



R-20 Syllabus for CE, JNTUK w. e. f. 2020-21

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF CIVIL ENGINEERING

COURSE STRUCTURE

For UG – R20

B. TECH - CIVIL ENGINEERING

(Applicable for batches admitted from 2020-2021)



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

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPalem



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

DEPARTMENT OF CIVIL ENGINEERING

III YEAR – I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	PC501	Structural Analysis	3	0	0	3
2	PC502	Design and Drawing of Reinforced Concrete Structures	3	0	0	3
3	PC503	Geotechnical Engineering-1	3	0	0	3
4	OE501	Open Elective Course/Job Oriented Elective (OE-1)	3	0	0	3
5	PE501	Professional Elective course - I	3	0	0	3
6	PC504	Professional Core courses Lab Survey Camp (Field work)	0	0	3	1.5
7	PC505	Geotechnical Engineering Lab	0	0	3	1.5
8	PC501	Skill advanced course: Design of Special Structure, Chimney, Hinge Tanks, spill ways etc.,	1	0	2	2
9	MC501	Essence of Indian Traditional Knowledge	2	0	0	0
10	PR501	Summer Internship 2Months (Mandatory) after second year (to be evaluated during V semester)				1.5
		Total Credits				21.5
		Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)	3	1	0	4

PRINCIPAL
Aditya College of
Engineering & Technology
TIRUPATI



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

DEPARTMENT OF CIVIL ENGINEERING

III YEAR – II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	PC601	Design and Drawing of Steel Structures	3	0	0	3
2	PC602	Water Resource Engineering	3	0	0	3
3	PC603	Geotechnical Engineering-2	3	0	0	3
4	PE601	Professional Elective course -II	3	0	0	3
5	OE601	Open Elective Course/Job oriented Elective (OE-2)	3	0	0	3
6	PC604	Professional Core courses Lab (Estimation, Costing and Contracts)	0	0	3	1.5
7	PC605	Professional Core courses Lab (Remote Sensing & GIS Lab)	0	0	3	1.5
8	PC606	Professional Core courses Lab Civil Engineering Practice	0	0	3	1.5
9	SC601	Skill advanced course/ soft skill course: Computational Tools	1	0	2	2
10	MC601	Employability Skills	2	0	0	0
11	PR601	Industrial/Research Internship (Mandatory) 2 Months... to be evaluated in IV year I semester				
		Total Credits				21.5
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0also)			3	1	0	4


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF CIVIL ENGINEERING

IV YEAR – I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	PE701	Professional Core course - III	3	0	0	3
2	PE702	Professional Core course - IV	3	0	0	3
3	PE703	Professional Core course - V	3	0	0	3
4	OE701	Open Elective Courses/ Job oriented elective (OE-III)	2	0	2	3
5	OE702	Open Elective Course/Job oriented elective (OE-IV)	2	0	2	3
6	HSC701	Universal Human Values-2: Understanding Harmony	3	0	0	3
7	SC701	Skill advanced course/ soft skill course: Project planning & town planning,	1	0	2	2
8	PR701	Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)				3
		Total Credits				23
Honors/ Minor courses (The hours distribution can be 3-0-2or3-1-0also)			3	1	0	4

IV YEAR – II SEMESTER

S. NO	CATEGORY	COURSE TITLE	L	T	P/D	C
1	Major Project	PROJ	-	-	-	12
		INTERNSHIP (6 Months)				
		Total Credits				12

Major Project-12;

Internship-6 Months;

Total-12

2
PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For

B. TECH ELECTRICAL AND ELECTRONICS ENGINEERING

(Applicable for batches admitted from 2020-2021)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPalem



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

III B. Tech I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PCC	Power Systems-II	3	0	0	3
2	PCC	Power Electronics	3	0	0	3
3	PCC	Control Systems	3	0	0	3
4	OEC	Open Elective- I/ Job Oriented Elective-I	3	0	0	3
5	PEC	Professional Elective - I	3	0	0	3
6	PCC	Control Systems Lab	0	0	3	1.5
7	PCC	Power Electronics Lab	0	0	3	1.5
8	SC	Soft Skill Course: Employability Skills	2	0	0	2
9	MC	Environmental Science	2	0	0	0
10	PROJ	Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester)	0	0	0	1.5
Total Credits			21.5			
		Minors Course*	4	0	0	4
		Honors Course*	4	0	0	4

