

R13
REGULATION
2013-2015

ADMITTED BATCH
JNTU KAKINADA
(Affiliating University)

Department of EEE

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Abstract

S. No.	System	A	B	Locality
1	Engine	100	100	1
2	Refrigerator	100	100	1
3	Refrigerator + Refrigerated Storage	100	100	1
4	Refrigerator + Freezer	100	100	1
5	Refrigerated Storage + Freezer	100	100	1
6	Refrigerator + Freezer	100	100	1
7	Engine + Refrigerator + Freezer	100	100	1
8	Refrigerator + Freezer + Storage	100	100	1
9	Refrigerator + Freezer + Storage	100	100	1
10	Refrigerator + Freezer + Storage	100	100	1
	Total Assets			100

1. *Journal of Management Studies*, 1996, 33, 1, 1-14.

S. No.	Subject	H	F	Grade
1	English - I	2.0	—	0
2	Mathematics - I	2.0	—	0
3	Improving Speaking	2.0	—	0
4	Improving Listening	2.0	—	0
5	Reading Comprehension I	2.0	—	0
6	Computer Programming	2.0	—	0
7	Environmental Chemistry Lab	—	2	0
8	English - Communication (Semester II)	—	2	0
9	Environmental Chemistry (II)	—	2	0
	Total Credits			00

Abstract

Year	Number of cases	Rate per 100,000	Rate per 100,000 (95% CI)
1999	10	1.0	0.5-1.5
2000	15	1.5	0.8-2.2
2001	20	2.0	1.2-2.8
2002	25	2.5	1.6-3.4
2003	30	3.0	2.0-4.0
2004	35	3.5	2.5-4.5
2005	40	4.0	3.0-5.0
2006	45	4.5	3.5-5.5
2007	50	5.0	4.0-6.0
2008	55	5.5	4.5-6.5
2009	60	6.0	5.0-7.0
2010	65	6.5	5.5-7.5
2011	70	7.0	6.0-8.0
2012	75	7.5	6.5-8.5
2013	80	8.0	7.0-9.0
2014	85	8.5	7.5-9.5
2015	90	9.0	8.0-10.0
2016	95	9.5	8.5-10.5
2017	100	10.0	9.0-11.0
2018	105	10.5	9.5-11.5
2019	110	11.0	10.0-12.0
2020	115	11.5	10.5-12.5
2021	120	12.0	11.0-13.0
2022	125	12.5	11.5-13.5
2023	130	13.0	12.0-14.0
2024	135	13.5	12.5-14.5
2025	140	14.0	13.0-15.0
2026	145	14.5	13.5-15.5
2027	150	15.0	14.0-16.0
2028	155	15.5	14.5-16.5
2029	160	16.0	15.0-17.0
2030	165	16.5	15.5-17.5
2031	170	17.0	16.0-18.0
2032	175	17.5	16.5-18.5
2033	180	18.0	17.0-19.0
2034	185	18.5	17.5-19.5
2035	190	19.0	18.0-20.0
2036	195	19.5	18.5-20.5
2037	200	20.0	19.0-21.0
2038	205	20.5	19.5-21.5
2039	210	21.0	20.0-22.0
2040	215	21.5	20.5-22.5
2041	220	22.0	21.0-23.0
2042	225	22.5	21.5-23.5
2043	230	23.0	22.0-24.0
2044	235	23.5	22.5-24.5
2045	240	24.0	23.0-25.0
2046	245	24.5	23.5-25.5
2047	250	25.0	24.0-26.0
2048	255	25.5	24.5-26.5
2049	260	26.0	25.0-27.0
2050	265	26.5	25.5-27.5
2051	270	27.0	26.0-28.0
2052	275	27.5	26.5-28.5
2053	280	28.0	27.0-29.0
2054	285	28.5	27.5-29.5
2055	290	29.0	28.0-30.0
2056	295	29.5	28.5-30.5
2057	300	30.0	29.0-31.0
2058	305	30.5	29.5-31.5
2059	310	31.0	30.0-32.0
2060	315	31.5	30.5-32.5
2061	320	32.0	31.0-33.0
2062	325	32.5	31.5-33.5
2063	330	33.0	32.0-34.0
2064	335	33.5	32.5-34.5
2065	340	34.0	33.0-35.0
2066	345	34.5	33.5-35.5
2067	350	35.0	34.0-36.0
2068	355	35.5	34.5-36.5
2069	360	36.0	35.0-37.0
2070	365	36.5	35.5-37.5
2071	370	37.0	36.0-38.0
2072	375	37.5	36.5-38.5
2073	380	38.0	37.0-39.0
2074	385	38.5	37.5-39.5
2075	390	39.0	38.0-40.0
2076	395	39.5	38.5-40.5
2077	400	40.0	39.0-41.0
2078	405	40.5	39.5-41.5
2079	410	41.0	40.0-42.0
2080	415	41.5	40.5-42.5
2081	420	42.0	41.0-43.0
2082	425	42.5	41.5-43.5
2083	430	43.0	42.0-44.0
2084	435	43.5	42.5-44.5
2085	440	44.0	43.0-45.0
2086	445	44.5	43.5-45.5
2087	450	45.0	44.0-46.0
2088	455	45.5	44.5-46.5
2089	460	46.0	45.0-47.0
2090	465	46.5	45.5-47.5
2091	470	47.0	46.0-48.0
2092	475	47.5	46.5-48.5
2093	480	48.0	47.0-49.0
2094	485	48.5	47.5-49.5
2095	490	49.0	48.0-50.0
2096	495	49.5	48.5-50.5
2097	500	50.0	49.0-51.0
2098	505	50.5	49.5-51.5
2099	510	51.0	50.0-52.0

S. No.	Project description (Short name)	1999	2000	2001
1	Project description (Short name)	100	100	100
2	Project description (Short name)	100	100	100
3	Project description (Short name)	100	100	100
4	Project description (Short name)	100	100	100
5	Project description (Short name)	100	100	100
6	Project description (Short name)	100	100	100
7	Project description (Short name)	100	100	100
8	Project description (Short name)	100	100	100
9	Project description (Short name)	100	100	100
10	Project description (Short name)	100	100	100

II. Year - 2002-03

S. No.	Project	1999	2000	2001
1	Project description (Short name)	100	100	100
2	Project description (Short name)	100	100	100
3	Project description (Short name)	100	100	100
4	Project description (Short name)	100	100	100
5	Project description (Short name)	100	100	100
6	Project description (Short name)	100	100	100
7	Project description (Short name)	100	100	100
8	Project description (Short name)	100	100	100
9	Project description (Short name)	100	100	100
10	Project description (Short name)	100	100	100

III. Year - 2003-04

S. No.	Project	1999	2000	2001
1	Project description (Short name)	100	100	100
2	Project description (Short name)	100	100	100
3	Project description (Short name)	100	100	100
4	Project description (Short name)	100	100	100
5	Project description (Short name)	100	100	100
6	Project description (Short name)	100	100	100
7	Project description (Short name)	100	100	100
8	Project description (Short name)	100	100	100
9	Project description (Short name)	100	100	100
10	Project description (Short name)	100	100	100

10. Year – I SEMESTER

S. No.	Subject	1	2	Grade
1	Language (Hindi/English)	200	100	3
2	Mathematics (Hindi/English)	200	100	3
3	Science (Hindi/English)	200	100	3
4	Physical Education	200	100	3
5	Practical Computer Science	200	100	4
6	Integrated Science	200	100	3
7	Home Science (H)	100	50	3
8	Practical Measurement (H)	100	50	3
	Total Credits		1100	30

10. Year – I SEMESTER

S. No.	Subject	1	2	Grade
1	Language (Hindi/English) (L.A. Comp.)	200	100	3
2	Math (H) & (E) (Hindi/English)	200	100	3
3	Practical Computer (Hindi/English)	200	100	3
4	Home Science	200	100	3
5	Education – I	200	100	3
6	Mathematics (H) & (English) (H)	100	50	3
7	Practical Measurement (H)	100	50	3
8	Practical Computer (H)	100	50	3
	Total Credits		1100	30

10. Year – I SEMESTER

S. No.	Subject	1	2	Grade
1	Practical Computer	200	100	3
2	Education – II	200	100	3
3	Education – III	200	100	3
4	Education – IV	200	100	3
5	Practical	100	50	3
	Total Credits		1100	30

Section 4.1

1. Energy intake, consumption and management
2. Respiration
3. Heat conservation and thermal energy
4. Temperature regulation

Section 4.2

1. Nerve impulse
2. Nervous system and systems
3. Temperature regulation

Section 4.3

1. Endocrine control system
2. Homeostatic control mechanisms
3. Special chemical messengers

Section 4.4

1. Photoreception and vision
2. Hearing and sound perception
3. Taste and olfaction and olfactory system

Section 4.5

1. Olfaction and taste
2. Olfaction and taste perception
3. Olfaction
4. Taste perception
5. Olfaction and taste

COURSE STRUCTURE AND SYLLABUS
For
ELECTRICAL AND ELECTRONICS ENGINEERING
(Applicable for batches admitted from 2016-2017)



