



Estd 2008

# BABA INSTITUTE OF TECHNOLOGY AND SCIENCES

(Approved by AICTE, New Delhi and Affiliated to JNTU, Kakinada)

Formerly known as VISAKA ENGINEERING COLLEGE

Accredited by NAAC

Bakkannapalem (V), Madhurawada (PO), Visakhapatnam-530048.

## 1.2.1 Percentage of programs in which Choice Based Credit System (CBCS)/elective course system has been implemented.

S.No	Programme Code	Programme name	Year of Introduction	Status of implementation of CBCS / elective course system (Yes/No)	Year of implementation of CBCS / elective course system
1	1	B.Tech (Civil Engineering)	2010	Yes	2016
2	2	B.Tech (Electrical & Electronics Engineering)	2008	Yes	2016
3	3	B.Tech (Mechanical Engineering)	2010	Yes	2016
4	4	B.Tech (Electronics & Communication Engineering)	2008	Yes	2016
5	5	B.Tech (Computer Science & Engineering)	2008	Yes	2016
6	57	M.Tech (VLSI Design )	2012	Yes	2016
7	PG4	M.Tech (CAD/CAM)	2013	Yes	2016
8	59	M.Tech (Computer Science Technology)	2012	Yes	2016
9	87	M.Tech (Structural Engineering)	2013	Yes	2016
10	54	M.Tech (Power Electronics & Electrical Drives)	2013	Yes	2016
11	1E	MBA	2010	Yes	2016

Principal

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Baba Institute of Technology and Sciences  
Bakkannapalem (V), Madhurawada (P)  
Visakhapatnam

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Under the Management of AMBEDKAR EDUCATIONAL & WELFARE SOCIETY Regd : 174 of 2005

# COURSE STRUCTURE AND SYLLABUS

For

## **CIVIL ENGINEERING**

(Applicable for batches admitted from 2016-2017)



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

  
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BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
BAKANNAPALEM (V), P.M. PALEM,  
MADHURAWADA  
V.SAKHARAPETNAM - 533 003

### 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	Engineering Chemistry	4	--	--	3
4-BS	Engineering Mechanics	4	2	--	3
5-BS	Computer Programming	4	--	--	3
6-ES	Environmental Studies	4	--	--	3
7-HS	Engineering /Applied Chemistry Laboratory	--	--	3	2
8-BS	English - Communication Skills Lab - I	--	--	3	2
9-ES	Computer Programming Lab	--	--	3	2
<b>Total Credits</b>					<b>24</b>

### 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	Engineering Physics	4	--	--	3
5-HS	Elements of Mechanical Engineering	4	--	--	3
6-ES	Engineering Drawing	4	--	--	3
7-BS	English - Communication Skills Lab - II	--	--	3	2
8-HS	Engineering /Applied Physics Lab	--	--	3	2
9-ES	Engineering / Applied Physics – Virtual Labs - Assignments	--	--	2	--
10	Engg. Workshop & IT Workshop	--	--	3	2
<b>Total Credits</b>					<b>24</b>

  
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## II Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Probability & Statistics	4	--	--	3
2	Basic Electrical & Electronics Engineering	4	--	--	3
3	Strength of Materials-I	4	--	--	3
4	Building Materials & Construction	4	--	--	3
5	Surveying	4	--	--	3
6	Fluid Mechanics	4	--	--	3
7	Survey Field Work - I	--	--	3	2
8	Strength of Materials Lab	--	--	3	2
MC	Professional Ethics & Human Values	--	3	--	--
<b>Total Credits</b>					<b>22</b>

## II Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Building Planning & Drawing	4	--	--	3
2	Strength of Materials - II	4	--	--	3
3	Hydraulics & Hydraulic Machinery	4	--	--	3
4	Concrete Technology	4	--	--	3
5	Structural Analysis - I	4	--	--	3
6	Transportation Engineering - I	4	--	--	3
7	FM & HM Lab	--	--	3	2
8	Survey Field Work - II	--	--	3	2
MC	Managerial Economics & Financial Analysis	2	--	--	--
<b>Total Credits</b>					<b>22</b>

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### III Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Management Science	4	--	--	3
2	Engineering Geology	4	--	--	3
3	Structural Analysis -II	4	--	--	3
4	Design & Drawing of Reinforced Concrete Structures	4	2	--	3
5	Transportation Engineering - II	4	--	--	3
6	Concrete Technology Lab	--	--	3	2
7	Geology Lab	--	--	3	2
8	Transportation Engineering Lab	--	--	3	2
<b>Total Credits</b>					<b>21</b>

### III Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Design & Drawing of Steel Structures	4	2	--	3
2	Geotechnical Engineering - I	4	--	--	3
3	Environmental Engineering -I	4	--	--	3
4	Water Resource Engineering -I	4	--	--	3
5	<b>OPEN ELECTIVE</b>	4	--	--	3
	i. Electronic Instrumentation				
	ii. Data Base Management Systems				
	iii. Alternative Energy Sources				
	iv. Waste water Management				
	v. Fundamentals of Liquefied Natural Gas				
vi. Green Fuel Technologies					
6	Geotechnical Engineering Lab	--	--	3	2
7	Environmental Engineering Lab	--	--	3	2
8	Computer Aided Engineering Lab	--	--	3	2
<b>Total Credits</b>					<b>21</b>

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#### IV Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Environmental Engineering - II	4	--	--	3
2	Water Resource Engineering - II	4	--	--	3
3	Geotechnical Engineering - II	4	--	--	3
4	Remote Sensing & GIS Applications	4	--	--	3
5	<b>Elective I</b> i. Finite Element Methods ii. Ground Improvement Techniques iii. Air Pollution & Control iv. Urban Hydrology v. Traffic Engineering	4	--	--	3
6	<b>Elective II</b> i. Advanced Structural Engineering ii. Advanced Foundation Engineering iii. Environmental Impact Assessment & Management iv. Ground Water Development v. Pavement Analysis and Design	4	--	--	3
7	IPR & Patents	--	2	--	--
8	GIS & CAD Lab	--	--	2	2
9	Irrigation Design & Drawing	--	--	2	2
<b>Total Credits</b>					<b>22</b>

#### IV Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Estimation Specification & Contracts	4	--	--	3
2	Construction Technology & Management	4	--	--	3
3	Prestressed Concrete	4	--	--	3
4	<b>Elective-III</b> i. Bridge Engineering ii. Soil Dynamics and Foundations iii. Solid and Hazardous Waste Management iv. Water Resources Systems Planning v. Urban Transportation Planning Engg	4	--	--	3
5	Seminar on Internship Project	--	3	--	2
6	Project	--	--	--	10
<b>Total Credits</b>					<b>24</b>

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



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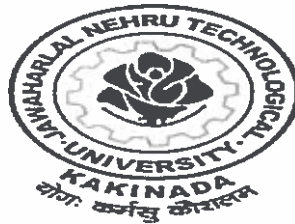
**DEPARTMENT OF CIVIL ENGINEERING**

