



Jawaharlal Nehru Technological University Anantapur

(Established by Govt. of A.P., Act. No. 30 of 2008)

Ananthapuramu-515 002 (A.P) India

B.Tech. in Civil Engineering Course Structure and Syllabi under R19 Regulations

B.Tech. in Civil Engineering
Course Structure & Syllabi

S.No.	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counselling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools, and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

Semester – I (Theory - 4, Lab - 4)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	19A54101	Algebra and Calculus	BS	3-1-0	4
2.	19A56102T	Engineering Physics	BS	3-0-0	3
3.	19A05101T	Problem Solving & Programming	ES	3-1-0	4
4.	19A52101T	Communicative English 1	HS	2-0-0	2
5.	19A03101	Engineering Workshop	LC	0-0-2	1
6.	19A56102P	Engineering Physics Lab	BS	0-0-3	1.5
7.	19A05101P	Problem Solving & Programming Lab	ES	0-0-3	1.5
8.	19A52101P	Communicative English 1 Lab	HS	0-0-2	1
Total					18

Semester – II (Theory - 4, Lab - 5)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	19A02201T	Basic Electrical & Electronics Engineering	ES	3-0-0	3
2.	19A54201	Differential Equations and Vector Calculus	BS	3-1-0	4
3.	19A51101T	Engineering Chemistry	BS	3-0-0	3
4.	19A05201T	Data Structures	ES	3-0-0	3
5.	19A01201	Civil Engineering Workshop	LC	0-0-2	1
6.	19A03102	Engineering Graphics Lab	ES	1-0-4	3
7.	19A02201P	Basic Electrical & Electronics Engineering Lab	ES	0-0-3	1.5
8.	19A51101P	Engineering Chemistry Lab	BS	0-0-3	1.5
9.	19A05201P	Data Structures Lab	ES	0-0-3	1.5
Total					21.5

Semester –III (Theory - 7, Lab – 3,MC-1)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	19A54301	Complex Variables, Transforms and Partial Differential Equations	BS	2-1-0	3
2.	19A01301T	Strength of Materials-I	PC	2-1-0	3
3.	19A01302T	Fluid Mechanics	PC	2-1-0	3
4.	19A01303T	Surveying	PC	2-1-0	3
5.	19A01304	Building Materials and Construction	PC	2-0-0	2
6.	19A05304T	Python Programming	ES	2-1-0	3
7.	19A52301	Universal Human Values	HS	2-0-0	2
8.	19A01301P	Strength of Material Lab	PC	0-0-3	1.5
9.	19A01302P	Fluid Mechanics Lab	PC	0-0-3	1.5
10.	19A01303P	Surveying Lab	PC	0-0-3	1.5
11.	19A99301	Environmental Science	MC	3-0-0	0
				Total:	23.5

Semester – IV (Theory - 6, Lab – 2, MC-1)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	19A01401	Strength of Materials-II	PC	2-1-0	3
2.	19A01402T	Hydraulics and Hydraulic Machinery	PC	2-1-0	3
3.	19A01403	Structural Analysis-I	PC	2-1-0	3
4.	19A01404T	Concrete Technology	PC	3-0-0	3
5.	19A01405T	Transportation Engineering	PC	3-0-0	3
6.	19A01406	Environmental Engineering	PC	3-0-0	3
7.	19A01402P	Hydraulic Machinery Lab	PC	0-0-3	1.5
8.	19A01405P	Transportation Engineering Lab	PC	0-0-3	1.5
9.	19A99302	Biology For Engineers	MC	3-0-0	0
				Total:	21