III B. Tech II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PCC	Microprocessors and Microcontrollers	3	0	0	3
2	PCC	Electrical Measurements and Instrumentation	3	0	0	3
3	PCC	Power System Analysis	3	0	0	3
4	PEC	Professional Elective - II	3	0	0	3
5	OEC	Open Elective –II/ Job Oriented Elective-II	3	0	0	3
6	PCC	Electrical Measurements and Instrumentation Lab	0	0	3	1.5
7	PCC	Microprocessors and Microcontrollers Lab	0	0	3	1.5
8	PCC	Power Systems and Simulation Lab	0	0	3	1.5
9	SC	Skill Advanced Course: Machine Learning with Python	2	0	0	2
10	MC	Research Methodology	2	0	0	0
Total Credits			21.5			
		Minors/ Honors	4	0	0	4

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPalem



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

IV B. Tech I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	PEC	Professional Elective – III	3	0	0	3
2	PEC	Professional Elective – IV	3	0	0	3
3	PEC	Professional Elective – V	3	0	0	3
4	OEC	Open Elective- III /Job Oriented Elective-III	3	0	0	3
5	OEC	Open Elective-IV /Job Oriented Elective-IV	3	0	0	3
6	HSMC	Universal Human Values-2: Understanding Harmony	3	0	0	3
7	SC	Skill Advanced Course Machine Learning with Python Lab	0	0	4	2
8	PROJ	Industrial / Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII Semester)	0	0	3	3
Total Credits			23			
		Minors/ Honors	4	0	0	4

IV B. Tech II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	Major Project	Project work, seminar and internship in industry (6 Months)	--	--	--	12
Total Credits			12			


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF MECHANICAL ENGINEERING

COURSE STRUCTURE

For UG – R20

B. TECH - MECHANICAL ENGINEERING

(Applicable for batches admitted from 2020-2021)



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

2

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF MECHANICAL ENGINEERING

III B.TECH I SEMESTER

S No	Code	Course Title	Hours			Credits
			L	T	P	
1	PCC-7	Thermal Engineering-II	3	0	0	3
2	PCC-8	Design of Machine Members-I	3	0	0	3
3	PCC-9	Machining, Machine Tools & Metrology	3	0	0	3
4	OE-1	1. Sustainable Energy Technologies 2. Operations Research 3. Nano Technology 4. Thermal Management of Electronic systems	3	0	0	3
5	PE-1	1. Finite Element Methods 2. Industrial Robotics 3. Advanced Materials 4. Renewable Energy Sources 5. Mechanics of Composites 6. MOOCs (NPTEL/ Swayam) Course (12 Week duration)	3	0	0	3
6	PCC-L6	Machine Tools Lab	0	0	3	1.5
7	PCC-L7	Thermal Engineering Lab	0	0	3	1.5
8	SOC-3	Advanced Communication Skills Lab	1	0	2	2
9	MC – 4	Professional Ethics and Human Values	2	0	0	0
Evaluation of Summer Internship which is completed at the end of II B.Tech II Semester						1.5
Total credits						21.5
Honors/Minor courses			4	0	0	4


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF MECHANICAL ENGINEERING

III B.TECH II SEMESTER

S.No	Code	Course Title	Hours			Credits
			L	T	P	
1	PCC-10	Heat Transfer	3	0	0	3
2	PCC-11	Design of Machine Members-II	3	0	0	3
3	PCC-12	Introduction to Artificial Intelligence and Machine Learning	3	0	0	3
4	PE-2	1.Automobile Engineering 2.Smart Manufacturing 3.Advanced Mechanics of Solids 4.Statistical Quality Control 5.Industrial Hydraulics and Pneumatics 6.MOOCs (NPTEL/ Swayam) Course (12 Week duration)	3	0	0	3
5	OE-2	1.Industrial Robotics 2.Essentials of Mechanical Engineering 3.Advanced Materials 4.Introduction to Automobile Engineering	3	0	0	3
6	PCC-L8	Heat Transfer Lab	0	0	3	1.5
7	PCC-L9	CAE&CAM Lab	0	0	3	1.5
8	PCC-L10	Measurements & Metrology Lab	0	0	3	1.5
9	SOC-4	Artificial Intelligence and Machine Learning Lab	0	0	4	2
10	MC - 5	Research Methodology and IPR	2	0	0	0
Honors/Minor courses			Total credits			21.5
			4	0	0	4

* At the end of III Year II Semester, students shall complete summer internship spanning between 1 to 2 months at Industries/ Higher Learning Institutions/ APSSDC.

