

PROGRAM STRUCTURE

I SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	201HS1T01	Communicative English		✓		Students are able to demonstrate communication skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
2	201BS1T01	Differential Equations and Linear Algebra		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using ordinary differential equations, system of linear equations in various engineering disciplines.
3	201BS1T04	Engineering Chemistry				
4	201ES1T02	Programming for Problem Solving using C				
5	201ES1I01	Engineering Graphics and Design		✓		Students are able to acquire skills related to creating technical drawings by displaying from different angles of projection and adding dimensional information.
6	201HS1L01	Communicative English Lab		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
7	201BS1L03	Engineering Chemistry Lab				
8	201ES1L02	Programming for Problem Solving using C Lab		✓		Students are able to acquire skills related to basic programming using C, enabling them to be employed as software developers.
9	201MC1T01	Environmental Science				

II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
10	201BS2T06	Transform Techniques		✓		Students are able to demonstrate problem solving skills by learning Fourier Transforms , Laplace Transforms, Z-Transforms and their applications
11	201BS2T09	Applied Physics				
12	201ES2I03	Object Oriented Programming through JAVA		✓		Students are able to acquire skills related to concepts of object-oriented programming and process of data file manipulations using Java, enabling them to be employed as software developers.
13	201ES2T10	Basic Electrical Engineering	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of electric circuits or networks enabling them to be employed for designing and manufacturing of electrical circuits.
14	201ES2T14	Network Analysis	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of electric circuits/networks enabling them to be employed for designing and manufacturing of electrical/ electronic equipment.
15	201ES2L08	Electronics Engineering Workshop		✓		Students are able to demonstrate technical skill of identifying , specifications of various devices, their symbols. They can recognise and make use of various instruments, like CRO, FG etc
16	201BS2L04	Applied Physics Lab				
17	201ES2L13	Basic Electrical Engineering Lab				
18	201MC2L01	Professional Communication Skills Lab		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
19	201MC2T02	Constitution of India				This subject helps the student to demonstrate their technical skills

						for constitution making and its importance for building a democratic India, to make them understand the executive, legislative and judiciary system.
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III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
20	201BS3T10	Numerical Methods & Vector Calculus		✓		Students are able to demonstrate problem solving skills by learning numerical methods for solving equations, differential equations, integrals, vector differentiation and vector integration
21	201EC3T01	Electronic Devices and Circuits	✓			Students are able to acquire skills related to design, of electronic circuits/networks enabling them to be employed for designing and manufacturing of electronic equipment.
22	201EC3T02	Signals and Systems	✓			Students are able to acquire skills related to analysis of signals enabling them to be employed for designing and manufacturing of electronic/ communication equipment.
23	201EC3T03	Digital Electronics and Logic Design	✓			Students are able to acquire skills related to design, of digital electronic circuits/networks enabling them to be employed for designing and manufacturing of electronic equipment.
24	201EC3T04	Random Variables and Stochastic Processes				
25	201EC3L01	Electronic Devices and Circuits Lab		✓		Students are able to demonstrate technical skill of characterizing electronic devices, modelling and analysis of electronic circuits.
26	201EC3L02	Signals and Systems Lab		✓		Students are able to demonstrate technical skill of characterizing different types of digital filters.
27	201EC3L03	Digital Electronics and Logic Design Lab		✓		Students are able to demonstrate technical skill of characterizing electronic devices, modelling and analysis of electronic circuits.
28	201SO3L04	Skill Oriented Course-I:Python Programming		✓		Students are able to acquire skills related to concepts of object-oriented programming and process of data file manipulations using Java, enabling them to be employed as software developers.
29	201MC3T03	Biology for Engineers				