Semester –V (Theory - 7, Lab – 2 MC-1)					
S.No.	Course No	Course Name	Category	L-T-P	Credits
1.	19A01501	Design of Reinforced Concrete Structures	PC	2-1-0	3
2.	19A01502	Water Resources Engineering	PC	3-0-0	3
3.	19A01503T	Engineering Geology	PC	2-0-0	2
4.	19A01504	Structural Analysis-II	PC	2-1-0	3
5.	19A01505a 19A01505b 19A01505c 19A01505d 19A01505e	Professional Elective-I Building Construction Practice Subsurface Investigation and Instrumentation Environmental Pollution and Control Advanced Surveying Urban Hydrology	PE	3-0-0	3
6.	19A02506a 19A03506a 19A03506b 19A04506a 19A04506b 19A05506a 19A05506b 19A27506a 19A27506b 19A54506a 19A52506a 19A51506a	Open Elective-I Electrical Engineering Materials Introduction to Hybrid and Electric Vehicles Rapid Prototyping Analog Electronics Digital Electronics Free and Open Sources Systems Computer Graphics and Multimedia Animation Brewing Technology Computer Applications in Food Technology Optimization Techniques Technical Communication and Presentation Skills Chemistry of Energy Materials	OE	3-0-0	3
7.	19A01507	Computer Aided Civil Engineering Drawing	PC	0-0-3	1.5
8.	19A01508	Environmental Engineering Lab	PC	0-0-3	1.5
9.	19A01503P	Engineering Geology Lab	PC	0-0-2	1.0
10.	19A01509	Socially Relevant Project	PR	-----	0.5
11.	19A99501	Mandatory course: Constitution of India	MC	3-0-0	0
				Total:	21.5

Semester – VI (Theory - 6, Lab - 2)					
S.No.	Course No	Course Name	Category	L-T-P	Credits
1.	19A01601T	Geotechnical Engineering -I	PC	2-1-0	3
2.	19A01602	Design of Steel Structures	PC	2-1-0	3
3.	19A52601T	English Language Skills	HS	3-0-0	3
4.	19A01603a 19A01603b 19A01603c 19A01603d 19A01603e	Professional Elective-II (MOOC) Maintenance And Repair of Concrete Structures Ground Improvement Environmental Air Pollution Urban transportation planning Water Resources Systems: Modeling Techniques and Analysis	PE	3-0-0	3
5.	19A02604a 19A02604b 19A03604a 19A03604b 19A04604a 19A04604b 19A05604a 19A05604b 19A27604a 19A27604b 19A54604a 19A52604a 19A51604a	Open Elective-II Industrial Automation System Reliability Concepts Introduction to Mechatronics Optimization techniques through MATLAB Basics of VLSI Principles of Communication Systems Fundamentals of VR/AR/MR Data Science Food Toxicology Food Plant Equipment Design Wavelet Transforms & its applications Soft Skills Chemistry of Polymers and Its Applications	OE	3-0-0	3
6.	19A52602a 19A52602b 19A52602c 19A52602d 19A52602e	Humanities Elective-I Entrepreneurship & Incubation Managerial Economics and Financial Analysis Business Ethics and Corporate Governance Enterprise Resource Planning Supply Chain Management	HE	3-0-0	3
7.	19A01601P	Geotechnical Engineering lab	PC	0-0-3	1.5
8.	19A52601P	English Language Skills Lab	HS	0-0-3	1.5
9.	19A01605	Socially Relevant Project	PR	-----	0.5
10.	19A99601	Mandatory Course: Research Methodology	MC	3-0-0	0
11.	19A01606	Comprehensive online examination		-	0
				Total	21.5

