PROGRAM STRUCTURE

I SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	171HS1T01	English - I		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
2	171BS1T01	Mathematics - I		✓		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	171HS1T02	Environmental Studies				
4	171BS1T03	Engineering Chemistry				
5	171ES1T02	Engineering Mechanics		✓		Students are able to acquire skills related to principles of friction, kinetics, kinematics, resolving forces, trusses etc which forms the crux of design sciences.
6	171ES1T01	Computer Programming	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions enabling them to be employed as a software developer.
7	171HS1L01	English Communication Skills Lab - I		✓		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
8	171BS1L01	Engineering Chemistry Lab				
9	171ES1L01	Computer Programming Lab	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions enabling them to be employed as a software developer.

II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
10	171HS2T03	English - II		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
11	171BS2T02	Mathematics - II		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using partial differential equations and their applications in various engineering disciplines.
12	171BS2T06	Mathematics - III		✓		Students are able to demonstrate problem solving skills by evaluating improper and vector integrals applicable in various engineering disciplines.
13	171BS2T07	Engineering Physics				
14	171ES2T03	Engineering Drawing		✓		Students are able to acquire skills related to creating technical drawings by making a model of the product by displaying from different angles and adding dimensional information.
15	171ES2T04	Basic Mechanical Engineering		✓		Students are able to acquire skills related to concepts of various mechanical and manufacturing systems.
16	171HS2L02	English Communication Skills Lab - II		✓		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
17	171BS2L02	Engineering Physics Lab				
18	171ES2L02	Engineering Workshop and IT Workshop		✓		Students are able to acquire skills related to system troubleshooting, implement MS office tools, develop LateX documents and to work with Linux commands. Students are able to acquire skills related to building various joints in different trades for several applications.

III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
19	171BS3T10	Probability and Statistics		✓		Students are able to demonstrate problem solving skills by learning about random variables, probability distributions, sampling theory, test of hypothesis, correlation and regression.
20	171ES3T05	Basic Electrical and Electronics Engineering	✓			Students are able to acquire skills related to basic electrical and electronic principles enabling them to be employed for designing civil engineering constructional elements.
21	171ES3T09	Strength of Materials - I	✓			Students are able to acquire skills related to resistance to mechanical forces and enabling them to be employed for constructional activities.
22	171CE3T01	Building Materials and Construction	✓			Students are able to acquire skills related to various aspects of construction materials enabling them to be employed in constructional sector.
23	171CE3T02	Surveying			✓	Students are able to demonstrate competency in the domain of measuring distances and calculate areas enabling them to become a surveyor.
24	171CE3T03	Fluid Mechanics	✓			Students are able to acquire skills related to mechanics of fluids (liquids, gases, and plasmas) and the forces on them in pipe design calculations enabling them to be employed in constructional industry.
25	171CE3L01	Surveying Lab		✓		Students are able to demonstrate technical skill of characterizing electronic devices, modelling and analysis helps in training the students to face real time measurements and calculations as surveyors
26	171ES3L03	Strength of Materials Lab		✓		Students are able to demonstrate technical skills related to resistance of materials to mechanical forces and apply them in constructional industry
27	171HS3A09	Professional Ethics and Human Values				
28	171HS3A10	Employability Skills - I	✓			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.

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
29	171CE4T04	Building Planning and Computer Aided Drawing	✓			Students are able to acquire skills related to visualizing the different parts of a building using building by-laws and enabling them to be employed as planners. Skill Development - Students are able to demonstrate technical skills of characterizing buildings and develops creative thinking for future endeavours in constructional industry
30	171CE4T05	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.
31	171CE4T06	Engineering Geology	✓			Students are able to acquire skills related to various aspects of soil strata and subsurface formation in foundation and subsurface structures in civil constructions enabling them to be employed in constructional sector.
32	171CE4T07	Hydraulics and Hydraulic Machinery	✓			Students are able to acquire skills related to dam construction, mainly for maximum efficiency of resources available in the surroundings of the establishment enabling them to be employed for designing of dams and related structures.
33	171CE4T08	Strength of Materials – II	✓			-Students are able to acquire skills related to quantitative description of the motion and deformation of solid materials enabling them to be employed for constructional sector.
34	171CE4T09	Structural Analysis - I	✓			Students are able to acquire skills related to various aspects of framed structures which can be applied in any real time projects.
35	171CE4L02	Fluid Mechanics and Hydraulic Machinery Lab		✓		Students are able to demonstrate technical skills in working with turbines, pumps and understand flow behaviour at various sections of harnessing energy from alternate energy sources.
36	171CE4L03	Concrete Technology Lab		✓		Students are able to acquire technical skills related to properties of concrete, design and test the concrete useful in constructional activities
37	171HS4A08	Intellectual property rights and patents				
38	171HS4A11	Employability Skills - II	✓			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.
39	171HS4A04	Managerial Economics and Financial Analysis			✓	Students are able to apply the knowledge of economic and financial management enabling them to become an entrepreneur in any domain of their choice.