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

I Year – I Semester

S. No	Subjects	L	T	P	Credits
1-HS	English – I	4	--	--	3
2-BS	Mathematics - I	4	--	--	3
3-ES	Applied Chemistry	4	--	--	3
4-BS	Engineering Mechanics	4	--	--	3
5-BS	Computer Programming	4	--	--	3
6-ES	Environmental Studies	4	--	--	3
7-HS	Applied / Engineering Chemistry Laboratory	--	--	3	2
8-BS	English- Communication Skills Laboratory - I	--	--	3	2
9-ES	Computer Programming Laboratory	--	--	3	2
Total Credits					24

I Year – II Semester

S. No	Subjects	L	T	P	Credits
1-HS	English – II	4	--	--	3
2-BS	Mathematics – II (Mathematical Methods)	4	--	--	3
3-BS	Mathematics – III	4	--	--	3
4-ES	Applied Physics	4	--	--	3
5	Electrical Circuit Analysis - I	4	--	--	3
6-ES	Engineering Drawing	4	--	--	3
7-BS	English - Communication Skills Laboratory - II	--	--	3	2
8-HS	Applied / Engineering Physics Laboratory	--	--	3	2
9-ES	Applied / Engineering Physics – Virtual Labs - Assignments	--	--	2	--
10	Engg.Workshop & IT Workshop	--	--	3	2
Total Credits					24

II Year – I Semester

S. No	Subjects	L	T	P	Credits
1	Electrical Circuit Analysis - II	4	--	--	3
2	Electrical Machines-I	4	--	--	3
3	Basic Electronics and Devices	4	--	--	3
4	Electro Magnetic Fields	4	--	--	3
5	Thermal and Hydro Prime Movers	4	--	--	3
6	Managerial Economics & Financial Analysis	4	--	--	3
7	Thermal and Hydro Laboratory	--	--	3	2
8	Electrical Circuits Laboratory	--	--	3	2
Total Credits					22

II Year – II Semester

S. No	Subjects	L	T	P	Credits
1	Electrical Measurements	4	--	--	3
2	Electrical Machines-II	4	--	--	3
3	Switching Theory and Logic Design	4	--	--	3
4	Control Systems	4	--	--	3
5	Power Systems-I	4	--	--	3
6	Management Science	4	--	--	3
7	Electrical Machines -I Laboratory	--	--	3	2
8	Electronic Devices & Circuits Laboratory	--	--	3	2
Total Credits					22

III Year – I Semester

S. No	Subjects	L	T	P	Credits
1	Power Systems-II	4	--	--	3
2	Renewable Energy Sources	4	--	--	3
3	Signals and Systems	4	--	--	3
4	Pulse & Digital Circuits	4	--	--	3
5	Power Electronics	4	--	--	3
6	Electrical Machines-II Laboratory	--	--	3	2
7	Control Systems Laboratory	--	--	3	2
8	Electrical Measurements Laboratory	--	--	3	2
9-MC	IPR & Patents	--	2	--	--
Total Credits					21

III Year – II Semester

S. No	Subjects	L	T	P	Credits
1	Power Electronic Controllers & Drives	4	--	--	3
2	Power System Analysis	4	--	--	3
3	Micro Processors and Micro controllers	4	--	--	3
4	Data Structures	4	--	--	3
5	Open Elective 1. Unix and Shell Programming 2. OOPS Through JAVA 3. VLSI Design 4. Robotics 5. Neural Networks & Fuzzy Logic 6. Energy Audit and Conservation & Management	4	--	--	3
6	Power Electronics Laboratory	--	--	3	2
7	Microprocessors & Microcontrollers Laboratory	--	--	3	2
8	Data Structures Laboratory	--	--	3	2
9-MC	Professional Ethics & Human Values	--	3	--	--
Total Credits					21

IV Year – I Semester

S. No	Subjects	L	T	P	Credits
1	Utilization of Electrical Energy	4	--	--	3
2	Linear IC Applications	4	--	--	3
3	Power System Operation & Control	4	--	--	3
4	Switchgear and Protection	4	--	--	3
5	<u>Elective – I:</u> 1. Electrical Machine Modeling and Analysis 2. Advanced Control Systems 3. Programmable Logic Controllers & Applications 4. Instrumentation	4	--	--	3
6	<u>Elective – II:</u> 1. Optimization Techniques 2. Electric Power Quality 3. Special Electrical Machines	4	--	--	3
7	Electrical Simulation Laboratory	--	--	2	2
8	Power Systems & Simulation Laboratory	--	--	2	2
Total Credits					22

IV Year - II Semester

S. No	Subjects	L	T	P	Credits
1	Digital Control Systems	4	--	--	3
2	HVDC Transmission	4	--	--	3
3	Electrical Distribution Systems	4	--	--	3
4	<u>Elective – III:</u> 1. High Voltage Engineering 2. Flexible Alternating Current Transmission Systems 3. Power System Reforms	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
Total Credits					24



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

COURSE STRUCTURE-R19

COURSE STRUCTURE AND SYLLABUS

For

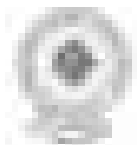
B. TECH ELECTRICAL AND ELECTRONICS ENGINEERING

(Applicable for batches admitted from 2019-2020)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India



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COURSE STRUCTURE-R19

I Year – I SEMESTER

Sl. No	Course Code	Subjects	L	T	P	Credits
1	HS1101	English	3	0	0	3
2	BS1101	Mathematics - I	3	0	0	3
3	BS1106	Applied Chemistry	3	0	0	3
4	ES1101	Programming for Problem Solving Using C	3	0	0	3
5	ES1103	Engineering Drawing	1	0	3	2.5
6	HS1102	English Lab	0	0	3	1.5
7	BS1107	Applied Chemistry Lab	0	0	3	1.5
8	ES1102	Programming for Problem Solving Using C Lab	0	0	3	1.5
9	MC1101	Environmental Science	3	0	0	0
Total Credits			16	0	12	19

I Year – II SEMESTER

Sl. No	Course Code	Subjects	L	T	P	Credits
1	BS1202	Mathematics – II	3	0	0	3
2	BS1203	Mathematics – III	3	0	0	3
3	BS1204	Applied Physics	3	0	0	3
4	ES1212	Fundamentals of Computers	3	0	0	3
5	ES1217	Electrical Circuit Analysis - I	3	0	0	3
6	ES1218	Electrical Engineering Workshop	0	0	3	1.5
7	BS1205	Applied Physics Lab	0	0	3	1.5
8	HS1203	Communication Skills Lab	0	1	2	2
9	PR1201	Engineering Exploration Project	0	0	2	1
Total Credits			15	1	10	21



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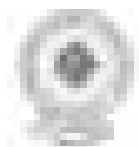
COURSE STRUCTURE-R19

II Year – I SEMESTER

S. No	Course Code	Subjects	Category	L	T	P	Credits
1		Electrical Circuit Analysis - II	EE	3	--	--	3
2		Electrical Machines-I	EE	3	--	--	3
3		Electronic Devices and Circuits	ES	3	--	--	3
4		Electro Magnetic Fields	EE	3	--	--	3
5		Thermal and Hydro Prime movers	ES	3	--	--	3
6		Managerial Economics & Financial Analysis	BS	3	--	--	3
7		Thermal and Hydro Laboratory	ES	--	--	3	1.5
8		Electrical Circuits Laboratory	EE	--	--	3	1.5
9		Essence of Indian Traditional Knowledge	MC	3	--	--	0
Total Credits				24	0	6	21

II Year – II SEMESTER

S. No	Course Code	Subjects	Category	L	T	P	Credits
1		Electrical Measurements & Instrumentation	EE	3	--	--	3
2		Electrical Machines-II	EE	3	--	--	3
3		Digital Electronics	ES	3	--	--	3
4		Control Systems	EE	3	--	--	3
5		Power Systems-I	EE	3	--	--	3
6		Signals and Systems	EE	3	--	--	3
7		Electrical Machines -I Laboratory	EE	--	--	3	1.5
8		Electronic Devices & Circuits Laboratory	EE	--	--	3	1.5
9		Professional Ethics and Human Values	MC	3	0	0	0
Total Credits				21	0	6	21



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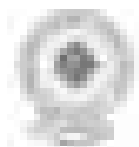
COURSE STRUCTURE-R19

III Year – I SEMESTER

S. No	Course Code	Subjects	Category	L	T	P	Credits
1		Power Systems-II	EE	3	--	--	3
2		Power Electronics	EE	3	--	--	3
3		Linear IC Applications	ES	3	--	--	3
4		Digital Signal Processing	EE	3	--	--	3
5		Microprocessors and Microcontrollers	EE	3	--	--	3
6		Electrical Machines-II Laboratory	EE	--	--	3	1.5
7		Control Systems Laboratory	EE	--	--	2	1
8		Electrical Measurements & Instrumentation Laboratory	EE	--	--	3	1.5
9		Socially Relevant Projects	MC	--	--	1	1
Total Credits				15	0	9	20

III Year – II SEMESTER

S. No	Course Code	Subjects	Category	L	T	P	Credits
1		Electric Drives	EE	3	--	--	3
2		Power System Analysis	EE	3	--	--	3
3		Data Structures	ES	3	--	--	3
4		Digital Control Systems	EE	3	--	--	3
5		Elective - I	EL	3	--	--	3
6		Open Elective - I	OE	3	--	--	3
7		Power Electronics Laboratory	EE	--	--	3	1.5
8		Microprocessors & Microcontrollers Laboratory	EE	--	--	3	1.5
9		Employability Skills	MC	3	--	--	0
Total Credits				18		6	21