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPalem



R-20 Syllabus for ME JNTUK w. e. f. 2020 – 21

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

DEPARTMENT OF MECHANICAL ENGINEERING

IV B.TECH I SEMESTER

S.No	Code	Course Title	Hours			Credits
			L	T	P	
1	PE-3	1. Mechanical Vibrations 2. Operations Research 3. Unconventional Machining Processes 4. Computational Fluid Dynamics 5. Gas Dynamics and Jet Propulsion 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
2	PE-4	1. Automation in Manufacturing 2. Power Plant Engineering 3. Big Data Analytics 4. Production Planning and Control 5. Condition Monitoring 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
3	PE-5	1. Advanced Manufacturing Processes 2. Mechatronics 3. Refrigeration & Air-Conditioning 4. Additive Manufacturing 5. Non Destructive Evaluation 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
4	OE-3	1. Additive Manufacturing 2. Mechatronics 3. Finite Element Methods 4. Introduction to Artificial Intelligence & Machine Learning	3	0	0	3
5	OE-4	1. Optimization Techniques 2. Smart Manufacturing 3. Safety Engineering 4. Operations Management	3	0	0	3
6	HSC-3	Universal Human Values: Understanding Harmony	3	0	0	3
7	SOC-5	Mechatronics Lab	0	0	4	2
Evaluation of Summer Internship which is completed at the end of III B.Tech II Semester						3
Honors/Minor courses			Total credits			23
			4	0	0	4

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY:: KAKINADA
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

III Year - I Semester

S.No.	Category	Name of the subject	L	T	P	Credits
1	PC	Analog ICs and Applications	3	0	0	3
2	PC	Electromagnetic Waves and Transmission Lines	3	0	0	3
3	PC	Digital Communications	3	0	0	3
4	OE1	Open Elective Course/Job oriented elective-1	2	0	2	3
5	PE1	Professional Elective courses -1	3	0	0	3
6	LC	Analog ICs and Applications LAB	0	0	3	1.5
7	LC	Digital Communications Lab	0	0	3	1.5
8	SC	Data Structures using Java Lab	0	0	4	2
9	MC	Indian Traditional Knowledge	2	0	0	0
Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester)			0	0	0	1.5
Total credits						21.5
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)						4

PE1:

1. Antenna and Wave Propagation
2. Electronic Measurements and Instrumentation
3. Computer Architecture & Organization

OE1:

Candidate should select the subject from list of subjects offered by other departments


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPalem



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY:: KAKINADA
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

III Year –II Semester

S.No.	Category	Name of the subject	L	T	P	Credits
1	PC	Microprocessor and Microcontrollers	3	1	0	3
2	PC	VLSI Design	3	0	0	3
3	PC	Digital Signal Processing	3	0	0	3
4	PE2	Professional Elective courses - 2	3	0	0	3
5	OE 2	Open Elective Course/Job oriented elective -2	2	0	2	3
6	LC	Microprocessor and Microcontrollers - Lab	0	0	3	1.5
7	LC	VLSI Design Lab	0	0	3	1.5
8	LC	Digital Signal Processing Lab	0	0	3	1.5
9	SC	ARM based/ Aurdino based Programming	1	0	2	2
10	MC	Research Methodology	2	0	0	0
Total credits						21.5
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)						4

Industrial/Research Internship (Mandatory) 2 Months during summer vacation

PE2:

- 1.Microwave Engineering
- 2.Mobile & Cellular Communication
- 3.Embedded Systems
- 4.CMOS Analog IC Design

OE2:

Candidate should select the subject from list of subjects offered by other departments

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPalem



R-20 Syllabus for ECE - JNTUK w. e. f. 2020-21

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY:: KAKINADA
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

IV Year -I Semester

S.No.	Category	Name of the subject	L	T	P	Credits
1	PE	Professional Elective courses -3	3	0	0	3
2	PE	Professional Elective courses -4	3	0	0	3
3	PE	Professional Elective courses -5	3	0	0	3
4	OE	Open Elective Courses/ Job oriented elective -3	2	0	2	3
5	OE	Open Elective Courses/ Job oriented elective -4	2	0	2	3
6	HS	*Humanities and Social Science Elective	3	0	0	3
7	SC	Designer tools (HFSS, Microwave Studio CST, Cadence Virtuoso, Synopsys, Mentor Graphics, Xilinx.)	1	0	2	2
Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)			0	0	0	3
Total credits						23
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)						4

