



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 Computer Science & Engineering Course Structure and Syllabi under R19 Regulations

JNTUA Curriculum
Computer Science & Engineering B. Tech Course Structure

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 - 3, Lab - 4)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	19A54101	Algebra and Calculus	BS	3-1-0	4
2.	19A51102T	Chemistry	BS	3-0-0	3
3.	19A05101T	Problem Solving & Programming	ES	3-1-0	4
4.	19A03102	Engineering Graphics Lab	ES	1-0-4	3
5.	19A03101	Engineering Workshop	LC	0-0-2	1
6.	19A51102P	Chemistry Lab	BS	0-0-3	1.5
7.	19A05101P	Problem Solving & Programming Lab	ES	0-0-3	1.5
Total					18

Semester - II (Theory - 5, Lab - 5)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1.	19A02201T	Basic Electrical and Electronics Engineering	ES	3-0-0	3
2.	19A54202	Probability and Statistics	BS	3-1-0	4
3.	19A56101T	Applied Physics	BS	3-0-0	3
4.	19A05201T	Data Structures	ES	3-0-0	3
5.	19A52101T	Communicative English - I	HS	2-0-0	2
6.	19A05202	Computer Science and Engineering Workshop	LC	0-0-2	1
7.	19A52101P	Communicative English - I Lab	HS	0-0-2	1
8.	19A02201P	Basic Electrical & Electronics Engineering Lab	ES	0-0-3	1.5
9.	19A56101P	Applied Physics Lab	BS	0-0-3	1.5
10.	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.	19A54303	Mathematical Foundations of Computer Science	BS	3-0-0	3
2.	19A05301	Digital Logic Design	PC	3-0-0	3
3.	19A99304	Design Thinking	ES	2-0-0	2
4.	19A05302T	Database Management Systems	PC	3-0-0	3
5.	19A05303T	Object Oriented Programming Through Java	PC	3-0-0	3
6.	19A05304T	Python Programming	PC	2-1-0	3
7.	19A52301	Universal Human Values	HS	2-0-0	2
8.	19A05302P	Database Management Systems Lab	PC	0-0-3	1.5
9.	19A05303P	Object Oriented Programming Through Java Lab	PC	0-0-3	1.5
10.	19A05304P	Python Programming 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.	19A54401	Number Theory and Applications	BS	3-0-0	3
2.	19A05401	Computer Organization	PC	3-0-0	3
3.	19A05402T	Design and Analysis of Algorithms	PC	3-0-0	3
4.	19A52401	Entrepreneurship	HS	3-0-0	3
5.	19A05403T	Operating Systems	PC	3-0-0	3
6.	19A05404T	Software Engineering	PC	3-0-0	3
7.	19A05403P	Operating Systems Lab	PC	0-0-3	1.5
8.	19A05404P	Software Engineering Lab	PC	0-0-3	1.5
9.	19A99302	Biology For Engineers	MC	3-0-0	0
				Total	21