## **COURSE STRUCTURE AND SYLLABUS**

**For**

**B. TECH CIVIL ENGINEERING**

*(Applicable for batches admitted from 2019-2020)*



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**I Year – I SEMESTER**

Sl. No	Course Code	Subjects	L	T	P	Credits
1	BS1101	Mathematics – I	3	0	0	3
2	BS1102	Mathematics – II	3	0	0	3
3	BS1108	Engineering Physics	3	0	0	3
4	ES1104	Engineering Mechanics	3	1	0	4
5	ES1103	Engineering Drawing	1	0	3	2.5
6	HS1102	English Lab	0	0	3	1.5
7	BS1109	Engineering Physics Lab	0	0	3	1.5
8	PR1101	Engineering Exploration Project	0	0	2	1
<b>Total Credits</b>			<b>16</b>	<b>0</b>	<b>12</b>	<b>19.5</b>

**I Year – II SEMESTER**

Sl. No	Course Code	Subjects	L	T	P	Credits
1	HS1201	English	3	0	0	3
2	BS1203	Mathematics – III	3	0	0	3
3	BS1210	Engineering Chemistry	3	0	0	3
4	ES1201	Programming for problem Solving Using C	3	0	0	3
5	ES1207	Computer Aided Engineering Drawing	1	0	3	2.5
6	ES1202	Programming for problem Solving Using C Lab	0	0	3	1.5
7	BS1211	Engineering Chemistry Lab	0	0	3	1.5
8	HS1203	Communications Skills Lab	0	0	3	1.5
9	ES1219	Workshop Practice Lab	0	0	3	1.5
10	MC1201	Environmental Science	3	0	0	0
<b>Total Credits</b>			<b>15</b>	<b>0</b>	<b>11</b>	<b>20.5</b>

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**I YEAR: I- SEMESTER**

Sl. No.	Course Code	Course Title	L	T	P	Credits
1	BS301	Complex Variables and Statistical Methods	3	0	0	3
2	PC301	Strength of Materials-I	3	0	0	3
3	PC302	Fluid Mechanics	3	0	0	3
4	ES301	Surveying and Geometrics'	3	0	0	3
5	PC303	Building Materials, Construction and Planning	3	0	0	3
6	PC304	Transportation Engineering-I	3	0	0	3
7	PC305	Strength of Materials Lab	0	0	3	1.5
8	PC306	Surveying Field Work – I	0	0	3	1.5
9	MC301	Constitution of India	2	0	0	0
<b>Total Credits</b>						<b>21</b>

**II YEAR: II- SEMESTER**

Sl. No.	Course Code	Course Title	L	T	P	Credits
1	PC401	Strength of Materials-II	3	0	0	3
2	PC402	Hydraulics and Hydraulic Machinery	3	0	0	3
3	ES401	Engineering Geology	3	0	0	3
4	PC403	Transportation Engineering - II	3	0	0	3
5	PC404	Environmental Engineering - I	3	0	0	3
6	PC405	Engineering Geology Lab	0	0	2	1
7	PC406	Transportation Engineering Lab	0	0	3	1.5
8	PC407	Fluid Mechanics & Hydraulics Machinery Lab	0	0	3	1.5
9	MC401	Essence of Indian Traditional Knowledge/ Professional Ethics and Human Values	2	0	0	0
<b>Total Credits</b>						<b>19</b>

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**III YEAR: I- SEMESTER**

Sl. No.	Course Code	Course Title	L	T	P	Credits
1	PC501	Structural Analysis	3	0	0	3
2	PC502	Concrete Technology	2	0	0	2
3	PC503	Water Resources Engineering - I	3	0	0	3
4	PC504	Environmental Engineering - II	3	0	0	3
5	PE501	Program Elective – I	3	0	0	3
6	OE501	Open Elective – I	3	0	0	3
7	PC506	Concrete Technology Lab	0	0	3	1.5
8	PC507	Surveying Field Work - II	0	0	3	1.5
<b>Total Credits</b>						<b>20</b>

**III YEAR: II- SEMESTER**

Sl. No.	Course Code	Course Title	L	T	P	Credits
1	PC601	Design & Drawing of Reinforced Concrete Structures	3	0	0	3
2	PC602	Water Resources Engineering – II	3	0	0	3
3	PC603	Geotechnical Engineering - I	3	0	0	3
4	HS601	Managerial Economics & Financial Analysis	3	0	0	3
5	PE601	Program Elective – II	3	0	0	3
6	OE601	Open Elective – II	3	0	0	3
7	PC604	CAD Lab	0	0	3	1.5
8	PC605	Environmental Engineering Lab	0	0	3	1.5
9	PR601	Socially Relevant Project	0	0	2	1
10	MC601	Employability Skills	0	0	2	0
<b>Total Credits</b>						<b>22</b>

  
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**DEPARTMENT OF CIVIL ENGINEERING**

**IV YEAR: I- SEMESTER**

Sl. No.	Course Code	Course Title	L	T	P	Credits
1	PC701	Design & Drawing of Steel Structures	3	0	0	3
2	PC702	Geotechnical Engineering - II	3	0	0	3
3	PC703	Remote Sensing & GIS	3	0	0	3
4	PE701	Program Elective – III	3	0	0	3
5	OE701	Open Elective – III	3	0	0	3
6	PC704	Remote Sensing & GIS Lab	0	0	3	1.5
7	PC705	Geotechnical Engineering Lab	0	0	3	1.5
8	PR701	Industrial Training/ Internship or Seminar	0	0	3	1
9	PR702	Project Work Phase-I	0	0	4	2
<b>Total Credits</b>						<b>21</b>

**IV YEAR: II- SEMESTER**

Sl. No.	Course Code	Course Title	L	T	P	Credits
1	PC801	Estimation Specifications and Contract	3	0	0	3
2	PE801	Program Elective - IV	3	0	0	3
3	PE802	Program Elective – V	3	0	0	3
4	PR801	Project Work Phase-II	0	0	16	8
<b>Total Credits</b>						<b>17</b>

  
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Open Electives	Professional Elective-I	Professional Elective-II	Professional Elective-III	Professional Elective-IV	Professional Elective-V
a) Disaster Management	a) Repair & Rehabilitation of Buildings	a) Pre-stressed Concrete	a) Bridge Engineering	a) Finite Element Methods	a) Advanced Structural Analysis
b) Environmental Pollution & Control	b) Environmental Impact Assessment	b) Watershed Management	b) Industrial Waste Water Treatment	b) Design & Drawing of Irrigation Structures	b) Urban Hydrology
c) Elements of Civil Engineering	c) Reinforced Soil Structures	c) Advanced Foundation Engineering	c) Earth & Rock-fill Dams	c) Soil Dynamics and Machine Foundations	c) Ground Improvement Techniques
d) Green Technology	d) Traffic Engineering	d) Urban Transportation Planning	d) Intelligent Transportation Systems	d) Road Safety Engineering	d) Pavement Management Systems
e) Smart Cities	e) Construction Technology & Management	e) Architecture Town Planning	e) Building Services	e) Disaster Management & Mitigation	e) Low-cost Housing
f) Project Management				f) SWAYAM / NPTEL / MOOCS COURSES (12 weeks duration )	f) SWAYAM / NPTEL / MOOCS COURSES (12 weeks duration )
g) Traffic Safety					
h) Geo-Spatial Technologies					
i) Waste Water Treatment					