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COURSE STRUCTURE-R19

IV Year – I SEMESTER

S. No	Course Code	Subjects	Category	L	T	P	Credits
1		Switchgear & Protection	EE	3	--	--	3
2		OOPs through JAVA	ES	3	--	--	3
3		Renewable Energy Systems	EE	3	--	--	3
4		Elective – II	EL	3	--	--	3
5		Elective - III	EL	3	--	--	3
6		Linear & Digital IC Applications Laboratory	ES	--	--	2	1
7		Power Systems& Simulation Laboratory	EE	--	--	2	1
		Industrial Training /Skill Development Programmes / Research Project	Project	--	--	2	1
8		Project-I	Project			4	2
Total Credits				15	0	10	20

IV Year – II SEMESTER

S. No	Course Code	Subjects	Category	L	T	P	Credits
1		Power System Operation & Control	EE	3	--	--	3
2		Open Elective - II	OE	3	--	--	3
3		Elective - IV	EL	3	--	--	3
4		Project-II	Project	--	--	16	8
Total Credits				09		16	17

BS – Basic Sciences

HS – Humanity Sciences

ES – Engineering Sciences

EE – Electrical Engineering

OE – Open Elective

EL – Elective

Proj- Project

MC–Mandatory Course



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE STRUCTURE-R19

Elective – I:

1. Digital IC Applications
2. Communication Systems
3. Computer Networks
4. Internet of Things applications to Electrical Engineering
5. VLSI Design
6. Cloud Computing

Elective – II:

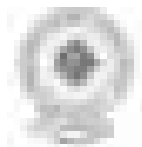
1. Utilization of Electrical Energy
2. Data Base Management System
3. Advanced Control Systems
4. Electrical Machine Design
5. Hybrid Electric Vehicles
6. Swayam Course

Elective – III:

1. Operating Systems
2. Neural Networks & Fuzzy Logic
3. High Voltage Engineering
4. Energy Auditing and Demand Side Management
5. Data Analytics with Python
6. Swayam Course

Elective – IV:

1. Electrical Distribution Systems
2. HVAC & DC Transmission
3. Flexible Alternating Current Transmission Systems
4. Power Quality
5. Smart Grid
6. Special Electrical Machines



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COURSE STRUCTURE-R19

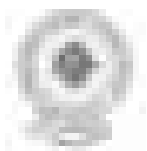
Open Electives offered by EEE Department for Other Branches(Except for EEE Branch)

Open Elective-I:

1. Renewable Energy Sources
2. Essentials of Analog and Digital Electronics
3. Electrical Estimation and Costing
4. Power Electronic Devices & Circuits
5. Fundamentals of Electrical Machines

Open Elective-II:

1. Measurements & Instrumentation
2. Fundamentals of Utilization of Electrical Energy
3. Concepts of Power System Engineering
4. Basics of Control Systems
5. Energy Audit



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

COURSE STRUCTURE AND SYLLABUS

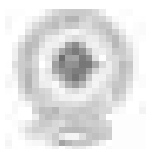
For

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			

R13
REGULATION
2013-2015

ADMITTED BATCH
JNTU KAKINADA
(Affiliating University)

Department of ECE

LAWRENCE UNIVERSITY

I. Year 1: 1800000000

S. No.	Subject	F	B	Credits
1	English I	3	3	6
2	Mathematics I	3	3	6
3	Mathematics II (Calculus and Trigonometry)	3	3	6
4	Engineering Physics	3	3	6
5	Mathematics III (Vector Calculus and Mechanics)	3	3	6
6	Engineering Chemistry	3	3	6
7	English Communication Skills (L1 & L2)	3	3	6
8	Engineering Physics Laboratory	1	3	4
9	Engineering Chemistry Laboratory	1	3	4
10	Engineering Mathematics II	3	3	6
	Total Credits			48

II. Year 2: 1800000000

S. No.	Subject	F	B	Credits
1	English II	3	3	6
2	Mathematics – II	3	3	6
3	Engineering Chemistry	3	3	6
4	Engineering Mathematics	3	3	6
5	Computer Programming	3	3	6
6	Physics Laboratory	3	3	6
7	Engineering Chemistry Laboratory	1	3	4
8	English Communication Skills (L2 & L3)	3	3	6
9	Computer Programming II	3	3	6
	Total Credits			48

III. Year 3: 1800000000

S. No.	Subject	F	B	Credits
1	Advanced Computer and Network Systems	3	3	6
2	Advanced Network and Security	3	3	6
3	Open Electives	3	3	6

S. No.	Subject	I	II	Grades
1	Environmental Studies	200	100	3
2	History & Geography	200	100	3
3	Science Technology	200	100	3
4	Business Studies and Computer A.B.	100	100	2
5	General Education Technology A.B.	100	100	2
6	Total Credits			15

IX. Year - II SEMESTER

S. No.	Subject	I	II	Grades
1	Business Economics	200	100	3
2	Management Science	200	100	3
3	Business Statistics & Computer Programs	200	100	3
4	Accounting Theory & Computer Program	200	100	3
5	HR Management (Semester I & II)	200	100	3
6	Public Communications	200	100	3
7	Business Computer A.B. A.B.	100	100	2
8	Public Communications A.B.	100	100	2
9	Total Credits			18

X. Year - I SEMESTER

S. No.	Subject	I	II	Grades
1	Public Digital Circuit	200	100	3
2	Linear IC Applications	200	100	3
3	Control Systems	200	100	3
4	Microcontroller Based Digital Circuits	200	100	3
5	Antennas and Wave Propagation	200	100	3
6	Project & Digital Circuit Lab		100	2
7	IC Applications Lab		100	2
8	Signal System Concept I, II, III & IV		100	2
9	Mini Projects	100	100	2
10	Total Credits			18

10. Year – 10 Mathematics

S. No.	Subject	1	2	Grand
1	Mathematics – 10 Mathematics	300	-	3
2	Chapter: Number Systems	300	-	3
3	Chapter: Polynomials	300	-	3
4	Chapter: Linear Equations	300	-	3
5	Chapter: Quadratic Equations	300	-	3
6	Chapter: Geometry	300	-	3
7	Chapter: Trigonometry	300	-	3
8	Chapter: Statistics	300	-	3
9	Chapter: Probability	300	-	3
10	Chapter: Mensuration	300	-	3
11	Chapter: Area and Volume	300	-	3
12	Chapter: Coordinate Geometry	300	-	3
13	Chapter: Constructions	300	-	3
14	Chapter: Practical Skills	300	-	3
15	Total Credits			30

11. Year – 11 Mathematics

S. No.	Subject	1	2	Grand
1	Mathematics – 11	300	-	3
2	Chapter: Number Systems	300	-	3
3	Chapter: Polynomials	300	-	3
4	Chapter: Linear Equations	300	-	3
5	Chapter: Quadratic Equations	300	-	3
6	Chapter: Geometry	300	-	3
7	Chapter: Trigonometry	300	-	3
8	Chapter: Statistics	300	-	3
9	Chapter: Probability	300	-	3
10	Chapter: Mensuration	300	-	3
11	Chapter: Area and Volume	300	-	3
12	Chapter: Coordinate Geometry	300	-	3
13	Chapter: Constructions	300	-	3
14	Chapter: Practical Skills	300	-	3
15	Total Credits			30

TABLE 10-10: SUMMARY

S. No.	Section	A	B	Credits
1	General Skills Development	100		1
2	General Awareness & HR Development	100		1
3	Module 10 a. Gender Discrimination b. Harassment Policy c. Sexual Harassment d. HR Career Design e. Global Community	100		1
4	Module 11 a. Managing Diverse Global Teams b. Success of CIO c. Low Power ICs: Focus d. Global Communication e. Global MNC	100		1
5	Project/Case Study			1
	Total Credits			4

APPENDIX

1. The student is given the VLE System and
2. Project Presentation to VLE Systems
3. Workshop of Project, System and Communication to VLE Systems
4. Study & Research
5. Students have to prepare Project VLE Systems

COURSE STRUCTURE AND SYLLABUS
For
ELECTRONICS AND COMMUNICATION ENGINEERING
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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA - 533 003, Andhra Pradesh, India

I Year - I Semester

S.No.	Subjects	L	T	P	Credits
1-HS	English – I	4	--	--	3
2-BS	Mathematics - I	4	--	--	3
3-ES	Mathematics -II (Numerical Methods and Complex Variables)	4	--	--	3
4-BS	Applied Physics	4	--	--	3
5-ES	Computer Programming	4	--	--	3
6-ES	Engineering Drawing	1	--	3	3
7-HS	English - Communication Skills Lab -1	--	--	3	2
8-BS	Applied / Engineering Physics Laboratory	--	--	3	2
9-BS	Applied / Engineering Physics – Virtual Labs - Assignments	--	--	2	--
10-ES	Engineering Workshop& IT Workshop	--	--	3	2
Total Credits					24

I Year - II Semester

S.No.	Subjects	L	T	P	Credits
1-HS	English – II	4	--	--	3
2-BS	Mathematics -III	4	--	--	3
3-BS	Applied Chemistry	4	--	--	3
4-ES	Electrical and Mechanical Technology	4	--	--	3
5-HS	Environmental Studies	4	--	--	3
6-ES	Data Structures	4	--	--	3
7-BS	Applied / Engineering Chemistry Laboratory	--	--	3	2
8-HS	English - Communication Skills Lab -2	--	--	3	2
9-ES	Computer Programming Lab	--	--	3	2
Total Credits					24