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
30	201ES4T19	Linear Control Systems	✓			Students are able to acquire skills related to strategic methods to improving productivity and enhancing the best practices of the company that enables them to get employed in industries related to controlling of operations.
31	201EC4T05	Electronic Circuit Analysis	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of electronic circuits/networks enabling them to be employed for designing and manufacturing of electronic equipment.
32	201EC4T06	Integrated Circuits and Applications	✓			Students are able to acquire skills related to basic ckt. design with linear ICs enabling them to be employed for designing and manufacturing of electronic equipment.
33	201EC4T07	Analog Communications	✓			Students are able to acquire skills related to basic analog communication systems enabling them to be employed for designing and manufacturing of basic transceivers
34	201HS4T03	Managerial Economics and Financial Analysis			✓	Students are able to demonstrate competency in the domain of business management enabling them to become an entrepreneur.
35	201EC4L04	Electronic Circuit Analysis Lab		✓		Students are able to demonstrate technical skill of designing electronic circuits with linear ICs in the fields of instrumentation, communications etc.
36	201EC4L05	Integrated Circuits and Applications Lab		✓		Students are able to demonstrate technical skill of designing electronic circuits with linear ICs in the fields of instrumentation, communications etc.
37	201EC4L06	Analog Communications Lab		✓		Students are able to demonstrate technical skill of modelling and analysis of communication circuits.

38	201SC4L16	Skill Oriented Course-II: a) PCB Designing		✓		Students are able to demonstrate technical skill of Revit software enabling them to be employed in constructional industry
39	201SC4L17	Skill Oriented Course-II: b)Applications of Python Programming		✓		Students are able to demonstrate technical skill of designing and developing PCBs
40	201MC4T04	Essence of Indian Traditional Knowledge				

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
41	191EC5T08	Integrated Circuits and applications	✓			Students are able to acquire skills related to basic ckt. design with linear ICs enabling them to be employed for designing and manufacturing of electronic equipment.
42	191EC5T09	Digital Communications	✓			Students are able to acquire skills related to digital modulation and demodulation techniques, and noise performance, enabling them to be employed for designing and manufacturing of electronic/ communication equipment.
43	191EC5T10	Antennas and Wave Propagation	✓			Imparts knowledge related to communication concepts, radiation and reception of radio waves using antennas, which is helpful in being employable in the field of communications
44	191EC5T11	Computer Networks	✓			Students are able to acquire skills related to design and evaluate the performance of computer networks enabling them to be employed for designing and manufacturing of networking equipment.
45	191EC5E03	Electromagnetic Interference & Compatibility	✓			Imparts knowledge related to electromagnetic interference caused by surrounding electronic and electrical systems and the techniques to overcome it, which is helpful in being employable in the field of communications and other fields of electronics
46	191EC5E01	Computer System Architecture	✓			Students are able to acquire skills related to design, and evaluate the performance of computers enabling them to be employed for designing and manufacturing of computer systems

47	191EC5E02	Digital System Design-I	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of digital electronic circuits enabling them to be employed for designing and manufacturing of electronic equipment.
48	191EC5E04	Python Programming		✓		Students are able to demonstrate programming skill in python
49	191CE5O01	Basic Concrete Technology	✓			Students are able to acquire cognitive skills related to properties of concrete, design and test the concrete useful in constructional activities enabling them to be employed in constructional sector.
50	191EE5O01	Electrical Safety				
51	191EE5O02	Electrical Materials				
52	191EE5O03	Renewable Energy Sources		✓		Students are able to acquire skills related to solar, wind and bio-mass energy resources and conversion principles and techniques of various renewable resources.
53	191ME5O02	Fundamentals of Mechanical Engineering	✓			Students are able to acquire skills related to concepts of fundamentals of thermal, manufacturing and design fields in mechanical engineering.
54	191ME5O03	Supply Chain Management	✓			The students are able to acquire skills related to cost benefit analysis of different supply chains, designs which enable them to be employed in Marketing department of manufacturing and service based companies
55	191ME5O04	3D Printing	✓			Students are able to acquire skills on basic knowledge of various additive manufacturing processes and enabling them to be employed in manufacturing companies.
56	191ME5O05	Entrepreneurship Development and Incubation			✓	Students are able to acquire skills on basic knowledge on concepts of entrepreneurship development.
57	191CS5O02	Object Oriented Programming through C++	✓			Students are able to acquire skills related to concepts of object-oriented programming and process of data file manipulations using C++, enabling them to be employed as software developers.
58	191CS5O03	Java Programming	✓			Students are able to acquire skills related to java programming enabling them to be employed as software developers.