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**DEPARTMENT OF CIVIL ENGINEERING**

**COURSE STRUCTURE**

**For UG – R20**

**B. TECH - CIVIL ENGINEERING**

*(Applicable for batches admitted from 2020-2021)*



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**DEPARTMENT OF CIVIL ENGINEERING**

## COURSE STRUCTURE

### I Year – I SEMESTER

S. No	Course Code	Subjects	L	T	P	Credits
1	BSC1101	Mathematics – I (Calculus & Differential Equations)	3	0	0	3
2	HSMC1101	Communicative English	3	0	0	3
3	BSC1102	Engineering Physics	3	0	0	3
4	ESC1101	Engineering Drawing	1	0	4	3
5	ESC1102	Engineering Geology (Integrated) (Theory & Lab)	2	0	2	3
6	HSMC1102	English Communication Skills Laboratory	0	0	3	1.5
7	BSC1103	Engineering Physics Lab	0	0	3	1.5
8	ESC1103	Basics of Civil Engg. Work Shop (Lab)	0	0	3	1.5
<b>Total Credits</b>			<b>19.5</b>			

### I Year – II SEMESTER

S. No	Course Code	Subjects	L	T	P	Credits
1	BSC1201	Mathematics – II (Linear Algebra & Numerical Methods)	3	0	0	3
2	BSC1202	Engineering Chemistry	3	0	0	3
3	ESC1201	Engineering Mechanics	3	0	0	3
4	ESC1202	Programming for Problem Solving Using C	3	0	0	3
5	ESC1203	Building Materials and Concrete Technology	3	0	0	3
6	BSC1203	Engineering Chemistry Lab	0	0	3	1.5
7	ESC1204	Programming for problem Solving Using C Lab	0	0	3	1.5
8	ESC1205	Building Planning and Computer Aided Building Drawing	0	0	3	1.5
9	MC1201	Environmental Science	2	0	0	0
<b>Total Credits</b>			<b>19.5</b>			

\*Breakup of credits for Engineering Graphics/Engineering Workshop shall be 1-0-4 (as per AICTE model curriculum)

Universities/Institutions may swap a few courses between 1<sup>st</sup> and 2<sup>nd</sup> semesters to balance the workload of teaching and laboratory schedule.

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**II Year – I SEMESTER**

S. No	Course Code	Course Title	L	T	P	Credits
1	BSC301	Mathematics -III (Vector Calculus, Transforms and PDE)	3	0	0	3
2	PCC301	Strength of Materials - I	3	0	0	3
3	PCC302	Fluid Mechanics	3	0	0	3
4	PCC302	Surveying and Geometrics	3	0	0	3
5	PCC303	Highway Engineering	3	0	0	3
6	PCC304	Concrete Technology Lab	0	0	3	1.5
7	PCC305	Highway Engineering Lab	0	0	3	1.5
8	PCC306	Surveying Field Work – I (Lab)	0	0	3	1.5
9	SC301	Skill oriented course*	1	0	2	2
10	MC301	Constitution of India	2	0	0	0
		<b>Total Credits</b>				<b>21.5</b>

**II YEAR – II SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	PC401	Complex Variables and Statistical Methods	3	0	0	3
2	PC402	Strength of Materials -II	3	0	0	3
3	ES401	Hydraulics and Hydraulic Machinery	3	0	0	3
4	PC403	Environmental Engineering	3	0	0	3
5	PC404	Managerial Economics & Financial Analysis	3	0	0	3
6	PC405	Environmental Engineering Lab	0	0	3	1.5
7	PC406	Strength of Material Lab	0	0	3	1.5
8	PC407	Fluid Mechanics & Hydraulics Machinery Lab	0	0	3	1.5
9	SC401	Skill oriented course*	1	0	2	2
10	PR401	Industrial/Research Internship (Mandatory) 2 Months... to be evaluated in III year I semester				
		<b>Total Credits</b>				<b>21.5</b>
		<b>Honors/ Minor courses</b> (The hours distribution can be 3-0-2 or 3-1-0 also)	3	1	0	4

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**III YEAR – I SEMESTER**

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

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**III YEAR – II SEMESTER**

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

  
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**DEPARTMENT OF CIVIL ENGINEERING**

**IV YEAR – I SEMESTER**

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

**IV YEAR – II SEMESTER**

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

**Major Project-12;**

**Internship-6 Months;**

**Total-12**


  
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**DEPARTMENT OF CIVIL ENGINEERING**

**Professional Electives R20 (5 PE x 3 = 15 Credits)**  
 (Department can offer Maximum 2 Subjects from Each PE, elected by the students)  
 Note: Student must choose subjects which were not opted earlier  
 PE starts from III-I

Professional Elective-I	Professional Elective-II	Professional Elective-III	Professional Elective-IV	Professional Elective-V
a) Construction Technology & Management	a) Advanced Structural Analysis	a) Advanced Structural Engineering	a) Ground Improvement Techniques	a) Design & Drawing of Irrigation Structures
b) Remote Sensing and GIS	b) Architecture and Town Planning	b) Bridge Engineering	b) Geo-Spatial Technologies	b) Earth & Rock fill Dams
c) Environmental Impact Assessment	c) Road Safety Engineering	c) Structural Dynamics	c) Disaster Management & Mitigation	c) Urban Hydrology
d) Low Cost Housing	d) Traffic Engineering	d) Urban Transportation Planning	d) Soil Dynamics & Machine Foundations	SWAYAM/ NPTEL /MOOCS COURSES (12 weeks duration)

  
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**HONORS R20 (Starts from II-II)**

(4x4+2 MOOCS/NPTELx2=20 Credits) for Civil Engg. Students  
 Note: Student must choose subjects which were not opted earlier  
 (Any FOUR courses may be chosen by the Student from each Pool)

Structural Engineering	Geotechnical Engineering	Environment and Water Resource Engineering	Transportation Engineering	Construction Technology and Management
Finite Element Methods	Reinforced Soil Structures	Urban Hydrology	Traffic Engineering	Construction Technology and Management
Matrix Analysis of Structures	Advanced Foundation Engineering	Water and Wastewater Management	Intelligent Transportation System	Architecture & Town Planning
Earthquake Resistant Design	Earth Retaining Structures	Water Resources Planning and Management	Railway, Harbor and Airport Engineering	Repairs and Maintenance of Structures
Pre-stressed concrete	Geoenvironmental Engineering	Environmental Impact Assessment	Pavement Management System	Disaster Management and Mitigation
Repair & Retro-fitting of Buildings	Earth & Rock Fill Dams	Air Pollution and Control	Urban Transportation Planning	Precast and Prefabricated Structures

