1.2.1 Number of Programmes in which Choice Based Credit System (CBCS)/ elective course system has been implemented

Programme Code	Programme name	Year of Introduction	Status of implemetation of CBCS / elective course system (Yes/No)	Year of implemetation of CBCS / elective course system	Link to the relevant document
4	B.Tech in Electronics and Communiction Engineering	1999-2000	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
5	B.Tech in Computer Science and Engineering	1999-2001	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
2	B.Tech in Electrical and Electronics Engineering	2001-02	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
3	B.Tech in Mechanical Engineering	2004-05	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
1E	Master of Business Administration	2006-07	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
57	M. Tech in VLSI Design	2007-08	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
58	M. Tech in Computer Science and Engineering	2007-08	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
43	M. Tech in Power Electronics	2011-12	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
56	M. Tech in Power Systems	2014-15	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
38	M. Tech in Digital Electronics and Communication Systems	2014-15	Yes	2016-17	https://avanthienggcollege.ac.in/academic_flixbility
42	B.Tech in CSE With Artificial Intelligence and Machine Learning	2020-21	Yes	2020-21	https://avanthienggcollege.ac.in/academic_flixbility
44	B.Tech in CSE With Data science	2023-24	Yes	2020-21	https://avanthienggcollege.ac.in/academic_flixbility

All India Council for Technical Education

(A Statutory body under Ministry of Education, Govt. of India)

Nelson Mandela Marg,Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org

APPROVAL PROCESS 2023-24

Extension of Approval (EoA)

F.No. South-Central/1-36468796867/2023/EOA

Date: 14-Jun-2023

To,

The Principal Secretary
(Higher Education) Govt. of Andhra Pradesh,
J Block, 4th Floor, Secretariat Building,
Hyderabad-500022

Sub: Extension of Approval for the Academic Year 2023-24

Ref: Online application of the Institution submitted for Extension of Approval for the Academic Year 2023-24

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Education) Regulations, 2020 notified on 4th February 2020 and amended on 24th February 2021 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to:

Permanent Id	1-6296166	Application Id	1-36468796867
Name of the Institution	AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY	Name of the Society/Trust	AVANTHI EDUCATIONAL SOCIETY
Institution Address	TAMARAM VILLAGE, MAKAVARAPALEM MANDAL, NARSIPATNAM REVENUE DIVISION, VISAKHAPATNAM DIST., VISAKHAPATNAM DIST, VISHAKHAPATNAM, Andhra Pradesh, 531113	Society/Trust Address	8-2-293/82/F-II/A-12, PLOT NO.12, FILM NAGAR, JUBILEE HILLS HAKEEMPET, HYDERABAD,HYDERABAD,HYDE RABAD,Andhra Pradesh,500034
Institution Type	Private-Self Financing	Region	South-Central
Year of Establishment	1999		

Opted for Introduction of New Program/Level	Yes	Introduction of Program/Level Approved or Not	Approved

To conduct following Courses with the Intake indicated below for the Academic Year 2023-24

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
DIPLOMA	ENGINEERING AND TECHNOLOGY	COMPUTER ENGINEERING	State Board of Technical Education and Training, Andhra Pradesh	60	60	No	No

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Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
DIPLOMA	ENGINEERING AND TECHNOLOGY	ELECTRICAL AND ELECTRONICS ENGINEERING	State Board of Technical Education and Training, Andhra Pradesh	60	60	No	No
DIPLOMA	ENGINEERING AND TECHNOLOGY	ELECTRONICS & COMMUNICATION ENGG	State Board of Technical Education and Training, Andhra Pradesh	60	60	No	No
DIPLOMA	ENGINEERING AND TECHNOLOGY	MECHANICAL ENGINEERING	State Board of Technical Education and Training, Andhra Pradesh	60	60	No	No
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING	Jawaharlal Nehru Technological University, Kakinada	180	180	No	No
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)	Jawaharlal Nehru Technological University, Kakinada	60	60	No	No
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING(ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)	Jawaharlal Nehru Technological University, Kakinada	60	60	No	No
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ELECTRICAL AND ELECTRONICS ENGINEERING	Jawaharlal Nehru Technological University, Kakinada	60	60	No	No
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ELECTRONICS & COMMUNICATION ENGG	Jawaharlal Nehru Technological University, Kakinada	120	120	No	No
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	MECHANICAL ENGINEERING	Jawaharlal Nehru Technological University, Kakinada	60	60	No	No
POST GRADUATE	ENGINEERING AND TECHNOLOGY	POWER SYSTEMS	Jawaharlal Nehru Technological University, Kakinada	18	18	No	No

Application No:1-36468796867

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ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

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Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2022-23	Intake Approved for 2023-24	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
POST GRADUATE	ENGINEERING AND TECHNOLOGY	DIGITAL ELECTRONICS AND COMMUNICATION SYSTEMS	Jawaharlal Nehru Technological University, Kakinada	9	9	No	No
POST GRADUATE	MANAGEMENT	MBA	Jawaharlal Nehru Technological University, Kakinada	120	120	No	No
POST GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING	Jawaharlal Nehru Technological University, Kakinada	12	12	No	No
POST GRADUATE	ENGINEERING AND TECHNOLOGY	VLSI DESIGN	Jawaharlal Nehru Technological University, Kakinada	18	18	No	No
POST GRADUATE	ENGINEERING AND TECHNOLOGY	POWER ELECTRONICS	Jawaharlal Nehru Technological University, Kakinada	24	24	No	No
POST GRADUATE	COMPUTER APPLICATIONS	MCA	Jawaharlal Nehru Technological University - Gurajada, Vizianagaram (JNTUGV)	0	120##	No	No

Approved New Course(s)

It is mandatory to comply with all the essential requirements as given in APH 2023-24 (Appendix 6)

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ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

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Important Instructions

1. The State Government/ UT/ Directorate of Technical Education/ Directorate of Medical Education shall ensure that 10% of reservation for Economically Weaker Section (EWS) as per the reservation policy for admission, operational from the Academic year 2019-20 is implemented without affecting the reservation percentages of SC/ ST/ OBC(NCL) / General. However, this would not be applicable in the case of Minority Institutions referred to the Clause (1) of Article 30 of Constitution of India. Such Institution shall be permitted to increase in annual permitted strength over a maximum period of two years.

2. The Institution offering courses earlier in the Regular Shift, First Shift, Second Shift/Part Time are now amalgamated as total intake and shall have to fulfil all facilities such as Infrastructure, Faculty and other requirements as per the norms specified in the Approval Process Handbook 2023-24 for the Total Approved Intake. Further, the Institutions Deemed to be Universities/ Institutions having Accreditation/ Autonomy status shall have to maintain the Faculty: Student ratio as specified in the Approval Process Handbook.