II Year - I Semester

S.No.	Subjects	L	T	P	Credits
1	Electronic Devices and Circuits	4	--	--	3
2	Switching Theory and Logic Design	4	--	--	3
3	Signals and Systems	4	--	--	3
4	Network Analysis	4	--	--	3
5	Random Variables and Stochastic Process	4	--	--	3
6	Managerial Economics & Financial Analysis	4	--	--	3
7	Electronic Devices and Circuits Lab	--	--	3	2
8	Networks & Electrical Technology Lab	--	--	3	2
Total Credits					22

II Year - II Semester

S.No.	Subjects	L	T	P	Credits
1	Electronic Circuit Analysis	4	--	--	3
2	Control Systems	4	--	--	3
3	Electromagnetic Waves and Transmission Lines	4	--	--	3
4	Analog Communications	4	--	--	3
5	Pulse and Digital Circuits	4	--	--	3
6	Management Science	4	--	--	3
7	Electronic Circuit Analysis Lab	--	--	3	2
8	Analog Communications Lab	--	--	3	2
Total Credits					22

III Year - I Semester

S.No.	Subjects	L	T	P	Credits
1	Computer Architecture and Organization	4	--	--	3
2	Linear I C Applications	4	--	--	3
3	Digital I C Applications	4	--	--	3
4	Digital Communications	4	--	--	3
5	Antenna and Wave Propagation	4	--	--	3
6	Pulse and Digital Circuits Lab	--	--	3	2
7	Linear I C Applications Lab	--	--	3	2
8	Digital I C Applications Lab	--	--	3	2
MC	Professional Ethics & Human Values	--	3	--	--
Total Credits					21

III Year - II Semester

S.No.	Subjects	L	T	P	Credits
1	Micro Processors & Micro Controllers	4	--	--	3
2	Micro Wave Engineering	4	--	--	3
3	VLSI Design	4	--	--	3
4	Digital Signal Processing	4	--	--	3
5	OPEN ELECTIVE 1. OOPs through Java 2. Data Mining 3. Industrial Robotics 4. Power Electronics 5. Bio-Medical Engineering 6. Artificial Neural Networks	4	--	--	3
6	Micro Processors & Micro Controllers Lab	--	--	3	2
7	VLSI Lab	--	--	3	2
8	Digital Communications Lab	--	--	3	2
MC	IPR & Patents	--	2	--	--
Total Credits					21

IV Year - I Semester

S.No.	Subjects	L	T	P	Credits
1	Radar Systems	4	--	--	3
2	Digital Image Processing	4	--	--	3
3	Computer Networks	4	--	--	3
4	Optical Communications	4	--	--	3
5	Elective I 1. TV Engineering 2. Electronic Switching Systems 3. System Design through Verilog	4	--	--	3
6	Elective II 1.Embedded Systems 2. Analog IC Design 3.Network Security & Cryptography	4	--	--	3
7	Micro Wave Engineering & Optical Lab	--	--	2	2
8	Digital Signal Processing Lab	--	--	2	2
Total Credits					22

IV Year - II Semester

S.No.	Subjects	L	T	P	Credits
1	Cellular Mobile Communications	4	--	--	3
2	Electronic Measurements and Instrumentation	4	--	--	3
3	Satellite Communications	4	--	--	3
4	Elective III 1.Wireless sensors & Networks 2. Digital IC Design 3. Operating Systems	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
Total Credits					24

Total Course Credits = 48+44 + 42 + 46 = 180



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For

B. TECH ELECTRONICS AND COMMUNICATION ENGINEERING

(Applicable for batches admitted from 2019-2020)



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

I Year – I SEMESTER

Sl. No	Course Code	Subjects	L	T	P	Credits
1	HS1101	English	3	0	0	3
2	BS1101	Mathematics - I	3	0	0	3
3	BS1106	Applied Chemistry	3	0	0	3
4	ES1101	Programming for Problem Solving Using C	3	0	0	3
5	ES1103	Engineering Drawing	1	0	3	2.5
6	HS1102	English Lab	0	0	3	1.5
7	BS1107	Applied Chemistry Lab	0	0	3	1.5
8	ES1102	Programming for Problem Solving Using C Lab	0	0	3	1.5
9	MC1101	Environmental Science	3	0	0	0
Total Credits			16	0	12	19

I Year – II SEMESTER

Sl. No	Course Code	Subjects	L	T	P	Credits
1	BS1202	Mathematics – II	3	0	0	3
2	BS1203	Mathematics – III	3	0	0	3
3	BS1204	Applied Physics	3	0	0	3
4	ES1209	Network Analysis	3	0	0	3
5	ES1211	Basic Electrical Engineering	3	0	0	3
6	ES1215	Electronic workshop	0	0	2	1
7	ES1208	Basic Electrical Engineering Lab	0	0	3	1.5
8	BS1205	Applied Physics Lab	0	0	3	1.5
9	HS1203	Communication Skills Lab	0	0	2	1
10	PR1201	Engineering Exploration Project	0	0	2	1
			15	0	12	21



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

II Year – ISemester

S. No.	Course	Category	L	T	P	Credits
1	Electronic Devices and Circuits	PC	3	0	0	3
2	Switching Theory and Logic Design	PC	3	0	0	3
3	Signals and Systems	PC	3	0	0	3
4	Random Variables and Stochastic Processes	PC	3	0	0	3
5	Object Oriented Programming through Java	ES	3	0	0	3
6	Managerial Economics & Financial Analysis	HS	3	0	0	3
7	Electronic Devices and Circuits - Lab	LC	0	0	3	1.5
8	Switching Theory and Logic Design - Lab	LC	0	0	3	1.5
9	Constitution of India	MC	3	0	0	0
			Sub-Total			21

II Year – IISemester

S. No.	Course	Category	L	T	P	Credits
1	Electronic Circuit Analysis	PC	3	0	0	3
2	Linear Control Systems	PC	3	0	0	3
3	Electromagnetic Waves and Transmission Lines	PC	3	0	0	3
4	Analog Communications	PC	3	0	0	3
5	Computer Architecture and Organization	ES	3	0	0	3
6	Management and Organizational Behavior	HS	3	0	0	3
7	Electronic Circuit Analysis - Lab	LC	0	0	3	1.5
8	Analog Communications - Lab	LC	0	0	3	1.5
			Sub-Total			21



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

III Year – I Semester

S. No.	Course	Category	L	T	P	Credits
1	Linear Integrated Circuits and Applications	PC	3	0	0	3
2	Microprocessor and Microcontrollers	PC	3	0	0	3
3	Digital Communications	PC	3	0	0	3
4	Electronic Measurements & Instrumentation	PC	3	0	0	3
5	Professional Elective (PE 1)	PE	3	0	0	3
6	Linear Integrated Circuits and Applications - Lab	LC	0	0	3	1.5
7	Digital Communications Lab	LC	0	0	3	1.5
8	Microprocessor and Microcontrollers - Lab	LC	0	0	3	1.5
9	Mini Project with Hardware Development	PR	0	0	3	1.5
10	Essence of Indian Traditional Knowledge	MC	3	0	0	0
			Sub-Total			21

III Year – IISemester

S. No.	Course	Category	L	T	P	Credits
1	Wired and Wireless Transmission Devices	PC	3	0	0	3
2	VLSI Design	PC	3	0	0	3
3	Digital Signal Processing	PC	3	0	0	3
4	Professional Elective (PE2)	PE	3	0	0	3
5	Open Elective (OE1)	OE	3	0	0	3
6	Internet of Things	PC	3	0	0	3
7	VLSI Lab	LC	0	0	3	1.5
8	Digital Signal Processing Lab	LC	0	0	3	1.5
9	Intellectual Property Rights (IPR) & Patents	MC	3	0	0	0
			Sub-Total			21



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

IV Year – I Semester

S. No.	Course	Category	L	T	P	Credits
1	Microwave and Optical Communication Engineering	PC	3	0	0	3
2	Data Communications & Computer networks	PC	3	0	0	3
3	Digital Image and Video Processing	PC	3	0	0	3
4	Professional Elective (PE3)	PE	3	0	0	3
5	Professional Elective (PE4)	PE	3	0	0	3
6	Internet of Things Lab	LC	0	0	3	1.5
7	Microwave and Optical Communication Engineering LAB	LC	0	0	3	1.5
8	Project - Part I	PR	0	0	6	3
			Sub-Total			21

IV Year – II Semester

S. No.	Course	Category	L	T	P	Credits
1	Professional Elective (PE5)	PE	3	0	0	3
2	Open Elective (OE2)	OE	3	0	0	3
3	Project - Part II	PR	0	0	18	9
			Sub-Total			15
			Total			160



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

PROFESSIONAL ELECTIVES 1:

1. Information Theory & Coding
2. Digital System Design using HDL
3. Data structures and Algorithms
4. Soft computing techniques and Python programming
5. Simulation & Mathematical Modeling

PROFESSIONAL ELECTIVES 2:

1. Cellular & Mobile Communication
2. Digital IC Design
3. Business Intelligence & Analytics
4. Pattern Recognition
5. Robotics and Automation

PROFESSIONAL ELECTIVES 3:

1. Communication Standards and Protocols
2. Analog IC Design
3. Smart Sensors
4. Advanced Digital Signal Processing
5. Augmented Reality