<u>PE 3:</u> 1. Optical Communication 2. Digital Image Processing 3. Low Power VLSI Design	<u>PE5:</u> 1. Radar engineering 2. Pattern recognition & Machine Learning 3. Internet of Things
<u>PE4:</u> 1. Satellite Communications 2. Soft Computing Techniques 3. Digital IC Design using CMOS	


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For UG –R20

B. TECH - COMPUTER SCIENCE & ENGINEERING

(Applicable for batches admitted from 2020-2021)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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 Warehousing and Data Mining	3	0	0	3
4	Open Elective/Job Oriented	Open Elective-I Open Electives offered by other departments/Optimization in Operations Research (Job oriented course)	3	0	0	3
5	PE	Professional Elective-I 1. Artificial Intelligence 2. Software Project Management 3. Distributed Systems 4. Advanced Unix Programming	3	0	0	3
6	PC	Data Warehousing and Data Mining 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 2. Continuous Integration and Continuous Delivery using Dev Ops	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	Database Management Systems ^{\$}	3	0	2	4
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4

^{\$}- Integrated Course


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALAM



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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

III B. Tech – II Semester

S.No	CourseCode	Courses	Hours per week			Credits
			L	T	P	
1	PC	Machine Learning	3	0	0	3
2	PC	Compiler Design	3	0	0	3
3	PC	Cryptography and Network Security	3	0	0	3
4	PE	Professional Elective-II 1.Mobile Computing 2.Big Data Analytics 3.Object Oriented Analysis and Design 4.Network Programming	3	0	0	3
5	Open Elective /Job Oriented	Open Elective-II Open Electives offered by other departments/ MEAN Stack Development (Job Oriented Course)	3	0	0	3
6	PC	Machine Learning using Python Lab	0	0	3	1.5
7	PC	Compiler Design 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.Big Data:Spark 2.MEAN Stack Technologies- Module I- MongoDB, Express.js, Angular JS Node.js and AJAX	0	0	4	2
10	MC	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 ^s	3	0	2	4
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			-	-	-	2

\$- Integrated Course


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

IV B. Tech –I Semester

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	PE	Professional Elective-III 1.Cloud Computing 2.Neural Networks and Soft Computing 3.Ad-hoc and Sensor Networks 4.Cyber Security & Forensics	3	0	0	3
2	PE	Professional Elective-IV 1. Deep Learning Techniques 2. Social Networks & Semantic Web 3. Computer Vision 4.MOOCs-NPTEL/SWAYAM	3	0	0	3
3	PE	Professional Elective-V 1.Block-Chain Technologies 2.Wireless Network Security 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/ API and Microservices (Job Oriented Course)	3	0	0	3
5	Open Elective /Job Oriented	Open Elective-IV Open Electives offered by other departments/ Secure Coding Techniques (Job Oriented Course)	3	0	0	3
6	HS	Universal Human Values 2: Understanding Harmony	3	0	0	3
7	SO	1.PYTHON: Deep Learning /APSSDC offered Courses 2.MEAN Stack Technologies-Module II-MongoDB, Express.js, Angular JS Node.js, and AJAX	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
9	Minor	Software Engineering ^s / any other from PART-B (For Minor)	3	0	2	4
10	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			-	-	-	2

\$- Integrated Course

PRINCIPAL
**Aditya College of
 Engineering & Technology**
 SURAMPalem



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)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALLEM



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

DEPARTMENT OF INFORMATION TECHNOLOGY
III B. Tech – I Semester

S.No	Course Code	Courses	Hours per week			Credits
			L	T	P	
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 2.CICD 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 ^s	3	0	2	4
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4

\$- Integrated Course

PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF INFORMATION TECHNOLOGY

III B. Tech – II Semester						
S.No	CourseCode	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 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 ^S	3	0	2	4
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			-	-	-	2

S- Integrated Course


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF INFORMATION TECHNOLOGY
IV B. Tech –I Semester