Semester – VII (Theory - 5, Lab -2)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	19A01701	Geotechnical Engineering-II	PC	2-1-0	3
2.	19A01702	Estimation & costing	PC	2-1-0	3
3.	19A01703a1	Professional Elective-III Bridge Engineering	PE	3-0-0	3
	19A01703a2	Prestressed concrete			
	19A01703b1	Expansive soils			
	19A01703b2	Rock Mechanics			
	19A01703c1	Industrial Waste & Wastewater Engineering			
	19A01703c2	Remote Sensing and GIS			
	19A01703d1	Traffic Engineering			
	19A01703d2	Urban Transportation Planning			
	19A01703e1	Water Resources System Analysis OR			
	19A01703e2	River Basin Management			
4.	19A02704a	Open Elective-III Renewable Energy Systems	OE	3-0-0	3
	19A02704b	Electric Vehicle Engineering			
	19A03704a	Finite element methods			
	19A03704b	Product Marketing			
	19A04704a	Introduction to Microcontrollers & Applications			
	19A04704b	Principles of Digital Signal Processing			
	19A05704a	Fundamentals of Game Development			
	19A05704b	Cyber Security			
	19A27704a	Corporate Governance in Food Industries			
	19A27704b	Process Technology for Convenience & RTE Foods			
	19A54704a	Numerical Methods for Engineers (ECE, CSE, IT &CE)			
	19A51704a	Chemistry of Nanomaterials and Applications			
	5.	19A52701a			
19A52701b		Management Science			
19A52701c		Business Environment			
19A52701d		Strategic Management			
19A52701e		E-Business			
6.	19A01404P	Concrete technology Lab	PC	0-0-3	1.5
7.	19A01705	Computer Aided Design Lab	PC	0-0-3	1.5
9.	19A01706	Industrial Training/Skill Development/Research Project*	PR	-----	2
				Total	20

Semester – VIII					
S.No.	Course No	Course Name	Category	L-T-P	Credits
1.	19A01801a1 19A01801a2 19A01801a3 19A01801b1 19A01801b2 19A01801c1 19A01801c2 19A01801d1 19A01801d2 19A01801e1 19A01801e2 19A01801e3	Professional Elective-IV Finite Element Methods Advanced R.C.C Structural Design Advanced steel structures Advanced Foundation Engineering Soil structure interaction Environmental Impact Assessment Environmental Economics Docks and Harbor Engineering Traffic Analysis Design and Drawing of Irrigation Structures Water Shed Management Sustainable Water Resources Development	PE	3-0-0	3
2.	19A02802a 19A02802b 19A03802a 19A03802b 19A04802a 19A04802b 19A04802c 19A04802d 19A05802a 19A05802b 19A27802a 19A27802b 19A54802a 19A51802a	Open Elective-IV IoT Applications in Electrical Engineering Smart Electric Grid Energy conservation and management Non - destructive testing Introduction to Image Processing Principles of Cellular and Mobile Communications Industrial Electronics Electronic Instrumentation Block Chain Technology and Applications MEAN Stack Technology Food Plants Utilities & Services Nutraceuticals & Functional Foods Mathematical Modeling & Simulation Green Chemistry and Catalysis for Sustainable Environment	OE	3-0-0	3
3.	19A01803	Project	PR	-----	7
				Total	13

Honours Degree in Civil Engineering

S.No.	Course No.	Course Name	L	T	P	Credits
1.	19A01H01	Prefabricated Structures	3	1	0	4
2.	19A01H02	Structural Optimisation	3	1	0	4
3.	19A01H03	Analytical Methods for Environmental Monitoring	3	1	0	4
4.	19A01H04	Forensic Engineering for Civil Engineers	3	1	0	4
5.	19A01H05	Urban Planning Techniques and Practices	3	1	0	4
Total						20

Minor Degree in Civil Engineering

S.No.	Course No.	Course Name	L	T	P	Credits
1.	19A01301T	Strength of Materials I	2	1	0	3
2.	19A01303T	Surveying	2	1	0	3
3.	19A01402T	Hydraulics and Hydraulic Machinery	2	1	0	3
4.	19A01405T	Transportation Engineering	3	0	0	3
5.	19A01702	Estimation and costing	2	1	0	3
6.	19A01M01	Minor Discipline Project	-	-	-	5
Total						20

Areas for Socially Relevant Project in 5th Semester

- a) Water quality analysis in a village /town
- b) Survey camp
- c) Road safety Audit
- d) Environmental impact Audit

Areas for Socially Relevant Project in 6th Semester

- a) Structural condition assessment of school buildings
- b) Water resources management -Audit
- c) Survey of waste management systems-Swachh Bharat
- d) Survey of modern building materials & properties
- e) Survey on Implementation of Government welfare schemes