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
40	R1631011	Management Science		✓		Students are able to demonstrate managing skills by learning the principles of management science applied in project management in constructional activities
41	R1631012	Engineering Geology	✓			Students are able to acquire skills related to various aspects of soil strata and subsurface formation in foundation and subsurface structures in civil constructions enabling them to be employed in constructional sector.
42	R1631013	Structural Analysis -II	✓			Students are able to acquire skills related to analysis of framed structures using advanced methodologies enabling them to be employed in developing structural related software used in constructional industry.
43	R1631014	Design & Drawing of Reinforced Concrete Structures	✓			Students are able to acquire skills related to designing of structural elements like beams, columns, slabs and foundations enabling them to be employed as designers and planners
44	R1631015	Transportation Engineering - II	✓			Students are able to acquire skills related to various aspects of geometric properties of road and apply the concept in design of railway and study of airport characteristics enabling them to be employed in constructional industry
45	R1631016	Concrete Technology Lab		✓		Students are able to acquire technical skills related to properties of concrete, design and test the concrete useful in constructional activities
46	R1631017	Geology Lab		✓		Students are able to demonstrate technical skill of geological knowledge in selection of suitable sites for construction and gather raw material like rocks and sand used as materials in buildings enabling them to be employed in constructional industry
47	R1631018	Transportation Engineering Lab		✓		Students are able to demonstrate technical skill of testing of materials and traffic data collection applied in real time situation of RandB industry

VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
48	R1632011	Design & Drawing of Steel Structures				Students are able to acquire skills related to properties of steel structures and designing of connections between the structural members at industrial, offshore, high rise building enabling them to be employed for designing of building units.
49	R1632012	Geotechnical Engineering - I				Students are able to acquire skills related to various properties of soil deciding the strength required in substructure design of a building/construction enabling them to be employed in construction industry.
50	R1632013	Environmental Engineering -I				Students are able to acquire skills related to designing of protected water supply scheme for a city enabling them to be employed in public health department of government
51	R1632014	Water Resource Engineering -I				Students are able to acquire skills related to characteristics of flood analysis based on hydrograph which help in predicting precipitation and deciding level of rainfall received in an area enabling them to be employed in drought management department of government
52	R1632015A	Electronic Instrumentation				
53	R1632015B	Data Base Management Systems				
54	R163201C	Alternative Energy Sources				
55	R163201D	Waste water Management				- Students are able to demonstrate technical skill of characterizing various waste water treatment technologies.
56	R163227B	Fundamentals of Liquefied Natural Gas				Students are able to acquire skills related to various aspects of different crude behaviour enabling them to be employed as process and transport engineers.
57	RT41016F	Green Fuel Technologies				-Students are able to acquire skills related to different energy resources enabling them to be employed for energy sector.
58	R163201C	Geotechnical Engineering Lab				Skill Development - Students are able to demonstrate technical skill of characterizing soil tests on various types of soil to decide suitability of soil for constructional activities as a civil engineer
59	R1632017	Environmental Engineering Lab				Skill Development - applies the theoretical knowledge of analyses of water samples required for drinking water supply and constructional activities and waste water for treatment and disposal in municipal sector of the society
60	R1632018	Computer Aided Engineering Lab				Students are able to demonstrate computer-based drawing and reducing manual drawing in constructional activities

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
61	RT41011	Environmental Engineering – II				Students are able to acquire skills related to design and evaluate the treatment of wastewater generated in the society and its management enabling them to be employed for designing deals with as civil engineers
62	RT41012	Prestressed Concrete				Students are able to acquire skills related to bridge designing and metro constructions enabling them to be employed in constructional industry
63	RT41013	Construction Technology and Management				Students are able to acquire skills related to various management principles involved in constructions and the machinery used in the field of constructional activities enabling them to be employed as designers in development of various machinery
64	RT41014	Water Resources Engineering–II				Students are able to acquire skills related to various aspects of irrigation structures and their design in agricultural activities enabling them to be employed in the concerned industry.
65	RT41015	Remote Sensing and GIS Applications				Students are able to acquire skills related to classification and map making for various spatial references like, ground water, forestry ,transportation in the real world enabling them to be employed in various industries
66	RT41016	(ELECTIVE - I) Ground Improvement Techniques				
67	RT41017	Air Pollution and Control				Students are able to acquire skills related to various aspects of air pollution concepts and their control and their application in the society enabling them to be employed as environmental engineers
68	RT41018	Matrix methods of Structural Analysis				Students are able to acquire problem solving skills related to structural related problems and analysis of structural elements enabling them to be employed in constructional industry
69	RT41019	Urban Hydrology				Students are able to acquire skills related to concepts of drainage principles of surface runoff and its importance in conservation of water in the society enabling them to be employed as civil engineers
70	RT4101A	Advanced Surveying				Students are able to acquire skills related to advanced techniques in surveying like total station which replaces multiple measuring techniques with a single equipment enabling them to be employed as surveyors
71	RT4101B	Interior Designs and Decorations				Students are able to acquire creative skills related to various aspects of interior design enabling them to be employed as interior designers.
72	RT4101L	Environmental Engineering Lab				Students are able to demonstrate technical skill of characterizing water samples with respect to physical and chemical examination required for drinking water supply and constructional activities and waste water for treatment and disposal in municipal sector of the society
73	RT4101M	GIS & CAD Lab				Students are able to demonstrate technical skill of experimenting various remote sensing software like Arc GIS, ERDAS etc. used in image analysis and map making at various land scape in constructional industry