59	191CS5O04	R Programming	✓			Students are able to acquire skills related to R commands, Graphical representation of data sets, and visualization Techniques and also enabling them to be employed for Data analyst
60	191IT5O01	Data Base Management Systems	✓			Students are able to acquire skills related to Writing SQL Queries, implement normalization techniques and apply transaction processing techniques enabling them to be employed as a Database Administrator.
61	191IT5O02	Computer Graphics	✓			Students are able to demonstrate technical skill to develop graphical applications using line, polygon, curve drawing and clipping algorithms, design 2d and 3d applications.
62	191MI5O01	Overview of Mining		✓		This course demonstrate the technical skills of the student by giving them knowledge about life cycle of mines, ventilation, lighting and permanent lining of underground mines. It also gives knowledge about modern techniques of shaft sinking.
63	191PT5O01	Process Intensification in Petroleum Industry		✓		Students are able to demonstrate technical skill of characterizing different intensifications , modelling and analysis of process in Petroleum Industry.
64	191PT5O02	Fundamentals of Petroleum Industry		✓		Students are able to demonstrate technical skill of characterizing different streams , modelling and analysis of petroleum industry.
65	191AG5O01	Basic Crop Production Practices	✓			Students are able to acquire skills related to production practices and management techniques of agricultural and horticultural crops enabling them to be employed as agricultural field manager
66	191EC5L05	Integrated Circuits and applications Lab		✓		Students are able to demonstrate technical skill of designing electronic circuits with linear ics in the fields of instrumentation, communications etc.
67	191EC5L06	Digital Communications Lab		✓		Develops practical skills required for development of basic communication circuits.
68	191HS5T06	Employability Skills – III	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.

69	191PR5P02	Socially Relevant Project	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
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VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
70	191EC6T12	Internet of Things	✓			Students are able to acquire skills related to design, assemble and program IoT building blocks enabling them to be employed for designing and assembling of IoTs
71	191EC6T13	VLSI Design	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of VLSI circuits enabling them to be employed for designing and manufacturing of complex electronic equipment in the fields of communications, control and instrumentation etc.
72	191EC6T14	Digital Signal Processing	✓			Students are able to acquire skills related to processing of digital signals enabling them to be employed for designing and manufacturing of electronic/ communication equipment
73	191EC6E07	Information Theory and Coding	✓			Students are able to acquire skills related to operation and performance of digital communication equipment using error detecting, correcting and source coding techniques enabling them to be employed for designing and manufacturing of digital systems.
74	191EC6E06	Embedded Systems	✓			Students are able to acquire skills related to design, program and implement embedded systems and evaluate their performance enabling them to be employed for designing and manufacturing of electronic equipment with embedded systems.
75	191EC6E05	Digital System Design-II	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of digital electronic circuits enabling them to be employed for designing and manufacturing of electronic equipment.
76	191EC6E08	Soft Computing Techniques	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of soft computing techniques enabling them to be employed for designing and manufacturing of efficient embedded systems.

77	191EC6E11	Radar Systems	✓			Students are able to acquire skills related to operation and performance of radar systems enabling them to be employed for designing and manufacturing of radar systems like tracking radars, scan radars etc.
78	191EC6E10	Embedded C	✓			Students are able to acquire skills related to programming using embedded C
79	191EC6E09	Design for Testability	✓			Students are able to acquire skills related to design, implement and evaluate the performance of test circuits built within the chip enabling them to be employed for designing and testing of complex systems
80	191EC6E12	Signal Transform Techniques	✓			Students are able to realise the importance of time frequency analysis and understand important transform techniques enabling them to be employed for designing and development of algorithms in the field of DSP,DIP and DVP.
81	191CE6O02	Disaster Management	✓			Students are able to acquire skills related to interpretation of various disasters in the environment and prepares one to prevent, face and combat them enabling them to be employed as managers in various industries
82	191EE6O04	Energy Audit and Conservation Management			✓	The course focuses on the loss and profit studies and other company maintenance actives, creates the intrust among the students to have own company.
83	191EE6O05	Non Conventional Energy resources	✓			Students are able to acquire skills related to various types of pivotal role in the development of a sustainable energy supply enabling the students to get employed in renewable energy generation sector.
84	191ME6O06	Solar Energy Utilisation				
85	191ME6O07	Basic Thermodynamics and Heat Transfer				
86	191ME6O08	Introduction to Hydraulics and Pneumatics		✓		Students are able to demonstrate problem solving skills in analysing the hydraulics and pneumatic systems
87	191ME6O09	3D Printing	✓			Students are able to acquire skills on basic knowledge of various additive manufacturing processes and enabling them to be employed in manufacturing companies