  
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**DEPARTMENT OF CIVIL ENGINEERING**

**OPEN ELECTIVES R20**  
**(4 OE x 3 = 12 Credits)**

**Note: Student must choose subjects which were not opted earlier.**  
**(OE Starts from III-I)**

**Open Elective-1 in III year I semester:**

- a) Strength of Materials
- b) Fluid Mechanics
- c) Surveying and Geomatics

**Open Elective-2 in III year II semester:**


- a) Elements of Civil Engineering
- b) Environmental Engineering
- c) Disaster Management

**Open Elective-3 in IV year I semester:**

- a) Highway Engineering
- b) Safety Engineering
- c) Environmental Management
- d) Urban Planning

**Open Elective-4 in IV year II semester:**

- a) Water Resource Engineering
- b) Hydraulics and Hydraulic Machinery
- c) Green Technologies
- d) Remote Sensing & GIS

  
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**DEPARTMENT OF CIVIL ENGINEERING**

**Minor R20 (Starts from II-II)**  
**(4x4+2 MOOCS/NPTELx2 = 20 Credits)**

**Note: Student must choose subjects which were not opted earlier**

**Minor-1 in II year II semester:**

- a) **Construction Technology and Infrastructure Management**
- b) **Seismology and Earthquake Engineering**

**Minor-2 in III year I semester:**

- a) **Environmental Engineering and Management**
- b) **Solid Mechanics**

**Minor-3 in III year II semester:**

- a) **Railways, Harbours and Docks**
- b) **Architecture and Smart City**

**Minor-4 in IV year I semester:**

- a) **Irrigation Engineering**
- b) **Geoinformatics**

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**ACADEMIC REGULATIONS  
COURSE STRUCTURE  
AND  
DETAILED SYLLABUS**

**ELECTRICAL AND  
ELECTRONICS  
ENGINEERING**

For

**B.Tech., FOUR YEAR DEGREE COURSE**  
(Applicable for the batches admitted from 2013-14)



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## COURSE STRUCTURE

### I Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	English - I	3+1	--	3
2	Mathematics - I	3+1	--	3
3	Mathematics – II (Mathematical Methods)	3+1	--	3
4	Engineering Physics	3+1	--	3
5	Professional Ethics and Human Values	3+1	--	3
6	Engineering Drawing	3+1	--	3
7	English – Communication Skills Lab - I	--	3	2
8	Engineering Physics Laboratory	--	3	2
9	Engineering Physics – Virtual Labs - Assignments	--	2	--
10	Engineering Workshop & IT Workshop	--	3	2
<b>Total Credits</b>				<b>24</b>

### I Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	English – II	3+1	--	3
2	Mathematics – III	3+1	--	3
3	Engineering Chemistry	3+1	--	3
4	Engineering Mechanics	3+1	--	3
5	Electrical Circuit Analysis - I	3+1	--	3
6	Computer Programming	3+1	--	3
7	Engineering Chemistry Lab	--	3	2
8	English – Communication Skills Lab - II	--	3	2
9	C Programming lab	--	3	2
<b>Total Credits</b>				<b>24</b>

### II Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Electrical Circuit Analysis-II	3+1	--	3
2	Thermal and Hydro Prime movers	3+1	--	3
3	Basic Electronics And Devices	3+1	--	3



4	Complex Variables and Statistical Methods	3+1	--	3
5	Electro Magnetic Fields	3+1	--	3
6	Electrical Machines-I	3+1	--	3
7	Thermal and Hydro Lab	--	3	2
8	Electrical Circuits Lab	--	3	2
<b>Total Credits</b>				<b>22</b>

### II Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	Environmental studies	3+1	--	3
2	Switching Theory and Logic Design	3+1	--	3
3	Pulse & Digital Circuits	3+1	--	3
4	Power Systems-I	3+1	--	3
5	Electrical Machines-II	3+1	--	3
6	Control Systems	3+1	--	3
7	Electrical Machines -I Lab	--	3	2
8	Electronic Devices & Circuits Lab	--	3	2
<b>Total Credits</b>				<b>22</b>

### III Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Managerial Economics and Financial Analysis	3+1	--	3
2	Electrical Measurements	3+1	--	3
3	Power Systems-II	3+1	--	3
4	Electrical Machines-III	3+1	--	3
5	Power Electronics	3+1	--	3
6	Linear & Digital IC Applications	3+1	--	3
7	Electrical Machines-II Lab	--	3	2
8	Control Systems Lab	--	3	2
9	IPR & Patents	3+1		2
<b>Total Credits</b>				<b>24</b>

### III Year – II SEMESTER

S. No.	Subject	T	P	Credits
	Switchgear and Protection	3+1	--	3

2	Microprocessors & Microcontrollers	3+1	--	3
3	Utilization of Electrical Energy	3+1	--	3
4	Power System Analysis	3+1	--	3
5	Power Semiconductor Drives	3+1	--	3
6	Management Science	3+1	--	3
7	Power Electronics Lab	--	3	2
8	Electrical Measurements Lab	--	3	2
<b>Total Credits</b>				<b>22</b>

#### IV Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Renewable Energy Sources and Systems	3+1	-	3
2	HVAC & DC Transmission	3+1	-	3
3	Power System Operation & Control	3+1	-	3
4	<b>Open Elective</b>	3+1	-	3
5	<b>Elective – I</b>	3+1	-	3
6	Microprocessors & Microcontrollers Lab	-	3	2
7	Electrical Simulation Lab	-	3	2
8	Power systems lab		3	2
<b>Total Credits</b>				<b>21</b>

#### IV Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	Digital Control Systems	3+1	-	3
2	<b>Elective – II</b>	3+1	-	3
3	<b>Elective – III</b>	3+1	-	3
4	<b>Elective – IV</b>	3+1	-	3
5	Project	-	-	9
<b>Total Credits</b>				<b>21</b>

#### Open Elective:

1. Energy Audit, Conservation and Management
2. **Instrumentation**
3. Non Conventional Sources of Energy
4. Optimization Techniques

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**Elective – I:**

1. VLSI Design
2. Electrical Distribution Systems
3. Optimization Techniques

**Elective – II:**

1. Advanced Control Systems
2. Extra High Voltage Transmission
3. Special Electrical Machines

**Elective – III:**

1. Electric Power Quality
2. Digital Signal Processing
3. FACTS: Flexible Alternating Current Transmission Systems.

**Elective-IV:**

1. OOPS Through Java
2. UNIX and Shell Programming
3. AI Techniques
4. Power System Reforms
5. Systems Engineering

  
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# COURSE STRUCTURE AND SYLLABUS