S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
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	1. PYTHON: Deep Learning /APSSDC offered Courses 2. Secure Coding Techniques	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 ^s / any other from PART-B (For Minor)	3	0	2	4
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM						2

\$- Integrated Course


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF CSE - DATA SCIENCE

COURSE STRUCTURE

For UG – R20

B. Tech - COMPUTER SCIENCE AND ENGINEERING with Specialization
DATA SCIENCE

(Applicable for batches admitted from 2020-2021)



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


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF CSE - DATA SCIENCE

III B. Tech – I Semester						
S. No	Course Code	Courses	Hours per week			Credits
			L	T	P	
1	PC	Compiler Design	3	0	0	3
2	PC	Operating Systems	3	0	0	3
3	PC	Machine Learning	3	0	0	3
4	Open Elective/ Job Oriented	Open Elective-I Open Electives offered by other departments/ Optimization in Operations Research (Job oriented course)	3	0	0	3
5	PE	Professional Elective-I 1. Software Engineering 2. Object Oriented Analysis and Design 3. DevOps 4. Internet of Things	3	0	0	3
6	PC	Operating Systems & Compiler Design Lab	0	0	3	1.5
7	PC	Machine Learning Lab	0	0	3	1.5
8	SO	Skill Oriented Course - III 1. Continuous Integration and Continuous Delivery using DevOps 2. Helica Insight	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	Data Warehousing and Data Mining ^{\$}	3	0	2	4

\$- Integrated Course

2
PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM


JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF CSE - DATA SCIENCE

III B. Tech – II Semester						
S. No	Course Code	Courses	Hours per week			Credits
			L	T	P	
1	PC	Computer Networks	3	0	0	3
2	PC	Big Data Analytics	3	0	0	3
3	PC	Design and Analysis of Algorithms	3	0	0	3
4	PE	Professional Elective-II 1. Deep Learning 2. Software Project Management 3. Distributed Systems 4. Data Wrangling in Data Science 5. ETL Principles	3	0	0	3
5	Open Elective/Job Oriented	Open Elective-II Open Electives offered by other departments/ MEAN Stack Development (Job Oriented Course)	3	0	0	3
6	PC	Computer Networks Lab	0	0	3	1.5
7	PC	Big Data Analytics Lab	0	0	3	1.5
8	PC	Deep Learning with Tensorflow	0	0	3	1.5
9	SO	Skill Oriented Course - IV 1. MEAN Stack Technologies- Module I- MongoDB, Express.js, Angular JS Node.js and AJAX 2. ETL Design Procedures-Spark	0	0	4	2
10	MC	Employability Skills-II	2	0	0	0
Total credits						21.5
Industrial/Research Internship(Mandatory) 2 Months during summer vacation						
11	Minor	Data Science Applications ^s	3	0	2	4
Minor courses through SWAYAM			0	0	0	2


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALAM



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

DEPARTMENT OF CSE - DATA SCIENCE

IV B. Tech –I Semester (Tentative)						
S. No	Course Code	Course Title	Hours per week			Credits
			L	T	P	
1	PE	Professional Elective-III 1. Reinforcement Learning 2. Nature Inspired Computing Techniques 3. Social Media Analytics 4. Block Chain Technologies	3	0	0	3
2	PE	Professional Elective-IV 1. Snowflake Cloud Analytics 2. Cloud Computing 3. Information Retrieval Systems 4. NOSQL Databases	3	0	0	3
3	PE	Professional Elective-V 1. Social Network Analysis 2. Recommender Systems 3. AI Chatbots 4. Data Visualization	3	0	0	3
4	Open Elective /Job Oriented	Open Elective-III Open Electives offered by other departments/ API and Microservices (Job Oriented Course)	3	0	0	3
5	Open Elective /Job Oriented	Open Elective-IV Open Electives offered by other departments/ Secure Coding Techniques (Job Oriented Course)	3	0	0	3
6	HS	Universal Human Values 2: Understanding Harmony	3	0	0	3
7	SO	1. Machine Learning with Go (Infosys Spring Board) 2. MEAN Stack Technologies-Module II- MongoDB, Express.js, Angular JS Node.js, and AJAX	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
9	Minor	Data Wrangling in Data Science ^{\$}	3	0	2	4
Minor courses through SWAYAM			0	0	0	2