3. Strict compliance of Anti-Ragging Regulation, Establishment of Committee for SC/ ST, Establishment of Internal Committee (IC), Establishment of Online Grievance Redressal Mechanism, Barrier Free Built Environment for disabled and elderly persons, Fire and Safety Certificate should be maintained as per the provisions made in Approval Process Handbook and AICTE Regulation notified from time to time.

4. In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

5. As per the AICTE Notification dated 29.01.2014 and amended thereto, it shall be mandatory for each Technical Education Institution, University Department and Institution Deemed to be University imparting Technical Education to get accreditation (NBA) for at least 60% of the eligible courses in the next ONE (1) Years' time, otherwise EoA for the subsequent Academic Year (A.Y. 2024-25) shall not be issued by the Council.

6. Deemed to be University: Institutions Deemed to be Universities (Running Technical Education Programmes), it is mandatory to have AICTE approval from the Academic Year 2018-19 in compliance of the Hon'ble Supreme Court Order dated 03-11-2017 passed in CA No.17869- 17870 /2017.

Prof.Rajive Kumar
Member Secretary, AICTE

Copy to:

1. **The Director Of Technical Education**, Andhra Pradesh**

2. **The Registrar**,**
   State Board Of Technical Education And Training, Andhra Pradesh

3. **The Principal / Director,**
   AVANTHI INSTITUTE OF ENGINEERING & TECHNOLOGY
   Tamaram Village,
   Makavarapalem Mandal,
   Narsipatnam Revenue Division,
   Visakhapatnam Dist.,
   Visakhapatnam Dist,Vishakhapatnam,
   Andhra Pradesh,531113

4. **The Secretary / Chairman,**
   8-2-293/82/F-II/A-12, PLOT NO.12, FILM NAGAR, JUBILEE HILLS, HAKEEMPET, HYDERABAD
   HYDERABAD,HYDERABAD
   Andhra Pradesh,500034

5. **Guard File(AICTE)**

Note: Validity of the Course details may be verified at http://www.aicte-india.org/

** Individual Approval letter copy will not be communicated through Post/Email. However, a consolidated list of Approved Institutions(bulk) may be downloaded

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

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Application No:1-36468796867
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ACADEMIC REGULATIONS (R20)

COURSE STRUCTURE & DETAILED SYLLABUS

For

B. Tech FOUR YEAR DEGREE COURSE

(Applicable for the batches admitted from 2020-21)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533003, ANDHRA PRADESH, INDIA

ACADEMIC REGULATIONS (R20) FOR B. TECH. (REGULAR)

Applicable for students of B. Tech. (Regular) from Academic Year 2020-21 onwards

Jawaharlal Nehru Technological University Kakinada (JNTUK) 2020 Regulations (R20 Regulations) applicable to all affiliated colleges are given hereunder. These regulations govern the B. Tech programmes offered by all affiliated colleges with effect from the students admitted to the programmes in academic year 2020-21.

1. Courses of study:

The following courses of study are offered at present as specializations for the B. Tech. Courses in the jurisdiction of all affiliated colleges of JNTUK.

S. No	Branch	Short Name	Code
1	Civil Engineering	CE	01
2	Electrical & Electronics Engineering	EEE	02
3	Mechanical Engineering	ME	03
4	Electronics and Communication Engineering	ECE	04
5	Computer Science Engineering	CSE	05
6	Computer Science & Technology	CST	06
7	Electronics and Instrumentation Engineering	EIE	10
8	Information Technology	IT	12
9	Automobile Engineering	AME	24
10	Mining Engineering	MM	26
11	Petroleum Engineering	PE	27
12	Agriculture Engineering	AGE	35
13	Artificial Intelligence and Machine Learning	AIML	42
14	Artificial Intelligence	AI	43
15	Data Science	DS	44
16	Artificial Intelligence and Data Science	AIDS	45
17	Cyber Security	CS	46
18	Internet of things and Cyber security including Block chain Technology	IOTCSBT	47
19	Computer Science and Business System	CSBS	48
20	Internet of Things	IOT	49
21	Electronics & Communication Technology	ECT	50
22	Food Engineering	FE	51

2. **Medium of Instruction:** The medium of instruction of the entire B. Tech undergraduate programme in Engineering & Technology (including examinations and project reports) will be in **English** only.

3. **Admissions:** Admission to the B. Tech Programme shall be made subject to the eligibility, qualifications and specialization prescribed by the A.P. State Government/University from time to time. Admissions shall be made either on the basis of the merit rank obtained by the student in the common entrance examination conducted by the A.P. Government/University or on the basis of any other order of merit approved by the A.P. Government/University, subject to reservations as prescribed by the Government/University from time to time.

4. Programme Pattern:

a) Total duration of the of B. Tech (Regular) Programme is four academic years

b) Each Academic year of study is divided in to **two semesters**.

c) Minimum number of instruction days in each semester is 90.

d) Grade points, based on percentage of marks awarded for each course will form the basis for calculation of SGPA (Semester Grade Point Average) and CGPA (Cumulative Grade Point Average).

e) The total credits for the Programme are 160.

f) A three-week induction program is mandatory for all first year UG students and shall be conducted as per AICTE/UGC/APSCHE guidelines.

g) Student is introduced to "Choice Based Credit System (CBCS)".

h) A pool of interdisciplinary and job-oriented mandatory skill courses which are relevant to the industry are integrated into the curriculum of concerned branch of engineering (total five skill courses: two basic level skill courses, one on soft skills and other two on advanced level skill courses)

i) A student has to register for all courses in a semester.

j) All the registered credits will be considered for the calculation of final CGPA.

k) Each semester has - 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)'. Choice Based Credit System (CBCS) and Credit Based Semester System (CBSS) as indicated by UGC and course structure as suggested by AICTE are followed.

l) A 10 months industry/field mandatory internship, both industry and social, during the summer vacation and also in the final semester to acquire the skills required for job and make engineering graduates to connect with the needs of the industry and society at large.

m) All students shall be mandatorily registered for NCC/NSS activities.

n) Each college shall assign a faculty advisor/mentor after admission to each student or group of students from same department to provide guidance in courses registration/career growth/placements/opportunities for higher studies/GATE/other competitive exams etc.

5. Subject/Course Classification:
All subjects/courses offered for the undergraduate programme in E & T (B. Tech degree programmes) are broadly classified as follows.