Semester – V (Theory - 6, Lab - 3)					
S.No.	Course No	Course Name	Category	L-T-P	Credits
1.	19A05501	Formal Languages and Automata Theory	PC	3-0-0	3
2.	19A05502T	Artificial Intelligence	PC	3-0-0	3
3.	19A05503T	Object Oriented Analysis Design & Testing	PC	2-0-0	2
4.	19A05504T	Computer Networks	PCC	3-0-0	3
5.	19A05505a 19A05505b 19A05505c	Professional Elective-I Data warehousing and Data mining Web Technologies Mobile Application Development	PE	3-0-0	3
6.	19A01506a 19A01506b 19A02506a 19A03506a 19A03506b 19A04506a 19A04506b 19A27506a 19A27506b 19A54506a 19A52506a 19A51506a	Open Elective-I Experimental stress analysis. Building Technology Electrical Engineering Materials Introduction to Hybrid and Electric Vehicles Rapid Prototyping Analog Electronics Digital Electronics Brewing Technology Computer Applications in Food Technology Optimization Techniques Technical Communication and Presentation Skills Chemistry of Energy Materials	OE	3-0-0	3
7.	19A05502P	Artificial Intelligence Laboratory	PCC	0-0-3	1.5
8.	19A05504P	Computer Networks Laboratory	PCC	0-0-3	1.5
9.	19A05503T	Object Oriented Analysis Design & Testing Lab	PCC	0-0-2	1.0
10.	19A05507	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.	19A05601	Cryptography & Network Security	PC	2-1-0	3
2.	19A05602T	Big Data Analytics	PCC	3-0-0	3
3.	19A52601T	English Communication	HS	3-0-0	3
4.	19A05603a 19A05603b 19A05603c 19A05603d 19A05603e	Professional Elective-II (MOOCS) Compiler Design Introduction to Machine Learning Real Time Systems Advance Computer Architecture Computer Vision	PE	3-0-0	3
5.	19A01604a 19A01604b 19A02604a 19A02604b 19A03604a 19A03604b 19A04604a 19A04604b 19A27604a 19A27604b 19A54604a 19A52604a 19A51604a	Open Elective-II Industrial waste and wastewater management Building Services & Maintenance Industrial Automation System Reliability Concepts Introduction to Mechatronics Optimization techniques through MATLAB Basics of VLSI Principles of Communication Systems 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.	19A05602P	Big Data Analytics Laboratory	PCC	0-0-3	1.5
8.	19A52601P	English Communication lab	HS	0-0-3	1.5
9.	19A05605	Socially Relevant Project	PR	-----	0.5
10.	19A99601	Mandatory Course: Research Methodology	MC	3-0-0	0
11.	19A05606	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.	19A05701T	Internet of Things	PC	2-1-0	3
2.	19A05702T	Software Testing	PC	2-1-0	3
3.	19A05703a 19A05703b 19A05703c	Professional Elective-III Cloud Computing Natural Language Processing Agile Methodologies	PE	3-0-0	3
4.	19A01704a 19A01704b 19A02704a 19A02704b 19A03704a 19A03704b 19A04704a 19A04704b 19A27704a 19A27704b 19A54704a 19A51704a	Open Elective-III Air pollution and control. Basics of civil Engineering Renewable Energy Systems Electric Vehicle Engineering Finite element methods Product Marketing Introduction to Microcontrollers & Applications Principles of Digital Signal Processing Corporate Governance in Food Industries Process Technology for Convenience & RTE Foods Numerical Methods for Engineers (ECE, CSE, IT & CE) Chemistry of Nanomaterials and Applications	OE	3-0-0	3
5.	19A52701a 19A52701b 19A52701c 19A52701d 19A52701e	Humanities Elective-II Organizational Behavior Management Science Business Environment Strategic Management E-Business	HS	3-0-0	3
6.	19A05702P	Software Testing Lab	PC	0-0-3	1.5
7.	19A05701P	Internet of Things Lab	PC	0-0-3	1.5
8.	19A05705	Industrial Training/Skill Development/Research Project*	PR	-----	2
Total					20

Semester – VIII (Theory - 2)					
S.No.	Course No	Course Name	Category	L-T-P	Credits
1.	19A05801a 19A05801b 19A05801c	Professional Elective-IV Dev Ops Deep Learning Adhoc & Sensor Networks	PE	3-0-0	3
2.	19A01802a 19A01802b 19A02802a 19A02802b 19A03802a 19A03802b 19A04802a 19A04802b 19A04802c 19A04802d 19A27802a 19A27802b 19A54802a 19A51802a	Open Elective-IV Disaster Management. Global Warming and climate changes 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 Food Plants Utilities & Services Nutraceuticals & Functional Foods Mathematical Modeling & Simulation Green Chemistry and Catalysis for Sustainable Environment	OE	3-0-0	
3.	19A05803	Project	PR	-----	7
				Total	13

Honours Degree in CSE

S.No.	Course No.	Course Name	L	T	P	Credits
1.	19A05H01	Secure Software Engineering	3	0	0	4
2.	19A05H02	Multicore Architecture & Programming	3	0	0	4
3.	19A05H03	Reinforcement Learning	3	0	0	4
4.	19A05H04	Trusted Network Systems	3	0	0	4
5.	19A05H05	Parallel Database Systems	3	0	0	4
					Total	20

Minor Degree in CSE

S.No.	Course No.	Course Name	L	T	P	Credits
1.	19A05402T	Design and Analysis of Algorithms	3	0	0	3
2.	19A05302T	Database Management Systems	3	0	0	3
3.	19A05404T	Software Engineering	3	0	0	3
4.	19A05403T	Operating Systems	3	0	0	3
5.	19A05502T	Artificial Intelligence	3	0	0	3
6.	19A05M01	Mini Project				5
					Total	20