PROFESSIONAL ELECTIVES 4:

1. Software Radio
2. Low power VLSI Design
3. Embedded Systems
4. DSP processors and Architectures
5. Multi Media Communication

PROFESSIONAL ELECTIVES 5:

1. Wireless Communication
2. VLSI Testing & Testability
3. Machine Learning & Artificial Intelligence
4. Speech Processing
5. Industrial Internet of Things



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
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OPEN ELECTIVES FOR ECE:

Open Elective 1:

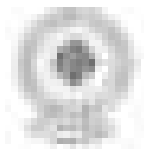
1. DataMining
2. PowerElectronics
3. MEMS and itsapplications
4. Artificial NeuralNetworks

Open Elective 2:

1. 3D Printing
2. Block chainTechnology
3. Cyber Security &Cryptography

OPEN ELECTIVES OFFERED BY ECE:

- OE 1 Principles of communication
- OE 2 Embedded Systems



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	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	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
KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

II B.Tech – I Semester

S. No	Subjets	Category	L	T	P	Credits
1	Electronic Devices and Circuits	PCC	3	1	0	3
2	Switching Theory and Logic Design	PCC	3	1	0	3
3	Signalsand Systems	PCC	3	1	0	3
4	Random Variables and Stochastic Processes	PCC	3	1	0	3
5	Mathematics-III	BSC	3	1	0	3
6	OOPS through Java Lab	PCC lab	0	0	3	1.5
7	Electronic Devices and Circuits -Lab	PCC lab	0	0	3	1.5
8	Switching Theoryand Logic Design–Lab	PCC lab	0	0	3	1.5
9	Python Programming	Skill oriented course*	0	0	4	2
Total Credits						21.5

II B.Tech – II Semester

S. No	Subjets	Category	L	T	P	Credits
1	Electronic Circuit Analysis	BSC/PC	3	1	0	3
2	Digital IC Design	PCC	3	1	0	3
3	Analog Communications	PCC	3	0	0	3
4	Linear control Systems	ESC	3	1	0	3
5	Management and Organizational Behavior	HSS	3	0	0	3
6	Electronic Circuit Analysis Lab	PCC Lab	0	0	3	1.5
7	Analog Communications Lab	PCC Lab	0	0	3	1.5
8	Digital IC Design Lab	PCCLab	0	0	3	1.5
9	Soft Skills	Skill oriented course*	0	0	4	2
Total Credits						21.5

R13
REGULATION
2013-2015

ADMITTED BATCH
JNTU KAKINADA
(Affiliating University)

Department of CSE

CIP HIGHLIGHTS

1. Year – 1 (2020-2021)

S. No.	Subject	T	P	Credits
1	English – I	3x1	2x1	3
2	Mathematics – I	3x1	—	3
3	Engineering Chemistry	3x1	—	3
4	Engineering Mechanics	3x1	—	3
5	Computer Programming	3x1	—	3
6	Engineering Physics	3x1	—	3
7	Engineering Chemistry Laboratory	—	3	3
8	English Communication Skills-I	—	3	3
9	C Programming-I	—	3x1	3
	Total Credits			24

2. Year – 2 (2021-2022)

S. No.	Subject	T	P	Credits
1	English – II	3x1	—	3
2	Mathematics – 2 (Differential Equations)	3x1	—	3
3	Mathematics – II	3x1	—	3
4	Engineering Physics	3x1	—	3
5	Mathematics (Probability and Statistics)	3x1	—	3
6	Engineering Drawing	3x1	—	3
7	English Communication Skills-II	—	3	3
8	Engineering Physics-II	—	3	3
9	Engineering Maths-II: Matrix Algebra	—	3	—
10	Eng. Drawing & IT Drawing	—	3	3
	Total Credits			30

II Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Mathematical Economics and Finance Analysis	3	—	3
2	Cloud (AWS) Programming (Hands On)	3	—	3
3	Business Analytics and Data Science	3	—	3
4	Cloud (Azure) DevOps	3	—	3
5	Data Analytics	3	—	3
6	Cloud (Google) Programming (Lab)	—	3	3
7	Data (Hadoop) Lab	—	3	3
8	Cloud (Azure) DevOps Lab	—	3	3
9	Security	—	3	3
	Total Theory			27

II Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	Marketing and Business	3	—	3
2	Java Programming	3	—	3
3	Advanced Data Structures	3	—	3
4	Database Organization	3	—	3
5	Formal Languages and Automata Theory	3	—	3
6	Computer & Data Structures Lab	—	3	3
7	Java Programming Lab	—	3	3
8	Formal Languages and Automata Theory Lab	—	3	3
	Total Credits			30

III Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Database Design	3	—	3
2	Data Communication	3	—	3

S. No.	Subject	T	P	Credits
1	Introduction to Programming Language	01	01	01
2	Computer Management Systems	01	01	01
3	Operating Systems	01	01	01
4	Computer Design (1st)	01	01	01
5	Computer Design (2nd)	01	01	01
6	Computer Management (Application)	01	01	01
7	Linux Programming (1st)	01	01	01
8	Linux Programming (2nd)	01	01	01
9	Total Credits			08

III Year – I Semester

S. No.	Subject	T	P	Credits
1	Computer Networks	01	01	01
2	Data Structures and Algorithms	01	01	01
3	Design and Analysis of Algorithms	01	01	01
4	Software Engineering	01	01	01
5	Web Technologies	01	01	01
6	Computer Network & Internet Applications	01	01	01
7	Software Engineering (2nd)	01	01	01
8	Web Communication	01	01	01
9	Web Design (1st)	01	01	01
10	Total Credits			10

III Year – II Semester

S. No.	Subject	T	P	Credits
1	Database Management Systems	01	01	01
2	Web Design Patterns	01	01	01
3	Mobile Computing	01	01	01

1	Practice - I	20		2
2	Practice - II	20		2
3	Lab - I Design Document Lab		2	1
4	Online Assessment (Intermediate)		5	1
5	Software Testing Lab		5	1
6	Practice - II Project Lab		5	1
	Total Credits			10

IV. Year - II SEMESTER

E. No.	Subject	Cr	Pr	Credits
1	Practice - III	4		4
2	Practice - IV	4		4
3	Software Systems	4		4
4	Management Systems	4		4
5	Project			4
	Total Credits			16

Elective - I

- (i) Software Testing Methodologies
- (ii) Software Modeling
- (iii) Software Architecture/Systems
- (iv) Software Engineering
- (v) Software Programming
- (vi) Computer Architecture

Elective - II

- (i) Project Presentation
- (ii) Interview and Negotiation
- (iii) Software Project Management

COURSE STRUCTURE AND SYLLABUS
For
COMPUTER SCIENCE AND ENGINEERING
(Applicable for batches admitted from 2016-2017)



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

I Year - I Semester

S. No.	Subjects	L	T	P	Credits
1-HS	English – I	4	--	--	3
2-BS	Mathematics - I	4	--	--	3
3-BS	Mathematics – II (Mathematical Methods)	4	--	--	3
4-BS	Applied Physics	4	--	--	3
5	Computer Programming	4	--	--	3
6-ES	Engineering Drawing	4	--	--	3
7-HS	English - Communication Skills Lab - 1	--	--	3	2
8-BS	Applied / Engineering Physics Lab	--	--	3	2
9-ES	Applied / Engineering Physics – Virtual Labs – Assignments	--	--	2	--
10	Computer Programming Lab	--	--	3	2
Total Credits					24

I Year - II SEMESTER

S. No.	Subjects	L	T	P	Credits
1-HS	English – II	4	--	--	3
2-BS	Mathematics - III	4	--	--	3
3-BS	Applied Chemistry	4	--	--	3
4	Object Oriented Programming through C++	4	--	--	3
5-HS	Environmental Studies	4	--	--	3
6-ES	Engineering Mechanics	4	--	--	3
7-BS	Applied / Engineering Chemistry Laboratory	--	--	3	2
8-HS	English - Communication Skills Lab – 2	--	--	3	2
9	Object Oriented Programming Lab	--	--	3	2
Total Credits					24

II Year - I Semester

S. No.	Subjects	L	T	P	Credits
1-HS	Statistics with R Programming	4	--	--	3
2	Mathematical Foundations of Computer Science	4	--	--	3
3	Digital Logic Design	4	--	--	3
4	Python Programming	4	--	--	3
5	Data Structures through C++	4	--	--	3
6	Computer Graphics	4	--	--	3
7	Data Structures through C++Lab	--	--	3	2
8	Python Programming Lab	--	--	3	2
Total Credits					22

II Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Software Engineering	4	--	--	3
2	Java Programming	4	--	--	3
3	Advanced Data Structures	4	--	--	3
4	Computer Organization	4	--	--	3
5	Formal Languages and Automata Theory	4	--	--	3
6	Principles of Programming Languages	4	--	--	3
7	Advanced Data Structures Lab	--	--	3	2
8	Java Programming Lab	--	--	3	2
Total Credits					22

III Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Compiler Design	4	--	--	3
2	Unix Programming	4	--	--	3
3	Object Oriented Analysis and Design using UML	4	--	--	3
4	Database Management Systems	4	--	--	3
5	Operating Systems	4	--	--	3
6	Unified Modeling Lab	--	--	3	2
7	Operating System & Linux Programming Lab	--	--	3	2
8	Database Management System Lab	--	--	3	2
MC	Professional Ethics & Human Values	--	3	--	--
Total Credits					21

III Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Computer Networks	4	2	--	3
2	Data Warehousing and Mining	4	--	--	3
3	Design and Analysis of Algorithms	4	--	--	3
4	Software Testing Methodologies	4	--	--	3
5	Open Elective: i. Artificial Intelligence ii. Internet of Things iii Cyber Security iv.Digital Signal Processing v.Embedded Systems vi. Robotics	4	--	--	3
6	Network Programming Lab	--	--	3	2
7	Software Testing Lab	--	--	3	2
8	Data Warehousing and Mining Lab	--	--	3	2
9	IPR & Patents	--	2	--	--
Total Credits					21

IV Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Cryptography and Network Security	4	--	--	3
2	Software Architecture & Design Patterns	4	--	--	3
3	Web Technologies	4	--	--	3
4- HS	Managerial Economics and Financial Analysis	4	--	--	3
5	Elective-I i. Big Data Analytics ii. Information Retrieval Systems iii. Mobile Computing	4	--	--	3
6	Elective-II i. Cloud Computing ii. Software Project Management iii. Scripting Languages	4	--	--	3
7	Software Architecture& Design Patterns Lab	--	--	3	2
8	Web Technologies Lab	--	--	3	2
Total Credits					22

IV Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Distributed Systems	4	--	--	3
2- HS	Management Science	4	--	--	3
3	Machine Learning	4	--	--	3
4	Elective-III i. Concurrent and Parallel Programming ii. Artificial Neural Networks iii. Operations Research	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
Total Credits					24

Total Course Credits = 48+44 + 42 + 46 = 180



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KAKINADA – 533 003, Andhra Pradesh, India

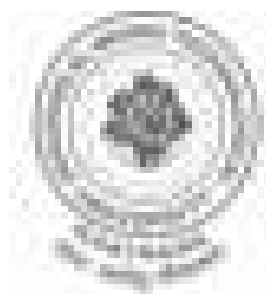
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE AND SYLLABUS

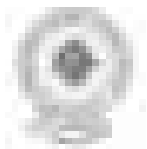
For

B. Tech COMPUTER SCIENCE &ENGINEERING

(Applicable for batches admitted from 2019-2020)



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



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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE - R19

I Year – I SEMESTER

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

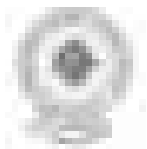
I Year – II SEMESTER

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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
II Year – I SEMESTER

II Year – II SEMESTER

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KAKINADA – 533 003, Andhra Pradesh, India

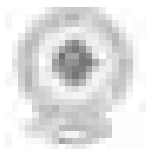
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

III Year – I SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	CS3101	Data Warehousing and Data Mining	3	0	0	3
2	CS3102	Computer Networks	3	0	0	3
3	CS3103	Compiler Design	3	0	0	3
4	CS3104	Artificial Intelligence	3	0	0	3
5	PE3101	Professional Elective- I 1. Computer Graphics 2. Principles of Programming Languages 3. Advanced Data Structures 4. Software Testing Methodologies 5. Advanced Computer Architecture	3	0	0	3
6	CS3105	Computer Networks Lab	0	0	2	1
7	CS3106	AI Tools & Techniques Lab	0	0	3	1.5
8	CS3107	Data Mining Lab	0	0	3	1.5
9	MC3101	Employability Skills -II*	2	0	0	0
Total			17	0	8	19
*Internal Evaluation through Seminar / Test for 50 marks						

III Year – II SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	CS3201	Web Technologies	3	0	0	3
2	CS3202	Distributed Systems	3	0	0	3
3	CS3203	Design and Analysis of Algorithms	3	0	0	3
4	PE3201	Professional Elective -II (NPTEL/SWAYAM) Duration: 12 Weeks Minimum *Course/subject title can't be repeated	3	0	0	3
5	OE3201	Open Elective- I (Inter Disciplinary)	3	0	0	3
6	HS3201	Managerial Economics and Financial Accountancy	3	0	0	3
7	CS3204	Web Technologies Lab	0	0	4	2
9	PR3201	Industrial Training / Skill Development Programmes / Research Project in higher learning institutes	0	0	0	1
Total			18	0	4	21



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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
IV Year – I SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	CS4101	Cryptography and Network Security	3	0	0	3
2	CS4102	UML & Design Patterns	3	0	0	3
3	CS4103	Machine Learning	3	0	0	3
4	OE4101	Open Elective -II (Inter Disciplinary)	3	0	0	3
5	PE4101	Professional Elective- III 1. Mobile Computing 2. Data Science 3. NoSQL Databases 4. Internet of Things 5. Software Project Management	3	0	0	3
6	PE4102	Professional Elective- IV 1. Web Services 2. Cloud Computing 3. Mean Stack Technologies 4. Ad-hoc and Sensor Networks 5. Cyber Security & Forensics	3	0	0	3
7	CS4104	UML Lab #	0	0	2	1
8	PR4101	Project- I	0	0	0	2
9	MC4101	IPR & Patents	3	0	0	0
Total			21	0	2	21
# Relevant theory to be taught in the lab						

IV Year – II SEMESTER

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

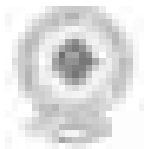


JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Open Electives to be offered by CSE for Other Branches:

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



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

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For UG –R20

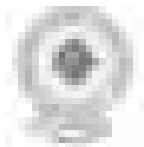
B. TECH - COMPUTER SCIENCE & ENGINEERING

(Applicable for batches admitted from 2020-2021)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

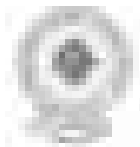
COURSE STRUCTURE

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			


JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
II Year – I SEMESTER

S. No	Course Code	Courses	L	T	P	Credits
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 1) Applications of Python-NumPy 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			

II Year – II SEMESTER

S. No	Course Code	Courses	L	T	P	Credits
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 1) Applications of Python-Pandas 2) Web Application Development Using Full Stack -Frontend Development –Module -II	0	0	4	2
Total Credits			21.5			

R13
REGULATION
2013-2015

ADMITTED BATCH
JNTU KAKINADA
(Affiliating University)

Department of IT

6	Management Science	2	1	1
7	Math Sciences	20	10	10
8	Computer Science Engineering (CSE)	—	1	1
9	Mathematics Lab	—	1	1
10	General Lab (Engineering)	—	10	10
11	Others	—	14	14
Total (1440)			36	36

AI Year: 2014-2015

AI Year	Subject	I	II	Total
1	Probability and Statistics	4	—	4
2	Java Programming	4	—	4
3	Advanced Data Structures	4	—	4
4	Computer Organization	4	—	4
5	Operating System (OS) / DBMS	4	—	4
6	Advanced Java Technology Lab	—	2	2
7	Java Programming Lab	—	2	2
8	Advanced Java Technology (Tutorials)	—	2	2
9	Open Elective	—	—	4

AI Year: 2014-2015

AI Year	Subject	I	II	Total
1	Software Engineering	4	—	4
2	Web Technologies	4	—	4
3	Advanced Java	4	—	4
4	Database Management Systems	4	—	4
5	Operating Systems	4	—	4
6	Advanced Java Lab	—	2	2
7	Operating Systems Lab	—	2	2
8	Database Management Systems Lab	—	2	2
9	Computer Organization	—	2	2
10	OS and Process I	4	—	4
11	Others	—	—	4
Total (1440)				36

UNIT 1: INTRODUCTION

Activity	Duration	g	h	Exercises
1. Introduction to the course	10			1
2. Basic algebraic operations and the order of operations	10			2
3. Solving linear equations and inequalities	10			3
4. Graphing linear functions	10			4
5. Systems of linear equations	10			5
6. Quadratic functions and equations	10			6
7. Graphing quadratic functions	10			7
8. Solving quadratic equations	10			8
9. Rational functions and equations	10			9
10. Solving rational equations	10			10
11. Exponential functions and equations	10			11
12. Logarithmic functions and equations	10			12
Total Credits				12

UNIT 2: ALGEBRA

Activity	Duration	g	h	Exercises
1. Solving linear equations and inequalities	10			1
2. Graphing linear functions	10			2
3. Systems of linear equations	10			3
4. Quadratic functions and equations	10			4
5. Graphing quadratic functions	10			5
6. Solving quadratic equations	10			6
7. Rational functions and equations	10			7
8. Solving rational equations	10			8
9. Exponential functions and equations	10			9
10. Logarithmic functions and equations	10			10
Total Credits				12

UNIT 3: CALCULUS

Activity	Duration	g	h	Exercises
1. Limits and continuity	10			1
2. Derivatives	10			2
3. Integrals	10			3
4. Applications of derivatives and integrals	10			4
5. Polar coordinates and parametric equations	10			5
6. Vector calculus	10			6
7. Differential equations	10			7
Total Credits				12

Question 1

- 1. ☐ International and Multi-Topic Questions
- 2. ☐ International Financial Questions
- 3. ☐ International Accounting

Question 2

- 1. ☐ United States Questions
- 2. ☐ European Financial Management
- 3. ☐ European Topics
- 4. ☐ European Accounting

Question 3

- 1. ☐ Financial Statement Questions
- 2. ☐ International Accounting Questions
- 3. ☐ Multiple Choice & Related Accounting
- 4. ☐ General Management

COURSE STRUCTURE AND SYLLABUS
FOR
INFORMATION TECHNOLOGY
(Applicable for batches admitted from 2016-2017)