S.No	Category	Code	APSCHE breakup of Credits	AICTE Credits of breakup
1	Humanities and social science including Management courses	HSMC	10.5	12
2	Basic Science courses	BSC	21	25
3	Engineering courses science	ESC	24	24
4	Professional core Courses	PCC	51	48
5	Open Elective Courses	OEC	12	18
6	Professional Courses Elective	PEC	15	18
7	Internship, seminar, project work	PROJ	16.5	15
8	Skill Oriented Courses	SC	10	-
9	Laboratory Courses	LC	-	-
10	Mandatory courses	MC	Non-credit	Non-credit
	Total Credits		160	160

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

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For UG – R20

B. TECH - ELECTRONICS AND COMMUNICATION ENGINEERING

(Applicable for batches admitted from 2020-2021)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, ANDHRA PRADESH, INDIA

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

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE STRUCTURE

I Year –I SEMESTER

S. No.	Category	Subjects	L	T	P	Credits
1	HS	Communicative English	3	0	0	3
2	BS	Mathematics –I(Calculus)	3	0	0	3
3	BS	Applied Chemistry	3	0	0	3
4	ES	Programming for Problem Solving Using C	3	0	0	3
5	BS	Engineering Drawing	2	0	2	3
6	LC	English Communication Skills Laboratory	0	0	3	1.5
7	LC	Applied Chemistry Lab	0	0	3	1.5
8	LC	Programming for Problem Solving Using C Lab	0	0	3	1.5
					Total Credits	19.5

I Year – II SEMESTER

S. No	Category	Subjects	L	T	P	Credits
1	BS	Mathematics –II (Linear Algebra and Numerical Methods)	3	0	0	3
2	BS	Applied Physics	3	0	0	3
3	ES	Object Oriented Programming through Java	2	0	2	3
4	ES	Network Analysis	3	0	0	3
5	ES	Basic Electrical Engineering	3	0	0	3
6	LC	Electronic workshop Lab	0	0	3	1.5
7	LC	Basic Electrical Engineering Lab	0	0	3	1.5
8	LC	Applied Physics Lab	0	0	3	1.5
9	MC	Environmental Science	3	0	0	0.0
					Total Credits	19.5

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

II Year –I Semester

S. No	Category	Name of the Subject	L	T	P	Credits
1	PC	Electronic Devices and Circuits	3	1	0	3
2	PC	Switching Theory and Logic Design	3	1	0	3
3	PC	Signals and Systems	3	1	0	3
4	BS	Mathematics-III (Transforms and Vector Calculus)	3	1	0	3
5	BS	Random Variables and Stochastic Processes	3	1	0	3
6	LC	OOPS through Java Lab	0	0	2	1.5
7	LC	Electronic Devices and Circuits -Lab	0	0	2	1.5
8	LC	Switching Theory and Logic Design–Lab	0	0	2	1.5
9	SC	Python Programming	0	0	4	2
			Total Credits			21.5

II Year – II Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PC	Electronic Circuit Analysis	3	1	0	3
2	PC	Digital IC Design	3	1	0	3
3	PC	Analog Communications	3	0	0	3
4	ES	Linear control Systems	3	1	0	3
5	HS	Management and Organizational Behavior	3	0	0	3
6	LC	Electronic Circuit Analysis Lab	0	0	3	1.5
7	LC	Analog Communications Lab	0	0	3	1.5
8	LC	Digital IC Design Lab	0	0	3	1.5
9	SC	Soft Skills	0	0	4	2
10	MC	Constitution of India	3	0	0	0
			Total Credits			21.5
		Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4

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:	OE1:
1. Antenna and Wave Propagation 2.Electronic Measurements and Instrumentation 3.Computer Architecture & Organization	Candidate should select the subject from list of subjects offered by other departments

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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:	OE2:
1. Microwave Engineering 2. Mobile & Cellular Communication 3. Embedded Systems 4. CMOS Analog IC Design	Candidate should select the subject from list of subjects offered by other departments

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) afterthird 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

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

IV Year – II Semester

S. No.	Category	Code	Course Title	Hours per week			Credits
1	Major Project	PROJ	Project work, seminar and internship in industry	-	-	-	12
			INTERNSHIP (6 MONTHS)				
						Total credits	12

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

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

I B. Tech I SEMESTER

Sl. No	Course Components	Subjects	L	T	P	Credits
1	HSMC	Communicative English	3	0	0	3
2	BSC	Mathematics-I (Calculus and Differential Equations)	3	0	0	3
3	BSC	Mathematics-II (Linear Algebra and Numerical Methods)	3	0	0	3
4	ESC	Programming for Problem Solving Using C	3	0	0	3
5	ESC	Engineering Drawing & Design	1	0	4	3
6	HSMC	English Communication Skills Laboratory	0	0	3	1.5
7	BSC	Electrical Engineering Workshop	0	1	3	1.5
8	ESC	Programming for Problem Solving Using C Lab	0	0	3	1.5
		Total Credits				**19.5**

I B. Tech II SEMESTER

Sl. No	Course Components	Subjects	L	T	P	Credits
1	BSC	Mathematics-III (Vector Calculus, Transforms and PDE)	3	0	0	3
2	BSC	Applied Physics	3	0	0	3
3	ESC	Data Structures Through C	3	0	0	3
4	ESC	Electrical Circuit Analysis -I	3	0	0	3
5	ESC	Basic Civil and Mechanical Engineering	3	0	0	3
6	BSC	Applied Physics Lab	0	0	3	1.5
7	ESC	Basic Civil and Mechanical Engineering Lab	0	0	3	1.5
8	ESC	Data Structures through C Lab	0	0	3	1.5
9	Mandatory Course	Constitution of India	2	0	0	0
		Total Credits				**19.5**

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

II B. Tech I Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	BSC	Mathematics – IV	3	0	0	3
2	PCC	Electronic Devices and Circuits	3	0	0	3
3	PCC	Electrical Circuit Analysis –II	3	0	0	3
4	PCC	DC Machines and Transformers	3	0	0	3
5	PCC	Electro Magnetic Fields	3	0	0	3
6	PCC	Electrical Circuits Lab	0	0	3	1.5
7	PCC	DC Machines and Transformers Lab	0	0	3	1.5
8	PCC	Electronic Devices and Circuits lab	0	0	3	1.5
9	SC	Skill oriented course- Design of Electrical Circuits using Engineering Software Tools	0	0	4	2
10	MC	Professional Ethics & Human Values	2	0	0	0
		Total Credits				21.5

II B. Tech II Semester

Sl. No	Course Components	Subjects	L	T	P	Credits
1	ESC	Python Programming	3	0	0	3
2	PCC	Digital Electronics	3	0	0	3
3	PCC	Power System-I	3	0	0	3
4	PCC	Induction and Synchronous Machines	3	0	0	3
5	HSMC	Managerial Economics & Financial Analysis	3	0	0	3
6	ESC	Python Programming Lab	0	0	3	1.5
7	PCC	Induction and Synchronous Machines Lab	0	0	3	1.5
8	PCC	Digital Electronics Lab	0	0	3	1.5
9	SC	Skill oriented course- IoT Applications of Electrical Engineering	0	0	4	2
		Total Credits				21.5
		Minors/ Honors	4	0	0	4

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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

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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		

Professional Elective Subjects offered to EEE Branch Students:

Professional Elective – I:

1	Linear IC Applications
2	Utilization of Electrical Energy
3	Computer Architecture and Organization
4	Optimization Techniques
5	Object Oriented Programming through Java

Professional Elective – II:

1	Signal and Systems
2	Electric Drives
3	Advanced Control Systems
4	Switchgear and Protection
5	Big Data Analytics

Professional Elective –III:

1	Digital Signal Processing
2	Renewable and Distributed Energy Technologies
3	Flexible AC Transmission Systems
4	Power Systems Deregulation
5	Data Base Management Systems

Professional Elective – IV:

1	Hybrid Electric Vehicles
2	High Voltage Engineering
3	Programmable Logic Controllers and Applications
4	Cloud Computing with AWS
5	Deep Learning Techniques

Professional Elective – V:

1	Power System Operation and Control
2	Switched Mode Power Conversion
3	AI Applications to Electrical Engineering
4	Data Science
5	MEAN Stack Technologies

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Open Electives offered by EEE Department for Other Branches (Except EEE Branch)

Open Elective-I:

1.	Renewable Energy Sources
2.	Concepts of Optimization Techniques
3.	Concepts of Control Systems

Open Elective-II:

1.	Battery Management Systems and Charging Stations
2.	Fundamentals of utilization of Electrical Energy
3.	Indian Electricity Act

Open Elective-III:

1.	Concepts of Microprocessors and Microcontrollers
2.	Fundamentals of Electric Vehicles
3.	Concepts of Internet of Things

Open Elective-IV:

1.	Concepts of Power System Engineering
2.	Concepts of Smart Grid Technologies

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*Honors Engineering Courses offered EEE Branch students

II B.Tech II Semester:

1.	Communication Systems
2.	Electrical Wiring, Estimation & Costing
3.	Electrical Distribution Systems

III B.Tech I Semester:

1.	Advanced Computer Networks
2.	Power Quality
3.	Special Electrical Machines

III B.Tech II Semester:

1.	Digital Control Systems
2.	Analysis of Power Electronic Converters
3.	HVDC Transmission

IV B.Tech I Semester:

1.	EHV AC Transmission
2.	Smart Grid Technologies
3.	Power Electronic Control of Electrical Drives

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

*Minor Engineering Courses offered by EEE Department for Other Branches (Except EEE Branch)

II B.Tech II Semester:

1.	Fundamentals of Electrical Circuits
2.	Concepts of Electrical Measurements

III B.Tech I Semester:

1.	Analysis of Linear Systems
2.	Energy Auditing, Conservation and Management

III B.Tech II Semester:

1.	Evolutionary Algorithms
2.	Fundamentals of Power Electronics

IV B.Tech I Semester:

1.	Neural Networks and Fuzzy Logic
2.	Concepts of Electric Drives and Its Applications

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE STRUCTURE
For UG – R20

B. TECH - MECHANICAL ENGINEERING

(Applicable for batches admitted from 2020-2021)

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE STRUCTURE

I Year – I SEMESTER

Sl. No	Course Code	Subjects	L	T	P	Credits
1	BSC-1	Calculus & Differential Equations (M-1)	3	0	0	3
2	BSC-2	Engineering Physics	3	0	0	3
3	ESC-1	Programming for Problem Solving	3	0	0	3
4	HSC-1	Communicative English	3	0	0	3
5	ESC-2	Engineering Drawing	2	0	2	3
6	BSC-L1	Engineering Physics Lab	0	0	3	1.5
7	ESC-L1	Programming for Problem Solving Using C Laboratory	0	0	3	1.5
8	HSC-L1	English Communication Skills Laboratory	0	0	3	1.5
9	MC -1	Environmental Science	2	0	0	0
		Total Credits				19.5

I Year – II SEMESTER

Sl.No	Course Code	Subjects	L	T	P	Credits
1	BSC-3	Linear Algebra & Numerical Methods (M-II)	3	0	0	3
2	BSC-4	Engineering Chemistry	3	0	0	3
3	ESC-3	Engineering Mechanics	3	0	0	3
4	ESC-4	Basic Electrical & Electronics Engineering	3	0	0	3
5	ESC-5	Thermodynamics	3	0	0	3
6	ESC-L2	Workshop Practice Lab	0	0	3	1.5
7	BSC-L2	Engineering Chemistry Laboratory	0	0	3	1.5
8	ESC-L3	Basic Electrical & Electronics Engineering Lab	0	0	3	1.5
9	MC-2	Constitution of India	2	0	0	0
		Total Credits				19.5

DEPARTMENT OF MECHANICAL ENGINEERING

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC-5	Vector Calculus, Fourier Transforms and PDE (M-III)	3	0	0	3
2	PCC-1	Mechanics of Solids	3	0	0	3
3	PCC-2	Fluid Mechanics & Hydraulic Machines	3	0	0	3
4	PCC-3	Production Technology	3	0	0	3
5	PCC-4	Kinematics of Machinery	3	0	0	3
6	PCC-L1	Computer Aided Engineering Drawing Practice	0	0	3	1.5
7	PCC-L2	Fluid Mechanics & Hydraulic Machines Lab	0	0	3	1.5
8	PCC-L3	Production Technology Lab	0	0	3	1.5
9	SOC-1	Drafting and Modeling Lab	0	0	4	2
10	MC-3	Essence of Indian Traditional Knowledge	2	0	0	0
		Total Credits				**21.5**

II YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	ESC-6	Material Science & Metallurgy	3	0	0	3
2	BSC-6	Complex Variables and Statistical Methods	3	0	0	3
3	PCC-5	Dynamics of Machinery	3	0	0	3
4	PCC-6	Thermal Engineering-I	3	0	0	3
5	HSC-2	Industrial Engineering and Management	3	0	0	3
6	ESC-L4	Mechanics of Solids and Metallurgy Lab	0	0	3	1.5
7	PCC-L6	Machine Drawing Practice	0	0	3	1.5
8	PCC-L7	Theory of Machines Lab	0	0	3	1.5
9	SOC-2	Python Programming Lab	1	0	2	2
		Total Credits				**21.5**
	Honors/Minor courses		4	0	0	4

* At the end of II Year II Semester, students must complete summer internship spanning between 1 to 2 months (Minimum of 6 weeks). @ Industries/ Higher Learning Institutions/ APSSDC

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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

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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
		Total credits				21.5
		Honors/Minor courses	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.

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IV B.TECH I SEMESTER

S.No	Code	Course Title	Hours L	T	P	Credits
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
					Total credits	**23**
		Honors/Minor courses	4	0	0	4

IV B.TECH II SEMESTER

S No.	Category	Code	Course Title	Hours per week L	T	P	Credits
1	Major Project	PROJ	Project work*	0	4	16	12
					Total credits		**12**

*Students can complete Project work @ Industries/ Higher Learning Institutions/ APSSDC.