88	191ME6O06	Robotics	✓			Students are able to acquire skills to understand the concepts of robot kinematics, Dynamics and trajectory planning enabling them to be employed in robot manufacturing companies
89	191ME6O09	Management Science			✓	Students are able to apply the knowledge of economic and financial management enabling them to become an entrepreneur in any domain of their choice.
90	191ME6O12	Entrepreneurship Development and Incubation			✓	Students are able to acquire skills on basic knowledge on concepts of entrepreneurship development.
91	191ME6O07	Biomedical Instrumentation	✓			Students are able to acquire skills to understand the concepts of bio medical instrumentation and can be employed in fabrication of bio medical instruments
92	191CS6O05	Python Programming	✓			Students are able to acquire skills related to python programming, enabling them to be employed as software developers.
93	191CS6O06	Operating Systems	✓			Students are able to understand and acquire skills related to features and functionalities of operating System and understand the utilization of Input & output and memory operations which enables them to be employed for Hardware core side job opportunities
94	191CS6O07	Web Technologies	✓			Students are able to acquire skills related to developing web pages, enabling them to be employed as front end developers.
95	191CS6O08	Cyber Security	✓			Students are able to acquire technical skills related to Cyber security and enabling them to be employed for cyber security sector.
96	191CS6O09	AR / VR	✓			Students are able to acquire skills related to Design, create, and integrate audio, visual, and interactive elements into a comprehensive immersive experience enabling them to be employed as app developers.
97	191IT6O03	Computer Organization	✓			Students are able to acquire technical skills which help them to work with the internal organization and functioning of Computer System and enabling them to get employed in the hardware sectors of computers.
98	191IT6O04	AI Tools & Techniques		✓		Students are able to demonstrate technical skill of searching techniques used in AI, Expert systems, Knowledge representation and fuzzy logic.

99	191IT6O05	Robotic Process Automation		✓		Students are able to demonstrate technical skill to develop applications using UIPath Programming and extraction techniques to deploy robot configurations
100	191MI6O02	Industrial Safety Practices				
101	191MI6O03	Electrical Equipment's in Mines		✓		This subject helps the student to demonstrate their technical skills as it helps the students to understand standards of lighting in different working areas, AC and Dc motors and its maintenance, earthing methods and applicability. This subject will guide the students of mining to be self sufficient for the electrical related problems in mines.
102	191PT6O03	Unconventional Hydrocarbon Resources		✓		Students are able to demonstrate technical skill of characterizing different unconventional resources, modelling and analysis of reserves .
103	191PT6O04	Asset Management			✓	Students are able to demonstrate Competency in the domain of Integrated asset management enabling them to become an entrepreneur.
104	191AG6O02	Weather forecast in Agriculture	✓			tudents are able to acquire skills related to biomass and agrochemical conversion techniques, biomass production and bio-diesel production enabling them to be employed in any bio mass energy sector.
105	191AG6O03	Bio-energy systems design and applications	✓			Students are able to acquire skills related to biomass and agrochemical conversion techniques, biomass production and bio-diesel production enabling them to be employed in any bio mass energy sector.
106	191EC6L08	VLSI Lab		✓		Students are able to demonstrate technical skill of characterizing electronic devices, modelling and analysis of electronic circuits in the field of VLSI.
107	191EC6L07	Internet of Things Lab		✓		Students are able to demonstrate technical skill of establishing IoTs
108	191HS6T07	Employability Skills – IV	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
109	171EC7T16	Microwave Engineering	✓			Students are able to acquire skills related to microwave devices, enabling them to be employed for designing and manufacturing of radio communication equipment.
110	171EC7T17	Digital Image Processing	✓			Students are able to acquire skills related to digital image processing techniques, enabling them to be employed in the field of biomedical image processing , radar systems etc.
111	171EC7T18	Electronic Measurements And Instrumentation	✓			Students are able to acquire skills related to design, analyze and evaluate the performance of instrumentation systems enabling them to be employed for designing and manufacturing of measuring instruments, biomedical instrumentation etc.
112	171EC7T19	Optical Communications	✓			Students are able to acquire skills related to design, fabricate and evaluate the performance of optical communication systems enabling them to be employed for designing, manufacturing and implementation of fiber optic communication systems
113	171EC7E10	Digital Signal Processors	✓			Students are able to acquire skills related to design, program and implement digital signal processing systems and evaluate their performance enabling them to be employed for designing and manufacturing of electronic equipment with DSP processors infields like biomedical instrumentation, speech detection systems etc.
114	171EC7E11	Embedded Systems	✓			Students are able to acquire skills related to design, program and implement embedded systems enabling them to be employed for designing and manufacturing of biomedical, communication and radar equipment .
115	171EC7E12	Cellular and Mobile Communications	✓			Students are able to acquire skills related to operation and performance of cellular mobile communication systems enabling them to be employed for designing , manufacturing installing and troubleshooting of mobile communication systems.