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

I Year - I Semester

S. No.	Subjects	L	T	P	Credits
1-HS	English – I	4	--	--	3
2-BS	Mathematics - I	4	--	--	3
3-BS	Mathematics – II (Mathematical Methods)	4	--	--	3
4-BS	Applied Physics	4	--	--	3
5	Computer Programming	4	--	--	3
6-ES	Engineering Drawing	4	--	--	3
7-HS	English - Communication Skills Lab - 1	--	--	3	2
8-BS	Applied / Engineering Physics Lab	--	--	3	2
9-ES	Applied / Engineering Physics – Virtual Labs – Assignments	--	--	2	--
10	Computer Programming Lab	--	--	3	2
Total Credits					24

I Year - II SEMESTER

S. No.	Subjects	L	T	P	Credits
1-HS	English – II	4	--	--	3
2-BS	Mathematics - III	4	--	--	3
3-BS	Applied Chemistry	4	--	--	3
4	Object Oriented Programming through C++	4	--	--	3
5-HS	Environmental Studies	4	--	--	3
6-ES	Engineering Mechanics	4	--	--	3
7-BS	Applied / Engineering Chemistry Laboratory	--	--	3	2
8-HS	English - Communication Skills Lab – 2	--	--	3	2
9	Object Oriented Programming Lab	--	--	3	2
Total Credits					24

II Year - I Semester

S. No.	Subjects	L	T	P	Credits
1-HS	Statistics with R Programming	4	--	--	3
2	Mathematical Foundations of Computer Science	4	--	--	3
3	Digital Logic Design	4	--	--	3
4	Python Programming	4	--	--	3
5	Data Structures through C++	4	--	--	3
6	Software Engineering	4	--	--	3
7	Data Structures through C++ Lab	--	--	3	2
8	Python Programming Lab	--	--	3	2
Total Credits					22

II Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Computer Graphics	4	--	--	3
2	Java Programming	4	--	--	3
3	E-Commerce	4	--	--	3
4	Computer Organization	4	--	--	3
5	Object Oriented Analysis and Design using UML	4	--	--	3
6	Principles of Programming Languages	4	--	--	3
7	Unified Modeling Languages Lab	--	--	3	2
8	Java Programming Lab	--	--	3	2
Total Credits					22

III Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Human Computer Interaction	4	--	--	3
2	Unix and Shell Programming	4	--	--	3
3	Advanced Java Programming	4	--	--	3
4	Database Management Systems	4	--	--	3
5	Operating Systems	4	--	--	3
6	Advanced Java Programming Lab	--	--	--	2
7	Unix and Operating Systems Lab	--	--	3	2
8	Database Management System Lab	--	--	3	2
MC	Professional Ethics & Human Values	--	3	--	--
Total Credits					21

III Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Computer Networks	4	--	--	3
2	Data Mining	4	--	--	3
3	Web Technologies	4	--	--	3
4	Software Testing Methodologies	4	--	--	3
5	Open Elective: i. Artificial Intelligence ii. Social Networks and Semantic Web iii. Digital Signal Processing iv. Embedded Systems v. Robotics vi. Operations Research	4	--	--	3
6	Web Technologies Lab	--	--	3	2
7	Software Testing Lab	--	--	3	2
8	Data Mining Lab	--	--	3	2
9	IPR & Patents	--	2	--	--
Total Credits					21

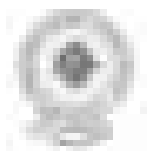
IV Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Cryptography and Network Security	4	--	--	3
2	Mobile Computing	4	--	--	3
3	Data Ware Housing and Business Intelligence	4	--	--	3
4- HS	Managerial Economics and Financial Analysis	4	--	--	3
5	Elective-I i. Big Data Analytics ii. Information Retrieval Systems iii. Internet of Things iv. Multimedia Programming	4	--	--	3
6	Elective-II i. Cloud Computing ii. Software Project Management iii. Machine Learning iv. Decision Support System	4	--	--	3
7	Mobile Computing Lab	--	--	3	2
8	Cryptography and Network Security Lab	--	--	3	2
Total Credits					22

IV Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Distributed Systems	4	--	--	3
2- HS	Management Science	4	--	--	3
3	Management Information System	4	--	--	3
4	Elective-III i. Concurrent and Parallel Programming ii. Cyber Security iii. Artificial Neural Networks iv. Software Quality Assurance	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
Total credits					24

Total Course Credits = 48+44 + 42 + 46 = 180



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

DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE STRUCTURE AND SYLLABUS

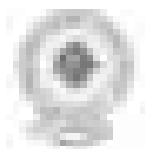
For

B. Tech INFORMATION TECHNOLOGY

(Applicable for batches admitted from 2019-2020)



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


JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE STRUCTURE - R19
I Year – I SEMESTER

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

I Year – II SEMESTER

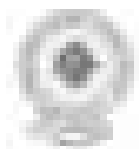
S. No	Course Code	Subjects	L	T	P	Credits
1	BS1202	Mathematics – II	3	0	0	3
2	BS1203	Mathematics – III	3	0	0	3
3	BS1204	Applied Physics	3	0	0	3
4	ES1201	Programming for Problem Solving using C	3	0	0	3
5	ES1213	Digital Logic Design	3	0	0	3
6	BS1205	Applied Physics Lab	0	0	3	1.5
7	HS1203	Communication Skills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

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II Year – I SEMESTER

II Year – II SEMESTER

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF INFORMATION TECHNOLOGY
III Year – I SEMESTER

S.No	Course Code	Courses	L	T	P	Credits
1	IT3101	Advanced Data Structures	3	1	0	4
2	IT3102	Computer Networks	3	0	0	3
3	IT3103	Compiler Design	3	0	0	3
4	IT3104	Artificial Intelligence	3	0	0	3
5	PE3101	Professional Elective -I 1. Software Testing Methodologies 2. NoSQL Databases 3. Scripting Languages 4. Computer Graphics 5. R-Programming	3	0	0	3
6	IT3105	Design and Analysis of Algorithms	3	0	0	3
7	IT3106	Computer Networks & Compiler Design Lab	0	0	3	1.5
8	IT3107	AI Tools & Techniques Lab	0	0	3	1.5
9	MC3101	Employability Skills - II*	2	0	0	0
Total			20	1	6	22
*Internal Evaluation through Seminar / Test conducted for 50 marks						

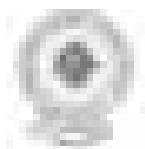
III Year – II SEMESTER

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

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IV Year – I SEMESTER

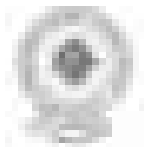
*Relevant theory to be taught in the lab


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KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF INFORMATION TECHNOLOGY
IV Year – II SEMESTER

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

Open Electives to be offered by IT for Other Branches:

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



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE STRUCTURE AND SYLLABUS

For UG – R20

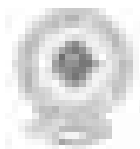
B. TECH - INFORMATION TECHNOLOGY

(Applicable for batches admitted from 2020-2021)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA - 533 003, Andhra Pradesh, India



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF INFORMATION TECHNOLOGY

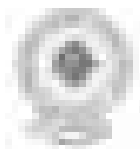
COURSE STRUCTURE

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			


JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF INFORMATION TECHNOLOGY
II Year – I SEMESTER

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

II Year – II SEMESTER

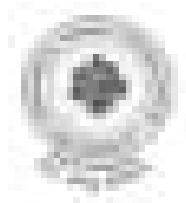
S.No	Course Code	Courses	L	T	P	Credits
1	BS	Statistics with R	2	0	2	3
2	IT	Principles of Software Engineering	3	0	0	3
3	IT	Automata Theory and Compiler Design	3	0	0	3
4	ES	Java Programming	3	0	0	3
5	HS	Managerial Economics and Financial Accountancy	3	0	0	3
6	IT	UML Lab	0	1	2	2
7	IT	FOSS Lab	0	0	2	1
8	ES	Java Programming Lab	0	0	3	1.5
9	SO	Skill oriented Course - II 1) Animations- 3D Animation 2) Distributed Technologies- MongoDB	0	0	4	2
Total Credits			21.5			

ACADEMIC REGULATIONS COURSE STRUCTURE AND DETAILED SYLLABUS

**For
ECE BRANCH**

COMMON FOR

VLSI&ES, ES&VLSI, VLSID&ES



**JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY KAKINADA
KAKINADA - 533 003, Andhra Pradesh, India**

ACADEMIC REGULATIONS R13 FOR M. Tech (REGULAR)
DEGREE COURSE

Applicable for the students of M. Tech (Regular) Course from the Academic Year 2013-14 onwards

The M. Tech Degree of Jawaharlal Nehru Technological University Kakinada shall be conferred on candidates who are admitted to the program and who fulfil all the requirements for the award of the Degree.

1.0 ELIGIBILITY FOR ADMISSIONS

Admission to the above program shall be made subject to eligibility, qualification and specialization as prescribed by the University from time to time.

Admissions shall be made on the basis of merit/rank obtained by the candidates at the qualifying Entrance Test conducted by the University or on the basis of any other order of merit as approved by the University, subject to reservations as laid down by the Govt. from time to time.

2.0 AWARD OF M. Tech DEGREE

- 2.1 A student shall be declared eligible for the award of the M. Tech Degree, if he pursues a course of study in not less than two and not more than four academic years.
- 2.2 The student shall register for all 80 credits and secure all the 80 credits.
- 2.3 The minimum instruction days in each semester are 90.