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DEPARTMENT OF MECHANICAL ENGINEERING

SUBJECTS FOR B. Tech. (MINOR) in MECHANICAL ENGINEERING

B. Tech. (MINOR) in MECHANICAL ENGINEERING		Pre-requisites
1.	Basic Thermodynamics	NIL
2.	Manufacturing Processes	NIL
3.	Materials Science and Engineering	NIL
4.	Basic Mechanical Design	NIL
5.	Optimization Techniques	NIL
6.	Power Plant Engineering	Basic Thermodynamics
7.	Automobile Engineering	Basic Thermodynamics
8.	Industrial Engineering and Management	NIL
9.	Product Design & Development	NIL
10.	Smart Manufacturing	NIL
11.	Mechanical Measurements	NIL
12.	Industrial Robotics	Engineering Mechanics
13.	Mechatronics	NIL

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DEPARTMENT OF MECHANICAL ENGINEERING

SUBJECTS FOR B. Tech. (HONORS) IN MECHANICAL ENGINEERING

HONORS IN MECHANICAL ENGINEERING		Pre-requisites
POOL – 1 (in II-II)		
1.	Advanced Mechanics of Fluids	Fluid Mechanics
2.	Green Manufacturing	Production Technology
3.	Analysis and Synthesis of Mechanisms	Kinematics of Machinery
4.	Alternative Fuels Technologies	Basic Thermodynamics
5.	Gear Engineering	Kinematics of Machinery
POOL-2 (in III-I)		
1.	Experimental Methods in Fluid Mechanics	Fluid Mechanics
2.	Advanced Optimization Techniques	Operations Research
3.	Micro Electro Mechanical Systems	Nil
4.	Tribology	Nil
5.	Statistical Design in Quality Control	Nil
POOL-3 (in III-II)		
1.	Advanced Computational Fluid Dynamics	Fluid Mechanics
2.	Material Characterization Techniques	Material Science and Metallurgy
3.	Product Design	Nil
4.	Electric & Hybrid Vehicles	Thermal Engineering
5.	Mechanical Vibrations & Acoustics	Nil
POOL-4 (in IV-I)		
1.	Advanced Thermodynamics	Nil
2.	Design for Manufacturing and Assembly	Production Technology
3.	Robotics and Control	Kinematics of Machinery
4.	Turbo Machines	FM&HM
5.	Materials Technology	Nil

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For UG –R20

B. TECH - COMPUTER SCIENCE & ENGINEERING

(Applicable for batches admitted from 2020-2021)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

S. No	Course Code	Courses	L	T	P	Credits
		II Year – I SEMESTER				
1	BS	Mathematics III	3	0	0	3
2	CS	Object Oriented Programming through C++	3	0	0	3
3	CS	Operating Systems	3	0	0	3
4	CS	Software Engineering	3	0	0	3
5	CS	Mathematical Foundations of Computer Science	3	0	0	3
6	CS	Object Oriented Programming through C++ Lab	0	0	3	1.5
7	CS	Operating Systems Lab	0	0	3	1.5
8	CS	Software Engineering Lab	0	0	3	1.5
9	SO	**Skill oriented Course - I** Applications of Python-NumPy **OR** 2) Web Application Development Using Full Stack -Frontend Development – Module-I	0	0	4	2
10	MC	Constitution of India	2	0	0	0
		Total Credits				**21.5**

S. No	Course Code	Courses	L	T	P	Credits
		II Year – II SEMESTER				
1	BS	Probability and Statistics	3	0	0	3
2	CS	Database Management Systems	3	0	0	3
3	CS	Formal Languages and Automata Theory	3	0	0	3
4	ES	Java Programming	3	0	0	3
5	HS	Managerial Economics and Financial Accountancy	3	0	0	3
6	CS	Database Management Systems Lab	0	0	2	1
7	CS	R Programming Lab	0	1	2	2
8	ES	Java Programming Lab	0	0	3	1.5
9	SO	**Skill Oriented Course - II** Applications of Python-Pandas **OR** 2) Web Application Development Using Full Stack -Frontend Development –Module-II	0	0	4	2
		Total Credits				**21.5**
10	Minor	Operating Systems[$]	3	0	2	3+1
11	Honors	Any course from the Pool, as per the opted track	4	0	0	4

S- Integrated Course

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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** Artificial Intelligence Software Project Management Distributed Systems 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 **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	Database Management Systems^S	3	0	2	3+1
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4

S- Integrated Course

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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	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)*	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 **OR** 2.MEAN Stack Technologies-Module I (HTML 5, JavaScript, Node.js, Express.js and TypeScript)	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$	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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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

S.No	Course Code	Course Title	Hoursperweek			Credits
			L	T	P	C
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 **OR** 2.MEAN Stack Technologies-Module II-Angular JS and MongoDB **OR** 3.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

$- Integrated Course
% - MOOC Course

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

S.No	Course Code	IV B. Tech –II Semester 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.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SUGGESTED COURSES FOR HONORS PROGRAM

POOL1- AI & ML

1. Mathematics for Machine Learning
2. Text Mining and Time Series Analysis
3. Natural Language Processing
4. Reinforcement Learning

POOL2- Systems Engineering

1. Internet of Things
2. Data Communications and Information Coding Theory
3. Service Oriented Architectures
4. Design of Secure Protocols
5. Network Coding

POOL3- Information Security

1. Principles of Cyber Security
2. Computational Number Theory
3. Cryptanalysis
4. Elliptic Curve Cryptography
5. Introduction to Quantum Computing and Quantum Cryptography
6. Public Key Infrastructure and Trust Management
7. Information Security Analysis and Audit
6. Cloud and IoT Security
7. Web Security
8. Block Chain Architecture Design and Use Cases

POOL4 – Data Science

1. Data Visualization
2. Statistical Foundations for Data Science
3. Mining Massive Data Sets
4. Medical Image Data Processing

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KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

SUGGESTED COURSES MINOR ENGINEERING IN CSE

Note:
1. Any THREE courses need to be studied from PART-A.
2. Any ONE course need to be studied from PART-B.
3. TWO, NPTEL courses of EIGHT week duration covering a total of 4 credits (offered by CSE Department only). Student can register at any time after the completion of II B.Tech. I Sem.
4. Students can pursue suggested MOOC Courses via NPTEL from II B.Tech II Sem and onwards, by prior information to the concern.