For

## **ELECTRICAL AND ELECTRONICS ENGINEERING**

*(Applicable for batches admitted from 2016-2017)*



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**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA**  
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### 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
<b>Total Credits</b>					<b>24</b>

### 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
<b>Total Credits</b>					<b>24</b>

## 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
<b>Total Credits</b>					<b>22</b>

## 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
<b>Total Credits</b>					<b>22</b>

  
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### 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	--	--
<b>Total Credits</b>					<b>21</b>

### 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	<b>Open Elective</b>	4	--	--	3
	1. Unix and Shell Programming 2. OOPS Through JAVA 3. VLSI Design 4. Robotics 5. <b>Neural Networks &amp; Fuzzy Logic</b> 6. Energy Audit and Conservation & Management				
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	--	--
<b>Total Credits</b>					<b>21</b>

#### 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	<b>Elective – I:</b> 1. Electrical Machine Modeling and Analysis 2. Advanced Control Systems 3. Programmable Logic Controllers & Applications 4. Instrumentation	4	--	--	3
6	<b>Elective – II:</b> 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
<b>Total Credits</b>					<b>22</b>

#### 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	<b>Elective – III:</b> 1. High Voltage Engineering 2. Flexible Alternating Current Transmission Systems 3. Power System Reforms	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
<b>Total Credits</b>					<b>24</b>





**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA**  
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**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)*



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**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**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
<b>Total Credits</b>			<b>16</b>	<b>0</b>	<b>12</b>	<b>19</b>

**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
<b>Total Credits</b>			<b>15</b>	<b>1</b>	<b>10</b>	<b>21</b>

  
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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
<b>Total Credits</b>				<b>24</b>	<b>0</b>	<b>6</b>	<b>21</b>

**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
<b>Total Credits</b>				<b>21</b>	<b>0</b>	<b>6</b>	<b>21</b>

  
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**KAKINADA – 533 003, Andhra Pradesh, India**  
**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**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
<b>Total Credits</b>				<b>15</b>	<b>0</b>	<b>9</b>	<b>20</b>

**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		<b>Elective - I</b>	EL	3	--	--	3
6		<b>Open Elective - I</b>	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
<b>Total Credits</b>				<b>18</b>		<b>6</b>	<b>21</b>

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

**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		<b>Elective – II</b>	EL	3	--	--	3
5		<b>Elective - III</b>	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
<b>Total Credits</b>				<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

**IV Year – II SEMESTER**

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

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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**KAKINADA – 533 003, Andhra Pradesh, India**  
**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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**KAKINADA – 533 003, Andhra Pradesh, India**  
**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**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

  
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

## COURSE STRUCTURE AND SYLLABUS

For


### **B. TECH ELECTRICAL AND ELECTRONICS ENGINEERING**

*(Applicable for batches admitted from 2020-2021)*



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**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
<b>Total Credits</b>						<b>19.5</b>

**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
<b>Total Credits</b>						<b>19.5</b>

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**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
<b>Total Credits</b>			<b>21.5</b>			

**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
<b>Total Credits</b>			<b>21.5</b>			
		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
<b>Total Credits</b>			<b>21.5</b>			
		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
<b>Total Credits</b>			<b>21.5</b>			
		Minors/ Honors	4	0	0	4




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**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
<b>Total Credits</b>			<b>23</b>			
		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
<b>Total Credits</b>			<b>12</b>			

  
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**KAKINADA – 533 003, Andhra Pradesh, India**  
**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**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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**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**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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**KAKINADA – 533 003, Andhra Pradesh, India**  
**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

**\*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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**KAKINADA – 533 003, Andhra Pradesh, India**  
**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

  
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**ACADEMIC REGULATIONS  
COURSE STRUCTURE  
AND  
DETAILED SYLLABUS**

**MECHANICAL  
ENGINEERING**

**For**

**B.Tech., FOUR YEAR DEGREE COURSE**  
(Applicable for the batches admitted from 2013-14)



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

## COURSE STRUCTURE

### I Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	English – I	3+1	--	3
2	Mathematics - I	3+1	--	3
3	Engineering Chemistry	3+1	--	3
4	Engineering Mechanics	3+1	--	3
5	Computer Programming	3+1	--	3
6	Environmental Studies	3+1	--	3
7	Engineering Chemistry Laboratory	--	3	2
8	English - Communication Skills Lab - I	--	3	2
9	C Programming Lab	--	3	2
<b>Total Credits</b>				<b>24</b>

### I Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	English – II	3+1	--	3
2	Mathematics – II (Mathematical Methods)	3+1	--	3
3	Mathematics – III	3+1	--	3
4	Engineering Physics	3+1	--	3
5	Professional Ethics and Human Values	3+1	--	3
6	Engineering Drawing	3+1	--	3
7	English - Communication Skills Lab - II	--	3	2
8	Engineering Physics Lab	--	3	2
9	Engineering Physics – Virtual Labs - Assignments	--	2	--
10	Engg. Workshop & IT Workshop	--	3	2
<b>Total Credits</b>				<b>24</b>

### II Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Metallurgy & Materials Science	3+1*	--	3
2	Mechanics of Solids	3+1*	--	3

3	Thermodynamics	3+1*	--	3
4	Managerial Economics & Financial Analysis	3+1*	--	3
5	Basic Electrical & Electronics Engineering	3+1*	--	3
6	Computer aided Engineering Drawing Practice	3+1*	--	3
7	Basic Electrical & Electronics Engg. Lab	--	3	2
8	Mechanics of Solids & Metallurgy lab	--	3	2
<b>Total Credits</b>				<b>22</b>

### II Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	Kinematics of Machinery	3+1*	--	3
2	Thermal Engineering -I	3+1*	--	3
3	Production Technology	3+1*	--	3
4	Fluid Mechanics & Hydraulic machinery	3+1*	--	3
5	Machine Drawing	3+1*	--	3
6	Fluid mechanics & Hydraulic machinery Lab	--	3	2
7	Production Technology Lab	--	3	2
8	Thermal Engineering Lab	--	3	2
<b>Total Credits</b>				<b>21</b>

### III Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Dynamics of Machinery	3+1*		3
2	Metal Cutting & Machine Tools	3+1*		3
3	Design of Machine Members-I	3+1*		3
4	Instrumentation & Control Systems	3+1*		3
5	Thermal Engineering -II	3+1*		3
6	Metrology	3+1*		3
7	Metrology & Instrumentation Lab		3	2
8	Machine Tools Lab		3	2
9	IPR & Patents		3	2
<b>Total Credits</b>				<b>24</b>

**III Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	Operations Research	3+1*		3
2	Interactive Computer Graphics	3+1*		3
3	Design of Machine Members– II	3+1*		3
4	Robotics	3+1*		3
5	Heat Transfer	3+1*		3
6	Industrial Engineering Management	3+1*		3
7	<b>Departmental Elective – I</b>	3+1*		3
8	Heat Transfer Lab		3	2
<b>Total Credits</b>				<b>23</b>

