JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA

KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE STRUCTURE AND SYLLABUS

For

B. Tech INFORMATION TECHNOLOGY

(Applicable for batches admitted from 2019-2020)

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COURSE STRUCTURE - R19

I Year – I SEMESTER

S. No	Course Code	Subjects	L	T	P	Credits
1	HS1101	English	3	0	0	3
2	BS1101	Mathematics - I	3	0	0	3
3	BS1106	Applied Chemistry	3	0	0	3
4	ES1112	Fundamentals of Computer Science	3	0	0	3
5	ES1103	Engineering Drawing	1	0	3	2.5
6	HS1102	English Lab	0	0	3	1.5
7	BS1107	Applied Chemistry Lab	0	0	3	1.5
8	ES1105	IT Workshop	0	0	3	1.5
9	MC1101	Environmental Science	3	0	0	0
		Total Credits	**16**	**0**	**12**	**19**

I Year – II SEMESTER

S. No	Course Code	Subjects	L	T	P	Credits
1	BS1202	Mathematics – II	3	0	0	3
2	BS1203	Mathematics – III	3	0	0	3
3	BS1204	Applied Physics	3	0	0	3
4	ES1201	Programming for Problem Solving using C	3	0	0	3
5	ES1213	Digital Logic Design	3	0	0	3
6	BS1205	Applied Physics Lab	0	0	3	1.5
7	HS1203	Communication Skills Lab	0	1	2	2
8	ES1202	Programming for Problem Solving using C Lab	0	0	3	1.5
9	PR1201	Engineering Exploration Project	0	0	2	1
10	MC1204	Constitution of India	3	0	0	0
		Total Credits	**18**	**1**	**10**	**21**

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II Year – I SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	IT2101	Discrete Mathematical Structures	3	0	0	3
2	IT2102	Principles of Software Engineering	3	0	0	3
3	ES2101	Python Programming	3	0	0	3
4	IT2103	Data Structures	3	0	0	3
5	IT2104	Computer Organization	3	0	0	3
6	IT2105	Object Oriented Programming through C++	3	0	0	3
7	ES2102	Python Programming Lab	0	0	3	1.5
8	IT2106	Data Structures through C++ Lab	0	0	3	1.5
9	MC2101	Essence of Indian Traditional Knowledge	3	0	0	0
10	MC2102	Employability Skills - I*	2	0	0	0
		Total	23	0	6	21

*Internal Evaluation through Seminar / Test conducted for 50 marks

II Year – II SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	BS2201	Probability and Statistics	3	0	0	3
2	IT2201	Java Programming	2	1	0	3
3	IT2202	Operating Systems	3	0	0	3
4	IT2203	Database Management Systems	3	0	0	3
5	IT2204	Theory of Computation	3	0	0	3
6	IT2205	Java Programming Lab	0	0	3	1.5
7	IT2206	UNIX Operating Systems Lab	0	0	2	1
8	IT2207	Database Management Systems Lab	0	0	3	1.5
9	MC2201	Professional Ethics & Human Values	3	0	0	0
10	PR2201	Socially Relevant Project*	0	0	2	1
		Total	17	1	10	20

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III Year – I SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	IT3101	Advanced Data Structures	3	1	0	4
2	IT3102	Computer Networks	3	0	0	3
3	IT3103	Compiler Design	3	0	0	3
4	IT3104	Artificial Intelligence	3	0	0	3
5	PE3101	**Professional Elective -I** 1. Software Testing Methodologies 2. NoSQL Databases 3. Scripting Languages 4. Computer Graphics 5. R-Programming	3	0	0	3
6	IT3105	Design and Analysis of Algorithms	3	0	0	3
7	IT3106	Computer Networks & Compiler Design Lab	0	0	3	1.5
8	IT3107	AI Tools & Techniques Lab	0	0	3	1.5
9	MC3101	Employability Skills - II*	2	0	0	0
		Total	20	1	6	22

*Internal Evaluation through Seminar / Test conducted for 50 marks

III Year – II SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	IT3201	Data Warehousing and Data Mining	3	0	0	3
2	OE3201	**Open Elective- I (Inter Disciplinary)**	3	0	0	3
3	IT3202	Web Technologies	3	0	0	3
4	PE3201	**Professional Elective II** (NPTEL/SWAYAM) **Duration: 12 Weeks Minimum** ***Course/subject title can't be repeated**	3	0	0	3
5	HS3201	Managerial Economics and Financial Accountancy	3	0	0	3
6	IT3203	Web Technologies Lab	0	0	3	1.5
7	IT3204	Data Mining Lab	0	0	3	1.5
8	PR3201	Industrial Training / Skill Development Programmes / Research Project in higher learning institutes	0	0	0	1
		Total	15	0	6	19

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IV Year – I SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	IT4101	Cryptography and Network Security	3	0	0	3
2	IT4102	Machine Learning	3	1	0	4
3	IT4103	Advanced Computer Networks	3	0	0	3
4	OE4101	**Open Elective II (Inter Disciplinary)**	3	0	0	3
5	PE4101	**Professional Elective III** 1. Big Data Analytics 2. Social Networking 3. Ad-hoc and Sensor Networks 4. Cloud Computing 5. Design Patterns	3	0	0	3
6	PE4102	**Professional Elective IV** 1. Distributed Systems 2. DevOps 3. Internet of Things 4. Data Science 5. Biometrics	3	0	0	3
7	IT4104	Unified Modeling Language (UML) Lab *	0	0	2	1
8	PR4101	Project –I	0	0	0	2
9	MC4101	IPR & Patents	3	0	0	0
		Total	21	1	2	22
*Relevant theory to be taught in the lab						

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IV Year – II SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	HS4201	Management and Organizational Behavior	3	0	0	3
2	OE4201	Open Elective- III (Inter Disciplinary)	3	0	0	3
3	PE4201	**Professional Elective- V** 1. Deep Learning 2. Quantum Computing 3. Blockchain Technologies 4. Software Project Management 5. Network Programming	3	0	0	3
4	PR4201	Project- II	0	0	0	7
		Total	9	0	0	16

Open Electives to be offered by IT for Other Branches:

Open Elective I:	**Open Elective II:**
1. Data Structures 2. Java Programming 3. Data Base Management Systems 4. C++ Programming 5. Operating Systems 6. Internet of Things	1. Problem Solving using Python 2. Web Technologies 3. Machine Learning 4. Distributed Computing 5. AI Tools & Techniques 6. Data Science
Open Elective III: 1. Big Data 2. Image Processing 3. Mobile Application Development 4. Cyber Security 5. Deep Learning 6. Block Chain Technologies	