Eligibility for Minor in CSE:

PART A

S.No	Subject	L-T-P	Credits	Course available in NPTEL	NPTEL Link
1	Operating Systems	3-0-2	4	Operating Systems	https://onlinecourses.swayam2.ac.in/cec21_cs20/preview
2	Data Structures and Algorithms	3-0-2	4	Data Structures Programming, Data Structures and Algorithms using Python	https://onlinecourses.swayam2.ac.in/cec22_cs10/preview https://onlinecourses.nptel.ac.in/noc22_cs26/preview
3	Software Engineering	3-0-2	4	Software Engineering	https://onlinecourses.swayam2.ac.in/cec21_cs21/preview
4	Computer Networks	3-0-2	4	Computer Networks	https://onlinecourses.swayam2.ac.in/cec22_cs05/preview
5	Database Management Systems	3-0-2	4	Data Base Management System (noc22-cs51)	https://onlinecourses.nptel.ac.in/noc22_cs51/preview

PART B

S.No	Subject	L-T-P	Credits	Course available in NPTEL	NPTEL Link
1	Computational Thinking	4-0-0	4	Physics through Computational Thinking	https://onlinecourses.nptel.ac.in/noc22_ph12/preview
2	Object Oriented Programming through JAVA	3-0-2	4		
3	Data Analytics using Python	3-0-2	4	Data Analytics with Python	https://onlinecourses.nptel.ac.in/noc22_cs8/preview
4	Artificial Intelligence	4-0-0	4	Artificial Intelligence: Knowledge Representation And Reasoning	1. https://onlinecourses.nptel.ac.in/noc22_cs56/preview 2. https://onlinecour

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

				(noc22-cs02), An Introduction to Artificial Intelligence (noc22-cs56), AI: Constraint Satisfaction (noc22-cs06)	ses.swayam2.ac.i n cec21_cs08 pre view
5	Unix and Shell Programming	3-0-2	4		
6	Cloud Computing	4-0-0	4	Cloud Computing and Distributed Systems (noc22-cs18), Cloud computing(noc22-cs20)	1. https://onlinecour ses.nptel.ac.in no c22_cs18 previe w 2. https://onlinecour ses.nptel.ac.in no c22_cs20 previe w

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)

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KAKINADA - 533 003, Andhra Pradesh, India

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

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

COURSE STRUCTURE

I Year – I SEMESTER

S. No	Course Code	Courses	L	T	P	Credits
1	HS1101	Communicative English	3	0	0	3
2	BS1101	Mathematics – I	3	0	0	3
3	BS1102	Applied Chemistry	3	0	0	3
4	ES1101	Programming for Problem Solving using C	3	0	0	3
5	ES1102	Computer Engineering Workshop	1	0	4	3
6	HS1102	English Communication Skills Laboratory	0	0	3	1.5
7	BS1103	Applied Chemistry Lab	0	0	3	1.5
8	ES1103	Programming for Problem Solving using C Lab	0	0	3	1.5
9	MC1101	Environmental Science*	2	0	0	0
		Total Credits				19.5

I Year – II SEMESTER

S. No	Course Code	Courses	L	T	P	Credits
1	BS1201	Mathematics – II	3	0	0	3
2	BS1202	Applied Physics	3	0	0	3
3	ES1201	Digital Logic Design	3	0	0	3
4	ES1202	Python Programming	3	0	0	3
5	CS1201	Data Structures	3	0	0	3
6	BS1203	Applied Physics Lab	0	0	3	1.5
7	ES1203	Python Programming Lab	0	0	3	1.5
8	CS1202	Data Structures Lab	0	0	3	1.5
9	MC1201	Constitution of India *	2	0	0	0
		Total Credits				19.5

*Internal Evaluation

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KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

S. No	Course Code	Courses	L	T	P	Credits
		II Year – I SEMESTER				
1	BS	Mathematics III	3	0	0	3
2	CS	Mathematical Foundations of Computer Science	3	0	0	3
3	CS	Introduction to Artificial Intelligence and Machine Learning	3	0	0	3
4	CS	Object Oriented Programming with Java	3	0	0	3
5	CS	Database Management Systems	3	0	0	3
6	CS	Introduction to Artificial Intelligence and Machine Learning Lab	0	0	3	1.5
7	CS	Object Oriented Programming with Java Lab	0	0	3	1.5
8	CS	Database Management Systems Lab	0	0	3	1.5
9	SO	Mobile App Development	0	0	4	2
10	MC	Essence of Indian Traditional Knowledge	2	0	0	0
		Total Credits				**21.5**

S. No	Course Code	Courses	L	T	P	Credits
		II Year – II SEMESTER				
1	BS	Probability and Statistics	3	0	0	3
2	CS	Computer Organization	3	0	0	3
3	CS	Data Warehousing and Mining	3	0	0	3
4	ES	Formal Languages and Automata Theory	3	0	0	3
5	HS	Managerial Economics and Financial Accountancy	3	0	0	3
6	CS	R Programming Lab	0	0	3	1.5
7	CS	Data Mining using Python Lab	0	0	3	1.5
8	ES	Web Application Development Lab	0	0	3	1.5
9	SO	Natural Language Processing with Python	0	0	4	2
		Total Credits				**21.5**
10	Minor	Introduction to Artificial Intelligence and Machine Learning [$]	3	0	2	4

$- Integrated Course

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
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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^S	3	0	2	4

$- Integrated Course

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	Course Code	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** MEAN Stack Technologies-Module I- HTML 5, JavaScript, Node.js, Express.js and TypeScipt **OR** 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^5	3	0	2	4
	Minor courses through SWAYAM		0	0	0	2

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 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) **OR** 2.MEAN Stack Technologies-Module II-Angular JS and MongoDB	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

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KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

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

SUGGESTED COURSES MINOR ENGINEERING IN B.TECH.CSE- AI

Eligibility for Minor in CSE-AI: -

Note:

1. TWO, NPTEL courses of EIGHT week duration covering a total of 4 credits (offered by CSE Department only), Student can register at any time after the completion of II B.Tech. I Sem.

S.No.	Subject Title	Credits
1	Introduction to Artificial Intelligence and Machine Learning	4
2	Machine Learning	4
3	Deep Learning	4
4	Reinforcement Learning	4
5	MOOCS Courses ** 1. Introduction to Soft Computing(NPTEL) (https://nptel.ac.in/courses/106105173) 2. Digital Speech Processing (NPTEL) (https://nptel.ac.in/courses/117105145) 3. Cloud Computing (NPTEL) (https://nptel.ac.in/courses/106105167) 4. Practical Machine Learning with Tensorflow (NPTEL) (https://nptel.ac.in/courses/106106213)	4
	Total	**20**

**Choose 02 MOOCS courses @ 2credits each from SWAYAM/NPTEL

ACADEMIC REGULATIONS

COURSE STRUCTURE & DETAILED SYLLABUS

For

MASTER OF BUSINESS ADMINISTRATION

(Applicable for the batches admitted from 2019-20)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533003, ANDHRA PRADESH, INDIA