**IV Year – I SEMESTER**

S. No.	Subject	T	P	Credits
1	Automobile Engineering	3+1*		3
2	CAD/CAM	3+1*		3
3	Finite Element Methods	3+1*		3
4	Unconventional Machining Processes	3+1*		3
5	<b>Open Elective</b>	3+1*		3
6	<b>Departmental Elective – II</b>	3+1*		3
7	Simulation Lab		3	2
8	Design/Fabrication Project		2	1
<b>Total Credits</b>				<b>21</b>

**IV Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	Production Planning and Control	3+1*		3
2	Green Engineering Systems	3+1*		3
3	<b>Departmental Elective – III</b>	3+1*		3
4	<b>Departmental Elective – IV</b>	3+1*		3
5	Project Work			9
<b>Total Credits</b>				<b>21</b>

**OPEN ELECTIVE**

1. MEMS
2. Nanotechnology

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**Departmental Elective -I:**

1. Refrigeration & Air-conditioning
2. Computational Fluid Dynamics
3. Condition Monitoring
4. Rapid Prototyping

**Departmental Elective -II:**

1. Material Characterization Techniques
2. Design for Manufacture
3. Automation in Manufacturing
4. Industrial Hydraulics & Pneumatics

**Departmental Elective -III:**

1. Experimental Stress Analysis
2. Mechatronics
3. Advanced Materials
4. Power Plant Engineering

**Departmental Elective -IV:**

1. Non Destructive Evaluation
2. Advanced Optimization Techniques
3. Gas Dynamics & Jet Propulsion
4. Quality and Reliability Engineering

# COURSE STRUCTURE AND SYLLABUS


For

## **MECHANICAL ENGINEERING**

(Applicable for batches admitted from 2016-2017)



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

  
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## 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	Engineering Chemistry	4	--	--	3
4-BS	Engineering Mechanics	4	--	--	3
5-BS	Computer Programming	4	--	--	3
6-ES	Environmental Studies	4	--	--	3
7-HS	Engineering/Applied Chemistry Laboratory	--	--	3	2
8-BS	English - Communication Skills Lab - I	--	--	3	2
9-ES	Computer Programming Lab	--	--	3	2
<b>Total Credits</b>					<b>24</b>

## 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	Engineering Physics	4	--	--	3
5-HS	Basic Electrical and Electronics Engineering	4	--	--	3
6-ES	Engineering Drawing	4	--	--	3
7-BS	English - Communication Skills Lab - II	--	--	3	2
8-HS	Engineering /Applied Physics Lab	--	--	3	2
9-ES	Engineering /Applied Physics – Virtual Labs - Assignments	--	--	2	--
10	Engg. Workshop & IT Workshop	--	--	3	2
<b>Total Credits</b>					<b>24</b>

## II Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Metallurgy & Materials Science	4	--	--	3
2	Mechanics of Solids	4	--	--	3
3	Thermodynamics	4	--	--	3
4	Managerial Economics & Financial Analysis	4	--	--	3
5	Fluid Mechanics & Hydraulic Machines	4	--	--	3
6	Computer Aided Engineering Drawing Practice	3	3	--	3
7	Electrical & Electronics Engg. Lab	--	--	3	2
8	Mechanics of Solids & Metallurgy Lab	--	--	3	2
<b>Total Credits</b>					<b>22</b>

## II Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Kinematics of Machinery	4	--	--	3
2	Thermal Engineering -I	4	--	--	3
3	Production Technology	4	--	--	3
4	Design of Machine Members -I	4	--	--	3
5	Machine Drawing	3	3	--	3
6	Industrial Engineering and Management	4	--	--	3
7	Fluid Mechanics & Hydraulic Machines Lab	--	--	3	2
8	Production Technology Lab	--	--	3	2
<b>Total Credits</b>					<b>22</b>

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### III Year - I Semester

S. No.	Subjects	L	T	P	Credits
1	Dynamics of Machinery	4	--	--	3
2	Metal Cutting & Machine Tools	4	--	--	3
3	Design of Machine Members-II	4	--	--	3
4	Operations Research	4	--	--	3
5	Thermal Engineering -II	4	--	--	3
6	Theory of Machines Lab	--	--	3	2
7	Machine Tools Lab	--	--	3	2
8	Thermal Engineering Lab	--	--	3	2
9	IPR & Patents	--	2	--	--
<b>Total Credits</b>					<b>21</b>

### III YEAR - II Semester

S. No.	Subjects	L	T	P	Credits
1	Metrology	4	--	--	3
2	Instrumentation & Control Systems	4	--	--	3
3	Refrigeration & Air-conditioning	4	--	--	3
4	Heat Transfer	4	--	--	3
5	<b>OPEN ELECTIVE</b>	4	--	--	3
	1. Entrepreneurship				
	2. Data Base Management System				
	3. Waste Water Management				
	4. Computer Graphics				
	5. Industrial Robotics				
6. <b>Green Engineering Systems</b>					
6	Heat Transfer Lab	--	--	3	2
7	Metrology & Instrumentation Lab	--	--	3	2
8	Computational Fluid Dynamics Lab	--	--	3	2
9MC	Professional Ethics & Human Values	--	3	--	--
<b>Total Credits</b>					<b>21</b>


#### IV Year - I Semester

S. NO	Subjects	L	T	P	Credits
1	Mechatronics	4	--	--	3
2	CAD/CAM	4	--	--	3
3	Finite Element Methods	4	--	--	3
4	Power Plant Engineering	4	--	--	3
5	<b>Elective I</b> 1. Computational Fluid Dynamics 2. Condition Monitoring 3. Additive Manufacturing	4	--	--	3
6	<b>Elective II</b> 1. Advanced Materials 2. Design for Manufacture 3. Gas Dynamics & Jet Propulsion	4	--	--	3
7	CAD/CAM Lab	--	--	2	2
8	Mechatronics Lab	--	--	2	2
<b>Total Credits</b>					<b>22</b>

#### IV Year - II Semester

S. No.	Subjects	L	T	P	Credits
1	Production Planning and Control	4	--	--	3
T 2	Unconventional Machining Processes	4	--	--	3
3	Automobile Engineering	4	--	--	3
4	<b>Elective III</b> 1. Thermal Equipment Design 2. Non Destructive Evaluation 3. Quality and Reliability Engineering	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
<b>Total Credits</b>					<b>24</b>

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

  
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**KAKINADA – 533 003, Andhra Pradesh, India**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**COURSE STRUCTURE AND SYLLABUS**

**For**

**B. TECH MECHANICAL ENGINEERING**

*(Applicable for batches admitted from 2019-2020)*



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA**  
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**DEPARTMENT OF MECHANICAL ENGINEERING**