116	17IEC7E13	Analog IC Design	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of current mirrors, amplifiers and opamps enabling them to be employed for designing and manufacturing of analog Ics
117	17IEC7E14	Cryptography and Network Security		✓		Students are able to acquire technical skills to work with different cryptographic techniques, Symmetric and asymmetric cryptographic techniques, key management and security at network level.
118	17IEC7E15	Radar Systems	✓			Students are able to acquire skills related to operation and performance of radar systems enabling them to be employed for designing and manufacturing of radar systems like tracking radars, scan radars etc.
119	17IEC7L10	Microwave Engineering and Optical Communications Lab		✓		Students are able to demonstrate technical skill of characterizing microwave devices, and optical communication devices modelling and analysis of microwave and optical communication circuits.
120	17IEC7L11	Digital Signal and Image Processing Lab		✓		Students are able to demonstrate technical skill of application of various algorithms in the fields of communications and image processing fields.
121	17IEC7P01	Industry Oriented (Internship) Minor Project	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
122	171EC8E16	Mixed Signal IC Design		✓		Students are able to demonstrate technical skill of characterizing microwave devices, and optical communication devices modelling and analysis of microwave and optical communication circuits.
123	171EC8E17	Wireless Sensors and Networks		✓		Students are able to demonstrate technical skill of application of various algorithms in the fields of communications and image processing fields.
124	171EC8E18	Satellite Communications	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
125	171EC8O01	Basic Concrete Technology	✓			Students are able to acquire cognitive skills related to properties of concrete, design and test the concrete useful in constructional activities enabling them to be employed in constructional sector.
126	171CE8O04	Waste Water Management		✓		Students are able to demonstrate technical skill of characterizing various waste water treatment technologies
127	171EE8O05	Robotics		✓		Students are able to acquire skills related to the measurement of linear and angular measuring instruments, working of measuring instruments and control systems.
128	171EC8O02	Disaster Management	✓			Students are able to acquire skills related to interpretation of various disasters in the environment and prepares one to prevent, face and combat them enabling them to be employed as managers in various industries
129	171EE8O07	Internet of Things	✓			Students are able to acquire skills related to Internet of Things and enabling them to be employed for IoT sector.
130	171EC8O03	Neural Networks	✓			Gives knowledge related to ANN and applications, which leads to better employability in the field of machine learning.

131	17ICE8O03	Alternative Energy Sources		✓		Students are able to demonstrate technical skill of characterizing different Alternative Energy Sources , modelling and analysis of Automobiles..
132	17ICE8O02	Database Management Systems	✓			Students are able to acquire skills related to SQL commands, constraints, views, pl/SQL programming enabling them to be employed for backend developer
133	17IEC8O04	Web Technologies	✓			Students are able to acquire skills related to developing web pages, enabling them to be employed as front end developers.
134	17ICE8O06	Green Fuel Technologies		✓		Students are able to demonstrate technical skill of characterizing different energy resources , modelling and analysis of energy sector
135	17IEC8P02	Major Project	✓			students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
TOTAL		135	72	41	6	



PROGRAM COORDINATOR



HEAD OF THE DEPARTMENT

Head of the Department
Department of E.C.E.
Aditya Engineering College (A9)