I YEAR I SEMESTER

S.No	Course Code	Courses	Marks	L	T	P	C
1	C-101	Management and Organizational Behavior	100	4	0	0	4
2	C-102	Managerial Economics	100	4	0	0	4
3	C-103	Accounting for Managers	100	4	0	0	4
4	C-104	Quantitative Analysis for Business Decisions	100	4	0	0	4
5	C-105	Legal and Business Environment	100	4	0	0	4
6	C-106	Business Communication and Soft skills	100	4	0	0	4
7	C-107 Open Elective	Cross Cultural Management Rural Innovation projects MOOCs : SWAYAM/NPTEL- Related to Management Courses other than listed courses in the syllabus	100	4	0	0	4
8	C-108	Business Communication and Soft skills Lab	50	0	0	2	2
9	C-109	Information Technology – Lab1(Spreadsheet and Tally)	50	0	0	2	2
		Total	**800**	**28**	**0**	**4**	**32**

I YEAR II SEMESTER

S.No	Course Code	Courses	Marks	L	T	P	C
1	C-201	Financial Management	100	4	0	0	4
2	C-202	Human Resource Management	100	4	0	0	4
3	C-203	Marketing Management	100	4	0	0	4
4	C-204	Operations Management	100	4	0	0	4
5	C-205	Business Research Methods	100	4	0	0	4
6	C-206 open elective	Project Management Technology Management Lean Management Database Management System	100	4	0	0	4
7	C-207	IT-lab 2(Programming R)	50	0	0	2	2
		Total650		**24**	**0**	**2**	**26**

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II YEAR III SEMESTER

S.No	Course Code	Courses	Marks	L	T	P	C
1	C-301	Strategic Management	100	4	0	0	4
2	C-302	Operations Research	100	4	0	0	4
3	E-301	Elective – 1	100	4	0	0	3
4	E-302	Elective – 2	100	4	0	0	3
5	E-303	Elective – 3	100	4	0	0	3
6	E-304	Elective – 4	100	4	0	0	3
7	C-304	Industrial Project based on Summer Internship	100	4	0	0	4
		Total	700	28	0	0	24

II YEAR IV SEMESTER

S.No	Course Code	Courses	Marks	L	T	P	C
1	C-401	Supply Chain Management and Analytics	100	4	0	0	4
2	C-402	Innovation and Entrepreneurship	100	4	0	0	4
3	E-401	Elective – 5	100	4	0	0	3
4	E-402	Elective – 6	100	4	0	0	3
5	E-403	Elective – 7	100	4	0	0	3
6	E-404	Elective – 8	100	4	0	0	3
7	C-403	Comprehensive Viva- voce	50	0	0	0	2
		Total Marks / Credits	650	28	0	0	22
			2800				104

*The project work documentation shall be checked with anti plagiarism software (Turnitin). The permissible similarity shall be less than 30%.

*Comprehensive Viva is to verify the student knowledge as a whole from which he was studied during the two year course work.

III SEMESTER
Human Resource Management

S. no	Course Code	SUBJECT TITLE
1	EH-301	Leadership and Change Management
2	EH-302	Performance Evaluation and Compensation Management
3	EH-303	Human Resource Metrics and Analytics
4	EH-304	Human Capital Management
5	EH-305	Manpower Planning, Recruitment, and Selection

IV SEMESTER
Human Resource Management

S. no	Course Code	SUBJECT TITLE
6	EH-401	Labor Welfare and employment laws
7	EH-402	International HRM
8	EH-403	Employee Relations and Engagement
9	EH-404	Human Resources Development
10	EH-405	Strategic HRM

III SEMESTER FINANCE

S. no	Course Code	SUBJECT TITLE
1	EF-301	Investment Analysis and Portfolio Management
2	EF-302	Managing Banks and Financial Institutions
3	EF-303	Financial Markets and Services
4	EF-304	Mergers, Acquisitions and Corporate Restructuring
5	EF-305	Taxation

IV SEMESTER FINANCE

S. no	Course Code	SUBJECT TITLE
6	EF-401	Financial Derivatives
7	EF-402	Global Financial Management
8	EF-403	Financial Risk Management
9	EF-404	Strategic Financial Management
10	EF-405	Behavioral Finance

III SEMESTER - ELECTIVES
MARKETING

S. no	Course Code	SUBJECT TITLE
1	EM-301	Consumer Behavior
2	EM-302	Retail Management
3	EM-303	Customer Relationship Management
4	EM-304	Strategic Marketing Management
5	EM-305	Digital and Social Media Marketing

IV SEMESTER MARKETING

S. no	Course Code	SUBJECT TITLE
6	EM-401	Services Marketing
7	EM-402	Promotional and Distribution Management
8	EM-403	Green Marketing
9	EM-404	Advertising and Brand Management
10	EM-405	Global Marketing Management

III SEMESTER ELECTIVES
SYSTEMS

S. no	Course Code	SUBJECT TITLE
1	ES-301	Data Mining for Business Decisions
2	ES-302	Managing Software Projects
3	ES-303	Web Designing
4	ES-304	Business Analytics
5	ES-305	Managing Digital Innovation and Transformation

IV SEMESTER SYSTEMS

S. no	Course Code	SUBJECT TITLE
6	ES-401	Big Data Analytics
7	ES-402	Enterprise Resource Planning
8	ES-403	Cyber Laws & Security
9	ES-404	Information Systems Audit
10	ES-405	Artificial Intelligence and Machine Learning

OPERATIONS MANAGEMENT
III SEMESTER

S. no	Course Code	SUBJECT TITLE
1	EO-301	Service Operations Management
2	EO-302	Quality Toolkit for Managers
3	EO-303	Pricing and Revenue Management
4	EO-304	Operations Strategy
5	EO-305	Sales and Operations Planning

IV SEMESTER

S. no	Course Code	SUBJECT TITLE
6	EO-401	Behavioral Operations Management
7	EO-402	Theory of Constraints
8	EO-403	Management of Manufacturing Systems
9	EO-404	Sourcing Management
10	EO-405	Supply Chain Analytics

TRAVEL AND TOURISM MANAGEMENT
III SEMESTER

S. no	Course Code	SUBJECT TITLE
1	ET-301	Travel agency and Tour Operations
2	ET-302	Hospitality Management
3	ET-303	Resort Planning and Destination Management
4	ET-304	Tourism Policy and Planning
5	ET-305	Recreation Management

IV SEMESTER

S. no	Course Code	SUBJECT TITLE
6	ET-401	Travel Media and Journalism
7	ET-402	Event Management
8	ET-403	Front Office Management
9	ET-404	Information Technology and Tourism
10	ET-405	Eco Tourism Practices

HEALTH CARE AND HOSPITAL MANAGEMENT

III SEMESTER

S. no	Course Code	SUBJECT TITLE
1	EHC-301	Hospital organization and Management
2	EHC-302	Health Care Policies and Delivery Systems
3	EHC-303	Health Economics
4	EHC-304	Hospital Functions and Support Services
5	EHC-305	Revenue Cycle Management