**I Year – I SEMESTER**

Sl. No	Course Code	Subjects	L	T	P	Credits
1	BS1101	Mathematics – I	3	0	0	3
2	BS1102	Mathematics – II	3	0	0	3
3	BS1108	Engineering Physics	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	BS1109	Engineering Physics Lab	0	0	3	1.5
8	ES1102	Programming for Problem Solving Using C Lab	0	0	3	1.5
9	MC1104	Constitution of India	2	0	0	0
<b>Total Credits</b>			<b>15</b>	<b>0</b>	<b>12</b>	<b>19</b>

**I Year – II SEMESTER**

Sl. No	Course Code	Subjects	L	T	P	Credits
1	HS1201	English	3	0	0	3
2	BS1210	Engineering Chemistry	3	0	0	3
3	ES1204	Engineering Mechanics	3	0	0	3
4	ES1206	Basic Electrical & Electronics Engineering	3	0	0	3
5	ES1207	Computer Aided Engineering Drawing	1	0	3	2.5
6	HS1203	Communication Skills Lab	0	0	2	1
7	BS1211	Engineering Chemistry Lab	0	0	2	1.5
8	ES1208	Basic Electrical & Electronics Engineering Lab	0	0	3	1.5
9	ES1219	Workshop Practice Lab	0	0	3	1.5
10	PR1201	Engineering Exploration Project	0	0	2	1
<b>Total Credits</b>			<b>13</b>	<b>0</b>	<b>15</b>	<b>21</b>

  
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**KAKINADA – 533 003, Andhra Pradesh, India**


**DEPARTMENT OF MECHANICAL ENGINEERING**

**II YEAR I SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Vector Calculus & Fourier Transforms	3	--	--	3
2	PCC-ME	Mechanics of Solids	3	--	--	3
3	PCC-ME	Material Science & Metallurgy	3	--	--	3
4	PCC-ME	Production Technology	3	--	--	3
5	PCC-ME	Thermodynamics	3	--	--	3
6	PCC-ME	Machine Drawing	1	--	3	2.5
7	PCC-Lab1	Metallurgy & Mechanics of Solids Lab	--	--	3	1.5
8	PCC-Lab2	Production Technology Lab	--	--	3	1.5
9	MC2101	Environmental Science	3	--	--	--
10	PROJ-2101	Socially Relevant Project				0.5
		<b>Total Credits</b>	<b>19</b>	<b>--</b>	<b>9</b>	<b>21</b>

**II YEAR II SEMESTER**

S.No	Course Code	Course Title	L	T	P	Credits
1	BSC	Complex Variables & Statistical Methods	3	--	--	3
2	PCC-ME	Kinematics of Machinery	3	--	--	3
3	PCC-ME	Applied Thermodynamics	3	--	--	3
4	PCC-ME	Fluid Mechanics & Hydraulic Machines	3	--	--	3
5	PCC-ME	Metal Cutting & Machine Tools	3	--	--	3
6	PCC-ME	Design of Machine Members-I	3	--	--	3
7	PCC-Lab5	Fluid Mechanics & Hydraulic Machines Lab	--	--	3	1.5
8	PCC-Lab6	Machine Tools Lab	--	--	3	1.5
9	MC2201	Essence of Indian Traditional Knowledge	2	--	--	--
		<b>Total Credits</b>	<b>20</b>	<b>--</b>	<b>6</b>	<b>21</b>

  
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**III YEAR I SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	PCC-ME	Dynamics of Machinery	3	--	--	3
2	PCC-ME	Design of Machine Members-II	3	--	--	3
3	PCC-ME	Mechanical Measurements & Metrology	3	--	--	3
4	HSIMS	Managerial Economics and Financial Accountancy	3	--	--	3
5	PCC-ME	IC Engines & Gas turbines	3	--	--	3
6	PCC-Lab	Thermal Engineering Lab	--	--	3	1.5
7	PCC-Lab	Theory of Machines Lab	--	--	3	1.5
8	PCC-Lab	Mechanical Measurements & Metrology Lab	--	--	3	1.5
9	PROJ-3101	Socially Relevant Project				0.5
		<b>Total Credits</b>	<b>15</b>	<b>--</b>	<b>9</b>	<b>20</b>

**III YEAR II SEMESTER**

S. No	Course Code	Course Title	L	T	P	Credits
1	PCC-ME	Operations Research	3	--	--	3
2	PCC-ME	Heat Transfer	3	--	--	3
3	PCC-ME	CAD/CAM	3	--	--	3
4	PEC-ME1	1.Composite Materials 2.Refrigeration & Air Conditioning 3. Unconventional Machining Processes 4. Advanced Mechanics of Solids 5.MOOCs(NPTEL/Swayam)	3	--	--	3
5	PEC-ME2	1. Material Characterization 2. Tribology 3. Automobile Engineering 4.Mechatronics 5.MOOCs(NPTEL/Swayam)	3	--	--	3
6	PCC-Lab	Simulation of Mechanical Systems Lab	--	--	2	1
7	PCC-Lab	Heat Transfer Lab	--	--	3	1.5
8	PCC-Lab	CAD /CAM Lab	--	--	3	1.5
9	PROJ- ME	Summer Internship*	--	--		1
		<b>Total Credits</b>	<b>15</b>	<b>--</b>	<b>9</b>	<b>20</b>

•The students have to undergo a summer internship for minimum of Four weeks duration from Industries/R&D/ Govt. Organizations after B.Tech III year II-Semester and credits will be awarded in B.Tech IV year I-Semester after evaluation.

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**DEPARTMENT OF MECHANICAL ENGINEERING**

**IV YEAR I SEMESTER**

S. No.	Course Code	Course Title	L	T	P	Credits
1	HSIMS	Industrial Management	3	--	--	3
2	PCC-ME	Finite Element Methods	3	--	--	3
3	PEC-3	1. Mechanical Vibrations 2. Renewable Energy Sources 3. Production Planning & Control 4. Machine Tool Design 5. MOOCs (NPTEL/Swayam)	3	--	--	3
4	PEC-4	1. Industrial Automation and Robotics 2. Micro and Nano manufacturing 3. Power Plant Engineering 4. Optimization Techniques 5. MOOCs (NPTEL/Swayam)	3	--	--	3
5	OEC-1	<b>OPEN ELECTIVE -I</b>	3	--	--	3
6	PCC-ME Lab	Finite Element Simulation Lab	--	--	2	1
7	PROJ-I	Project-I	--	--	4	2
		<b>Total Credits</b>	<b>15</b>	<b>--</b>	<b>6</b>	<b>18</b>

**OPEN ELECTIVE -I:**

1. MEMS
2. Optimization Methods
3. Operations Management
4. Nano Technology
5. Finite Element Analysis

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**DEPARTMENT OF MECHANICAL ENGINEERING**

