



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE STRUCTURE AND SYLLABUS

For UG – R20

B. TECH - INFORMATION TECHNOLOGY

(Applicable for batches admitted from 2020-2021)



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COURSE STRUCTURE

I Year – I SEMESTER						
S. No	Course Code	Courses	L	T	P	Credits
1	HS	Communicative English	3	0	0	3
2	BS	Mathematics - I (Calculus And Differential Equations)	3	0	0	3
3	BS	Applied Physics	3	0	0	3
4	ES	Programming for Problem Solving using C	3	0	0	3
5	ES	Computer Engineering Workshop	1	0	4	3
6	HS	English Communication Skills Laboratory	0	0	3	1.5
7	BS	Applied Physics Lab	0	0	3	1.5
8	ES	Programming for Problem Solving using C Lab	0	0	3	1.5
Total Credits			19.5			

I Year – II SEMESTER						
S. No	Course Code	Courses	L	T	P	Credits
1	BS	Mathematics – II (Linear Algebra And Numerical Methods)	3	0	0	3
2	BS	Applied Chemistry	3	0	0	3
3	ES	Computer Organization	3	0	0	3
4	ES	Python Programming	3	0	0	3
5	ES	Data Structures	3	0	0	3
6	BS	Applied Chemistry Lab	0	0	3	1.5
7	ES	Python Programming Lab	0	0	3	1.5
8	ES	Data Structures Lab	0	0	3	1.5
9	MC	Environment Science	2	0	0	0
Total Credits			19.5			


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II Year – I SEMESTER						
S.No	Course Code	Courses	L	T	P	Credits
1	BS	Mathematics III	3	0	0	3
2	IT	Object Oriented Programming through C++	3	0	0	3
3	IT	Operating Systems	3	0	0	3
4	IT	Database Management Systems	3	0	0	3
5	IT	Discrete Mathematics and Graph Theory	3	0	0	3
6	IT	Object Oriented Programming through C++ Lab	0	0	3	1.5
7	IT	Operating Systems Lab	0	0	3	1.5
8	IT	Database Management Systems Lab	0	0	3	1.5
9	SO	Skill Oriented Course I 1) Animations- 2D Animation 2) Distributed Technologies- NoSQL	0	0	4	2
10	MC	Constitution of India	2	0	0	0
Total Credits			21.5			

II Year – II SEMESTER						
S.No	Course Code	Courses	L	T	P	Credits
1	BS	Statistics with R	2	0	2	3
2	IT	Principles of Software Engineering	3	0	0	3
3	IT	Automata Theory and Compiler Design	3	0	0	3
4	ES	Java Programming	3	0	0	3
5	HS	Managerial Economics and Financial Accountancy	3	0	0	3
6	IT	UML Lab	0	1	2	2
7	IT	FOSS Lab	0	0	2	1
8	ES	Java Programming Lab	0	0	3	1.5
9	SO	Skill Oriented Course II 1) Animations- 3D Animation OR 2) Distributed Technologies- MongoDB	0	0	4	2
Total Credits			21.5			
10	Minor	Object Oriented Programming through C++ ^{\$}	3	0	2	3+1
11	Honors	Any course from the Pool, as per the opted track	4	0	0	4

^{\$}- Integrated Course



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III B. Tech – I Semester						
S.No	Course Code	Courses	Hours per week			Credits
			L	T	P	C
1	PC	Computer Networks	3	0	0	3
2	PC	Design and Analysis of Algorithms	3	0	0	3
3	PC	Data Mining Techniques	3	0	0	3
4	Open Elective/Job Oriented	Open Elective-I Open Electives offered by other departments/ DevOps (Job Oriented course)	3	0	0	3
5	PE	Professional Elective-I 1. Artificial Intelligence 2. Agile Software Process 3. Distributed Systems 4. Advanced Unix Programming	3	0	0	3
6	PC	Data Mining Techniques with R Lab	0	0	3	1.5
7	PC	Computer Networks Lab	0	0	3	1.5
8	SO	Skill Oriented Course - III 1. Animation course: Animation Design OR 2. Continuous Integration and Continuous Delivery using DevOps	0	0	4	2
9	MC	Employability Skills-I	2	0	0	0
10	PR	Summer Internship 2 Months(Mandatory) after second year(to be evaluated during V semester)	0	0	0	1.5
Total credits						21.5
11	Minor	Computer Networks ^{\$}	3	0	2	3+1
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4

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III B. Tech – II Semester						
S.No	Course Code	Courses	Hours per week			Credits
			L	T	P	C
1	PC	Machine Learning	3	0	0	3
2	PC	Big Data Analytics	3	0	0	3
3	PC	Cryptography and Network Security	3	0	0	3
4	PE	Professional Elective-II 1.Mobile Computing 2.MEAN Stack Development 3. Design Patterns 4.Scripting Languages	3	0	0	3
5	Open Elective/ Job Oriented	Open Elective-II Open Electives offered by other departments	3	0	0	3
6	PC	Big Data Analytics lab	0	0	3	1.5
7	PC	Machine Learning using Python Lab	0	0	3	1.5
8	PC	Cryptography and Network Security Lab	0	0	3	1.5
9	SO	Skill Oriented Course - IV 1.Data Science: Natural Language Processing OR 2.Video Analytics	0	0	4	2
10	MC3201	Employability skills-II	2	0	0	0
Total credits						21.5
Industrial/Research Internship(Mandatory) 2 Months during summer vacation						
11	Minor	Data Structures and Algorithms ^{\$}	3	0	2	3+1
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			-	-	-	2

\$- Integrated Course


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IV B. Tech –I Semester						
S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	C
1	PE	Professional Elective-III 1.Cloud Computing 2. Artificial Neural Networks 3. Internet of Things (IoT) 4.Cyber Security & Forensics	3	0	0	3
2	PE	Professional Elective-IV 1. Deep Learning Techniques 2. Social Networks Analysis 3. Advanced Databases 4.MOOCs-NPTEL/SWAYAM	3	0	0	3
3	PE	Professional Elective-V 1.Block-Chain Technologies 2.M-Commerce 3.Ethical Hacking 4.MOOCs-NPTEL/SWAYAM	3	0	0	3
4	Open Elective /Job Oriented	Open Elective-III Open Electives offered by other departments	2	0	2	3
5	Open Elective /Job Oriented	Open Elective-IV Open Electives offered by other departments	2	0	2	3
6	HS	Universal Human Values 2: Understanding Harmony	3	0	0	3
7	SO	PYTHON: Deep Learning OR Secure Coding Techniques OR APSSDC offered Courses	0	0	4	2
8	PR	Industrial/Research Internship 2 months (Mandatory) after third year (to be evaluated during VII semester)	0	0	0	3
Total credits						23
11	Minor	Software Engineering ^{\$} / any other from PART-B (For Minor)	3	0	2	3+1
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			-	-	-	2

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IV B. Tech –II Semester						
S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	C
1	Project	Major Project Work, Seminar Internship	-	-	-	12
Total credits						12

Note:

1. **For integrated courses:** Theory and laboratory exams will be conducted separately, and the student concern will get credits if successfully completes both theory and laboratory. Only external exam will be conducted for Laboratory component. Credit based weightage shall be considered while awarding the grade.
2. **For MOOC courses:** Based on the students interest, student can register and complete a 12 week course one year in advance, by prior information to the concern.