\$- Integrated Course

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



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

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

COURSE STRUCTURE AND SYLLABUS

For UG – R20

B. Tech - COMPUTER SCIENCE AND ENGINEERING with Specialization

Common to

- (i) CSE (ARTIFICIAL INTELLIGENCE and MACHINE LEARNING)–Branch Code:42
- (ii) ARTIFICIAL INTELLIGENCE and MACHINE LEARNING - Branch Code: 61

(Applicable for batches admitted from 2020-2021)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India


PRINCIPAL
Aditya College of
Engineering & Technology
SURAMPALEM



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

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

III B. Tech – I Semester						
S.No	Course Code	Courses	Hours per week			Credits
			L	T	P	C
1	PC	Compiler Design	3	0	0	3
2	PC	Operating Systems	3	0	0	3
3	PC	Machine Learning	3	0	0	3
4	Open Elective/Job Oriented	Open Elective-I Open Electives offered by other departments/ Optimization in Operations Research(Job oriented course)	3	0	0	3
5	PE	Professional Elective-I 1. Software Engineering 2. Computer Vision 3. Data Visualization 4.DevOps 5. Machine Learning for Engineering and Science Applications (NPTEL) (https://nptel.ac.in/courses/106106198)	3	0	0	3
6	PC	Operating Systems & Compiler Design Lab	0	0	3	1.5
7	PC	Machine Learning Lab	0	0	3	1.5
8	SO	Skill Oriented Course - III 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	Machine Learning ^{\$}	3	0	2	4

\$- Integrated Course

JNTU Kakinada
 College of Engineering & Technology
 SURAMPalem



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

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

III B. Tech – II Semester						
S.No	CourseCode	Courses	Hours per week			Credits
			L	T	P	C
1	PC	Computer Networks	3	0	0	3
2	PC	Deep Learning	3	0	0	3
3	PC	Design and Analysis of Algorithms	3	0	0	3
4	PE	Professional Elective-II 1. Software Project Management 2. Distributed Systems 3. Internet of Things 4. Network Programming	3	0	0	3
5	Open Elective/Job Oriented	Open Elective-II Open Electives offered by other departments/ MEAN Stack Development (Job Oriented Course)	3	0	0	3
6	PC	Computer Networks Lab	0	0	3	1.5
7	PC	Algorithms for Efficient Coding Lab	0	0	3	1.5
8	PC	Deep Learning with Tensorflow	0	0	3	1.5
9	SO	Skill Oriented Course - IV 1. MEAN Stack Technologies- Module I- MongoDB, Express.js, Angular JS Node.js and AJAX 2. Big Data : Apache Spark	0	0	4	2
10	MC	Employability skills-II	2	0	0	0
Total credits						21.5
Industrial/Research Internship(Mandatory) 2 Months during summer vacation						
11	Minor	Deep Learning\$	3	0	2	4
Minor courses through SWAYAM			0	0	0	2


PRINCIPAL
Addya College of
Engineering & Technology
SURAMPalem



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

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

IV B. Tech –I Semester (Tentative)						
S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	C
1	PE	Professional Elective-III 1.Reinforcement Learning 2.Soft Computing 3. Cryptography and Network Security 4. Block Chain Technologies 5. Speech Processing	3	0	0	3
2	PE	Professional Elective-IV 1. Robotic Process Automation 2. Cloud Computing 3. Big Data Analytics 4. NOSQL Databases 5. Video Analytics	3	0	0	3
3	PE	Professional Elective-V 1. Social Network Analysis 2. Recommender Systems 3. AI Chatbots 4. Object Oriented Analysis and Design 5. Semantic Web	3	0	0	3
4	Open Elective /Job Oriented	Open Elective-III Open Electives offered by other departments/API and Micro services (Job Oriented Course)	3	0	0	3
5	Open Elective /Job Oriented	Open Elective-IV Open Electives offered by other departments/Secure Coding Techniques (Job Oriented Course)	3	0	0	3
6	HS	Universal Human Values 2: Understanding Harmony	3	0	0	3
7	SO	1.Machine Learning with Go (Infosys Spring Board) 2.MEAN Stack Technologies-Module II-MongoDB, Express.js, Angular JS Node.js, and AJAX	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
9	Minor	Reinforcement Learning	4	0	0	4
Minor courses through SWAYAM			0	0	0	2

PRINCIPAL
 Aditya College of
 Engineering & Technology
 SURAMPALEM