IV SEMESTER

S. no	Course Code	SUBJECT TITLE
6	EHC-401	Patient Care & Services Management
7	EHC-402	Managed Health Care and Insurance
8	EHC-403	Health Laws, Ethics and Regulations
9	EHC-404	Hospital Management Information System
10	EHC-405	Health Analytics

ENTREPRENEURSHIP AND SMALL ENTERPRISE MANAGEMENT

III SEMESTER

S. no	Course Code	SUBJECT TITLE
1	EE-301	Indian Models in Entrepreneurship
2	EE-302	Social Entrepreneurship
3	EE-303	Business Plan Preparation for Small Business
4	EE-304	Entrepreneurial Marketing
5	EE-305	Planning, Structuring, and Financing Small Business

IV SEMESTER

S. no	Course Code	SUBJECT TITLE
6	EE-401	Marketing for Small Business
7	EE-402	Finance and Accounting for Small Business
8	EE-403	Technology Appreciation and Intellectual Property Rights
9	EE-404	Innovation Technology Management
10	EE-405	Venture Valuation and Accounting

AGRO-BUSINESS MANAGEMENT
III SEMESTER

S. no	Course Code	SUBJECT TITLE
	EA-301	Agro-Marketing Management
2	EA-302	Agro-Business and Rural Green Market
3	EA-303	Agro-Business Environment
4	EA-304	Agro-Supply Chain Management
5	EA-305	Entrepreneurship for Agriculture

IV SEMESTER

S. no	Course Code	SUBJECT TITLE
6	EA-401	Food Processing Management
7	EA-402	Disaster Management
8	EA-403	Food Retail Management
9	EA-404	Agro- Technology Management
10	EA-405	Organic Food Technology

LOGISTICS AND SUPPLY CHAIN MANAGEMENT
III SEMESTER

S. no	Course Code	SUBJECT TITLE
1	EL-301	Store keeping and Warehousing management
2	EL-302	Transportation and Infrastructure Management for SCM
3	EL-303	Purchasing and Material Management
4	EL-304	Reverse Logistics
5	EL-305	Supply Chain Risk Management

IV SEMESTER

S. no	Course Code	SUBJECT TITLE
6	EL-401	Enterprise Resource Planning
7	EL-402	International Logistics Management
8	EL-403	Lean Supply Chain Management
9	EL-404	Shipping and Maritime law
10	EL-405	Green Supply Chain Management

BUSINESS ANALYTICS
III SEMESTER

S. no	Course Code	SUBJECT TITLE
1	EB-301	Essentials of Business Analytics
2	EB-302	Text, Social Media& Web Analytics
3	EB-303	Predictive Analytics
4	EB-304	Big Data Analytics
5	EB-305	Marketing Analytics

IV SEMESTER

S. no	Course Code	SUBJECT TITLE
6	EB-401	Financial Analytics
7	EB-402	HR Analytics
8	EB-403	Econometrics and Business Forecasting
9	EB-404	Data Warehousing and OLAP
10	EB-405	Data Mining& Machine learning

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

MASTER OF COMPUTER APPLICATIONS (MCA)
(For Two-Year PG Programme)

COURSE STRUCTURE AND SYLLABUS
For PG – R20

MASTER OF COMPUTER APPLICATIONS (MCA)
(For Two-Year PG Programme)

(Applicable for batches admitted from 2020-21)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India

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

MASTER OF COMPUTER APPLICATIONS (MCA)
(For Two-Year PG Programme)
COURSE STRUCTURE

I Semester

S.No	Course Code	Course Name	Category	L	T	P	Credits
1	MCA1101	Business Communication	BS&H	2	0		
2	MCA1102	Mathematical and Statistical Foundations	BS&H	3	0		
3	MCA1103	Computer Organization & Operating Systems	PC	3	1	0	4
4	MCA1104	Data Structures	PC	3	0	0	
5	MCA1105	Object Oriented Programming with JAVA	PC	3	0	0	
6	MCA1106	Operating Systems and Linux Lab	PC	0	0	3	
7	MCA1107	Data Structures Lab	PC	0	0	3	
8	MCA1108	JAVA Programming Lab	PC	0	0	3	
9	MCA1109	Socially Relevant Project using Design Thinking	MC	0	0	1	
			Total	15	1	10	20

II Semester

S.No	Course Code	Course Name	Category	L	T	P	Credits
1	MCA2101	Database Management Systems	PC	3	0	0	3
2	MCA2102	Computer Networks	PC	3	0	0	3
3	MCA2103	Software Engineering and Design Patterns	PC	3	0	0	3
4	MCA2104	Data Warehousing and Mining	PC	3	0	0	3
5	MCA2105	**Elective-I** • No SQL Databases • Design and Analysis of Algorithms • Mobile Application Development • Artificial Intelligence • Accounting for Managers	PE	3	0	0	
6	MCA2106	DBMS Lab	PC	0	0	3	
7	MCA2107	Computer Networks Lab	PC	0	0	3	
8	MCA2108	Software Engineering and Design Patterns Lab	PC	0	0	3	
9	MCA2109	Employability Skills	MC	0			
10	MCA2110	Bridge Course (Python Programming to be taken through MOOCs)	MC	0			
			Total	15			20

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(For Two-Year PG Programme)

III Semester

S.No	Course Code	Course Name	Category	L	T	P	Credits
1	MCA3101	Machine Learning with Python	PC	3	0	0	3
2	MCA3102	Internet of Things	PC	3	0	0	3
3	MCA3103	Web Technologies	PC	3	0	0	3
4	MCA3104	Cryptography and Network Security	PC	3	0	0	3
5	MCA3105	**Elective-II** • Soft Computing • Software Project Management • Cloud Computing • Optimization Techniques • Cyber Security	PE	3	0	0	3
6	MCA3106	Machine Learning with Python Lab	PC	0	0	3	1.5
7	MCA3107	IoT Lab	PC	0	0	3	1.5
8	MCA3108	Web Technologies Lab	PC	0	0	4	2
9	MCA3109	Internship / Industry Oriented Mini Project/ Skill Development Course (Minimum 6-weeks)	PR	0	0	0	2
			Total	15	0	10	22

IV Semester

S.No	Course Code	Course Name	Category	L	T	P	Credits
1	MCA4101	Elective-III * • Digital Marketing • Human Resource Management • Deep Learning • Ad-hoc and Sensor Networks • MOOCs-1 (NPTEL/SWAYAM) - Full Stack Technologies - Any recommended course	PE	3	0	0	3
2	MCA4102	Elective-IV * • Network Programming • Block Chain technologies • Software Testing Methodologies • Big Data Analytics • MOOCs-2 (NPTEL/SWAYAM) -Data Science -Any recommended course	PE	3	0	0	3
3	MCA4103	Project Work/ Dissertation	PR	0	0	0	12
			Total	6	0	0	18

*Students going for Industrial Project/Thesis will complete these courses through MOOCs (even in earlier semester)