3.0 A. COURSES OF STUDY

The following specializations are offered at present for the M. Tech course of study.

1. M.Tech- Structural Engineering
2. M.Tech- Transportation Engineering
3. M.Tech- Infrastructure Engineering & Management
4. ME- Soil Mechanics and Foundation Engineering
5. M.Tech- Environmental Engineering
6. M.Tech-Geo-Informatics
7. M.Tech-Spatial Information Technology

-
8. M.Tech- Civil Engineering
 9. M.Tech -Geo-Technical Engineering
 10. M.Tech- Remote Sensing
 11. M.Tech- Power Electronics
 12. M.Tech- Power & Industrial Drives
 13. M.Tech- Power Electronics & Electrical Drives
 14. M.Tech- Power System Control & Automation
 15. M.Tech- Power Electronics & Drives
 16. M.Tech- Power Systems
 17. M.Tech- Power Systems Engineering
 18. M.Tech- High Voltage Engineering
 19. M.Tech- Power Electronics and Power Systems
 20. M.Tech- Power System and Control
 21. M.Tech- Power Electronics & Systems
 22. M.Tech- Electrical Machines and Drives
 23. M.Tech- Advanced Power Systems
 24. M.Tech- Power Systems with Emphasis on High Voltage Engineering
 25. M.Tech- Control Engineering
 26. M.Tech- Control Systems
 27. M.Tech- Electrical Power Engineering
 28. M.Tech- Power Engineering & Energy System
 29. M.Tech- Thermal Engineering
 30. M.Tech- CAD/CAM
 31. M.Tech- Machine Design
 32. M.Tech- Computer Aided Design and Manufacture
 33. M.Tech- Advanced Manufacturing Systems
 34. M.Tech-Computer Aided Analysis & Design
 35. M.Tech- Mechanical Engineering Design
 36. M.Tech- Systems and Signal Processing
 37. M.Tech- Digital Electronics and Communication Systems
 38. M.Tech- Electronics & Communications Engineering
 39. M.Tech- Communication Systems
 40. M.Tech- Communication Engineering & Signal Processing
 41. M.Tech- Microwave and Communication Engineering
 42. M.Tech- Telematics

-
43. M.Tech- Digital Systems & Computer Electronics
 44. M.Tech- Embedded System
 45. M.Tech- VLSI
 46. M.Tech- VLSI Design
 47. M.Tech- VLSI System Design
 48. M.Tech- Embedded System & VLSI Design
 49. M.Tech- VLSI & Embedded System
 50. M.Tech- VLSI Design & Embedded Systems
 51. M.Tech- Image Processing
 52. M.Tech- Digital Image Processing
 53. M.Tech- Computers & Communication
 54. M.Tech- Computers & Communication Engineering
 55. M.Tech- Instrumentation & Control Systems
 56. M.Tech – VLSI & Micro Electronics
 57. M.Tech – Digital Electronics & Communication Engineering
 58. M.Tech- Embedded System & VLSI
 59. M.Tech- Computer Science & Engineering
 60. M.Tech- Computer Science
 61. M.Tech- Computer Science & Technology
 62. M.Tech- Computer Networks
 63. M.Tech- Computer Networks & Information Security
 64. M.Tech- Information Technology
 65. M.Tech- Software Engineering
 66. M.Tech- Neural Networks
 67. M.Tech- Chemical Engineering
 68. M.Tech- Biotechnology
 69. M.Tech- Nano Technology
 70. M.Tech- Food Processing
 71. M.Tech- Avionics

and any other course as approved by AICTE/ University from time to time.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Specialization: VLSI&ES, ES&VLSI, VLSID&ES

COURSE STRUCTURE**I SEMESTER**

S.No	Name of the Subject	L	P	C
1	Microcontrollers for Embedded System Design	4	-	3
2	VLSI Technology and Design	4	-	3
3	CMOS Analog IC Design	4	-	3
4	CPLD and FPGA Architectures and Applications	4	-	3
5	Elective I Hardware Software Co-Design Digital System Design Soft Computing Techniques	4	-	3
6	Elective II Advanced Operating Systems CMOS Digital IC Design Network Security and Cryptography.	4	-	3
7	Laboratory VLSI Laboratory	-	3	2
	TOTAL			20

II SEMESTER

1	Embedded - C	4	-	3
2	CMOS Mixed Signal Circuit Design	4	-	3
3	Embedded Real Time Operating Systems	4	-	3
4	Design For Testability	4	-	3
5	Elective III Digital Signal Processors & Architectures System on Chip Design VLSI Signal Processing	4	-	3
6	Elective IV			
	Micro Electro Mechanical Systems (MEMS) Design Low Power VLSI Design Semiconductor Memory Design and Testing	4	-	3
7	Laboratory Embedded Systems Laboratory	-	3	2
	TOTAL			20

III – SEMESTER

1	Seminar	—	—	2
2	Project	—	—	18
	Total			20

IV – SEMESTER

1	Seminar	—	—	2
2	Project (Continued)	—	—	18
	Total			20

The project will be evaluated at the end of the IV Semester

ACADEMIC REGULATIONS & COURSE STRUCTURE

For

C&C, C&CE

(Applicable for batches admitted from 2016-2017)



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

I Semester

S. No.	Subject	L	P	C
1	Digital System Design	4	-	3
2	Advanced Computer Architecture	4	-	3
3	Wireless Communications and Networks	4	-	3
4	Digital Data Communications	4	-	3
5	Elective I I. Data Base Management Systems II. Information Theory and Coding Techniques III. Big Data Analytics	4	-	3
6	Elective II I. Internet Protocols II. Image & Video Processing III. Objective Oriented Programming	4	-	3
7	System Design & Data Communications Lab		3	2
Total Credits				20

II Semester

S. No.	Subject	L	P	C
1	Advanced Operating Systems	4	-	3
2	Advanced Computer Networks	4	-	3
3	Advanced Digital Signal Processing	4	-	3
4	Optical Communications and Networks	4	-	3
5	Elective III I. EMI / EMC II. Internet of Things III. Soft Computing Techniques IV. Cyber Security	4	-	3
6	Elective IV I. Embedded System Design II. Radar Signal Processing III. Network Security & Cryptography	4	-	3
7	Advanced Communications Lab	-	3	2
Total Credits				20

III Semester

S. No.	Subject	L	P	Credits
1	Comprehensive Viva-Voce	--	--	2
2	Seminar – I	--	--	2
3	Project Work Part – I	--	--	16
Total Credits				20

IV Semester

S. No.	Subject	L	P	Credits
1	Seminar – II	--	--	2
2	Project Work Part - II	--	--	18
Total Credits				20



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

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

COURSE STRUCTURE & SYLLABUS M.Tech ECE
VLSI & Embedded System, Embedded System & VLSI, VLSI Design &
Embedded System, Embedded System & VLSI Design
Programmes

(Applicable for batches admitted from 2019-2020)



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA



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

I Semester

S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PC	RTL Simulation and Synthesis with PLDs			3	0	0	3
2	PC	Microcontrollers and Programmable Digital Signal Processors			3	0	0	3
3	PE	1. Digital Signal and Image Processing 2. Parallel Processing 3. VLSI signal processing			3	0	0	3
4	PE	1. Programming Languages for Embedded Systems 2. System Design with Embedded Linux 3.CAD of Digital System			3	0	0	3
5		Research methodology and IPR			2	0	0	2
6	Lab 1	RTL Simulation and Synthesis with PLDs Lab			0	0	4	2
7	Lab 2	Microcontrollers and Programmable Digital Signal Processors Lab			0	0	4	2
8	Aud 1	Audit course-1			2	0	0	0
Total								18

II Semester

S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PC	Analog and Digital CMOS VLSI Design			3	0	0	3
2	PC	Real Time Operating Systems			3	0	0	3
3	PE	1. Memory Architectures 2. SoC Design 3.Low power VLSI Design			3	0	0	3
4	PE	1.Communication Buses and Interfaces 2.Network Security and Cryptography 3.Physical design automation			3	0	0	3
5	Lab 1	Analog and Digital CMOS VLSI Design Lab			0	0	4	2
6	Lab 2	Real Time Operating Systems Lab			0	0	4	2
7	MP	Mini Project			0	0	4	2
8	Aud 2	Audit Course – 2			2	0	0	0
Total								18

*Students be encouraged to go to Industrial Training/Internship for at least 2-3 weeks during semester break.



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

III Semester*

S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PE	1.IOT and its Applications 2.Hardware Software co-design 3.Artificial Intelligence			3	0	0	3
2	OE	1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Waste to Energy			3	0	0	3
3	Dissertation	Dissertation Phase -I /Industrial Project (to be continued and evaluated next semester)			0	0	20	10 [#]
Total								16

*Evaluated and Displayed in IV Semester Marks list.

*Students going for Industrial Project/Thesis will complete these courses through MOOCs

IV Semester

S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	Dissertation	Project/ Dissertation Phase-II (continued from III semester)			0	0	32	16
Total								16

Audit Course 1& 2

- English for Research Paper Writing
- Disaster Management
- Sanskrit for Technical Knowledge
- Value Education
- Constitution of India
- Pedagogy Studies
- Stress Management by Yoga
- Personality Development through Life Enlightenment Skills