction and Programs: Instruction and Instruction Sequencing: Register Transfer Notation, Assembly Language Notation, Basic Instruction Types, Addressing Modes, Basic Input/output Operations, The role of Stacks and Queues in computer programming equation. Component of Instructions: Logic Instructions, shift and Rotate Instructions	**UNIT-II:** Arithmetic : Addition and Subtraction of Signed Numbers, Signed-Operand Multiplication, Floating-Point Numbers and Operations – IEEE Standard for Floating-Point Numbers, Arithmetic Operations on Floating-Point Numbers. Basic Processing Unit: Some Fundamental Concepts, Execution of a Complete Instruction, Multiple-Bus Organization, Hardwired Control, Micro programd Control -Microinstructions, Micro program Sequencing, Wide Branch Addressing, Microinstructionswith Next –Address
	UNIT-III: Type of Instructions: Arithmetic and Logic Instructions, Branch Instructions, Addressing Modes, Input/output Operations	**UNIT-III:** The Memory System: Some Basic Concepts, Read-Only Memories - ROM, PROM, EPROM, EEPROM, Flash Memory, Speed, Size and Cost, Cache Memories - Mapping Functions, Replacement Algorithms, Performance considerations – Interleaving, Hit Rate and Miss Penalty, Virtual Memories, Memory Management Requirements, Secondary Storage
	UNIT-IV: INPUT/OUTPUT ORGANIZATION: Accessing I/O Devices,	**UNIT-IV:** Input/Output Organization: Accessing I/O Devices, Interrupts -

	Interrupts: Interrupt Hardware, Enabling and Disabling Interrupts, Handling Multiple Devices, Direct Memory Access, Buses: Synchronous Bus, Asynchronous Bus, Interface Circuits, Standard I/O Interface: Peripheral Component Interconnect (PCI) Bus, Universal Serial Bus (USB)	Interrupt Hardware, Enabling and Disabling Interrupts, Handling Multiple Devices, modes of transfer –Programd I/O, Interrupt initiated I/O & Direct Memory Access, Buses - Synchronous Bus, Asynchronous Bus, Interface Circuits, Standard I/O Interfaces - Peripheral Component Interconnect (PCI) Bus, Universal Serial Bus (USB).
	UNIT-V: The MEMORY SYSTEMS: Basic memory circuits, Memory System Consideration, ReadOnly Memory: ROM, PROM, EPROM, EEPROM, Flash Memory, Cache Memories: Mapping Functions, INTERLEAVING Secondary Storage: Magnetic Hard Disks, Optical Disks,	**UNIT-V:** Pipelining : Basic Concepts, Data Hazards, Instruction Hazards, Influence on Instruction Sets, Datapath and Control Considerations, Superscalar Operation.

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Head of the Department
Department of IT
Aditya Engg.