VIII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
74	RT42011	Estimating, Specifications & Contracts	✓			Students are able to acquire skills related to estimating material and cost of it for various constructional activities enabling them to be employed in constructional industry. Skill development - Students are able to demonstrate problem solving skills to help in handling and managing contracts for their future endeavours as managers
75	RT42012A	(ELECTIVE –II) Engineering with Geo-synthetics	✓			Students are able to acquire skills related to various synthetic material used in enhancing soil properties suitable for constructional activities enabling them to be employed as Geotechnical specialized engineers
76	RT42012B	Environmental Impact Assessment and Management				
77	RT42012C	Advanced Structural Engineering	✓			Students are able to acquire skills related to application of recent trends in analysis of dynamic behaviour of a structure, which can further be applied in developing Earth quake resistant buildings enabling them to be employed as designers of buildings
78	RT42012D	Ground Water Development and Management	✓			Students are able to acquire skills related to various aspects of application of knowledge in study of subsurface formations to identify aquifers and various artificial recharge methods in conservation of water in the society enabling them to be employed as engineers in various sectors of society.
79	RT42012E	Traffic Engineering	✓			Students are able to acquire skills related to traffic behaviour by using traffic flow parameters enabling them to be employed by RandB industry
80	RT42012F	Infrastructure Management		✓		inculcating managing techniques in maintenance of infrastructure in constructional industry
81	RT42013A	Elective-III: Advanced foundation Engineering	✓			Students are able to acquire skills related to concepts, advanced principles and application of foundation analysis and design to the undergraduate students of civil engineering industry enabling them to be employed as Structural engineers
82	RT42013B	Solid waste Management	✓			Students are able to acquire skills related to various aspects of managing the municipal solid waste generated and its importance in sustainable development of the society in various industries and municipalities enabling them to be employed as sanitary engineers/managers/inspectors
83	RT42013C	Earthquake Resistant Design	✓			Students are able to acquire skills related to design, evaluate the performance and properties of structural members when subjected to seismic loads and designing earthquake resistant structures enabling them to be employed as structural engineers
84	RT42013D	Water Shed Management	✓			Students are able to acquire skills related to the effective usage of water and land resources for sustainable future in the society enabling them to be employed as civil engineers

85	RT42013E	Pavement Analysis and Design	✓			Students are able to acquire skills related to various aspects of designing of flexible and rigid pavements enabling them to be employed in RandB industry
86	RT42013F	Green Buildings		✓		Students are able to demonstrate technical skill of various green principles related to buildings in constructional activities
87	RT42014A	Elective-IV: Soil Dynamics and Machine Foundations	✓			Students are able to acquire skills related to behaviour of a soil subjected to dynamic (actions having high acceleration) loading and impact on the foundations enabling them to be employed in constructional industry
88	RT42014B	Environmental and Industrial Hygiene				
89	RT42014C	Repair and Rehabilitation of Structures	✓			Students are able to acquire skills related to various aspects of studying deterioration of concrete structures and rehabilitation of these using advanced technologies, like preservation of monuments and other deteriorated structures enabling them to be employed in civil industry
90	RT42014D	Water Resources System Planning and Management	✓			Students are able to acquire skills related to planning of various water sources and their conservational principles in the society enabling them to be employed in civil industry
91	RT42014E	Urban Transportation Planning Safety Engineering		✓		Students are able to demonstrate technical skill of generation of trips and trip modelling in R and B industry
92	RT42014G	Bridge Engineering	✓			Students are able to acquire skills related to design, evaluate and study the force applied by the flow of water and relating it to design of dynamics/cyclic loads in various types of bridges enabling them to be employed in constructional industry
93	RT42015	Project Work	✓			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		**93**	**48**	**29**	**3**	

Program Coordinator

Head of the Department

Head of the Department
Dept. of Civil Engineering
ADITYA ENGINEERING COLLEGE (A9)