**IV YEAR II SEMESTER (VIII SEMESTER)**

S. No.	Course Code	Course Title	L	T	P	Credits
1	PEC-5	1. Additive Manufacturing 2. Gas Dynamics and Jet Propulsion 3. Product design and development 4. Reliability Engineering 5. MOOCs (NPTEL/Swayam)	3	--	--	3
2	PEC-6	1. Condition Monitoring 2. Computational Fluid Dynamics 3. Non Destructive Evaluation 4. Control Systems 5. Entrepreneurship Development	3	--	--	3
3	OEC-2	OPEN ELECTIVE -II	3	--	--	3
4	OEC-3	OPEN ELECTIVE -III	3	--	--	3
5	PROJ-II	Project-II	--	--	16	8
<b>Total Credits</b>			<b>12</b>	<b>--</b>	<b>16</b>	<b>20</b>

**OPEN ELECTIVE-II:**

1. Green Energy Systems
2. Robotics
3. Energy Consumption and Management
4. 3D Printing Technologies
5. Mechatronics

**OPEN ELECTIVE-III:**

1. Total Quality Management
2. Supply Chain Management
3. Product Design & Development
4. Entrepreneurship
5. Advanced Materials

**Note:**

- 1) Professional Elective course (PEC) /Open Elective course (OEC) can also be completed via MOOCs (NPTEL/Swayam) Course (12 Week duration)
- 2) The list of MOOCs courses shall be approved by the chairperson of BOS.
- 3) The tutorial class can be of one hour duration as per requirements of a particular subject.

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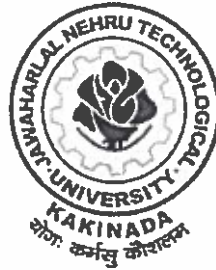
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## **COURSE STRUCTURE**

**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-I)	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
<b>Total Credits</b>						<b>19.5</b>

### 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
<b>Total Credits</b>						<b>19.5</b>

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**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
<b>Total Credits</b>						<b>21.5</b>

**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
<b>Total Credits</b>						<b>21.5</b>
<b>Honors/Minor courses</b>			<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>

\* 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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**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
			<b>Total credits</b>			<b>21.5</b>
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
<b>Total credits</b>						<b>21.5</b>
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			Credits
			L	T	P	
1	PE-3	1. Mechanical Vibrations 2. Operations Research 3. Unconventional Machining Processes 4. Computational Fluid Dynamics 5. Gas Dynamics and Jet Propulsion 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
2	PE-4	1. Automation in Manufacturing 2. Power Plant Engineering 3. Big Data Analytics 4. Production Planning and Control 5. Condition Monitoring 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
3	PE-5	1. Advanced Manufacturing Processes 2. Mechatronics 3. Refrigeration & Air-Conditioning 4. Additive Manufacturing 5. Non Destructive Evaluation 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
4	OE-3	1. Additive Manufacturing 2. Mechatronics 3. Finite Element Methods 4. Introduction to Artificial Intelligence & Machine Learning	3	0	0	3
5	OE-4	1. Optimization Techniques 2. Smart Manufacturing 3. Safety Engineering 4. Operations Management	3	0	0	3
6	HSC-3	Universal Human Values: Understanding Harmony	3	0	0	3
7	SOC-5	Mechatronics Lab	0	0	4	2
Evaluation of Summer Internship which is completed at the end of III B.Tech II Semester						3
<b>Total credits</b>						<b>23</b>
Honors/Minor courses			4	0	0	4

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**IV B.TECH II SEMESTER**

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

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

  
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**ACADEMIC REGULATIONS  
COURSE STRUCTURE  
AND  
DETAILED SYLLABUS**

**ELECTRONICS &  
COMMUNICATION  
ENGINEERING**

For

**B.Tech., FOUR YEAR DEGREE COURSE**

(Applicable for the batches admitted from 2013-14)



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

PRINCIPAL  
BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
BAKKANNAPALEM (V), P.M. PALEM,  
MADHURAWADA  
VISA KHAPATNAM - 530 048



## COURSE STRUCTURE

### I Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	English – I	3	--	3
2	Mathematics - I	3+1	--	3
3	Mathematics – II (Mathematical Methods)	3+1	--	3
4	Engineering Physics	3+1	--	3
5	Professional Ethics and Human Values	3+1	--	3
6	Engineering Drawing	1+3	--	3
7	English - Communication Skills Lab -1	--	3	2
8	Engineering Physics Laboratory	--	3	2
9	Engineering Physics – Virtual Labs - Assignments	--	2	--
10	Engineering Workshop & IT Workshop	--	3	2
<b>Total Credits</b>				<b>24</b>

### I Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	English – II	3	--	3
2	Mathematics – III	3+1	--	3
3	Engineering Chemistry	3+1	--	3
4	Engineering Mechanics	3+1	--	3
5	Computer Programming	3+1	--	3
6	Network Analysis	3+1	--	3
7	Engineering Chemistry Laboratory	--	3	2
8	English - Communication Skills Lab -2	--	3	2
9	Computer Programming Lab	--	3	2
<b>Total Credits</b>				<b>24</b>

**II Year – I SEMESTER**

S. No.	Subject	T	P	Credits
1	Managerial Economics and Financial Analysis	3+1	--	3
2	Electronic Devices and Circuits	3+1	--	3
3	Data Structures	3+1	--	3
4	Environmental Studies	3	--	3
5	Signals & Systems	3+1	--	3
6	Electrical Technology	3+1	--	3
7	Electronic Devices and Circuits Lab	--	3	2
8	Networks & Electrical Technology Lab	--	3	2
<b>Total Credits</b>				<b>22</b>

**II Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	Electronic Circuit Analysis	3+1	--	3
2	Management Science	3+1	--	3
3	Random Variables & Stochastic Processes	3+1	--	3
4	Switching Theory & Logic Design	3+1	--	3
5	EM Waves and Transmission Lines	3+1	--	3
6	Analog Communications	3+1	--	3
7	Electronic Circuit Analysis Lab	--	3	2
8	Analog Communications Lab	--	3	2
<b>Total Credits</b>				<b>22</b>

**III Year - I SEMESTER**

S. No.	Subject	T	P	Credits
1	Pulse & Digital Circuits	3+1	-	3
2	Linear IC Applications	3+1	-	3
3	Control Systems	3+1	-	3
4	Digital System Design & Digital IC Applications	3+1	-	3
5	Antennas and Wave Propagation	3+1	-	3
6	Pulse & Digital Circuits Lab		3	2
7	LIC Applications Lab	-	3	2
8	Digital System Design & DICA Lab		3	2
9	IPR& Patents	3		2
<b>Total Credits</b>				<b>23</b>

**III Year - II SEMESTER**

S. No.	Subject	T	P	Credits
1	Microprocessors and Microcontrollers	3+1	-	3
2	Digital Signal Processing	3+1	-	3
3	Digital Communications	3+1	-	3
4	Microwave Engineering	3+1	-	3
5	<b>Open Elective</b>	3+1	-	3
6	Microprocessors and Microcontrollers Lab	-	3	2
7	Digital Communications Lab	-	3	2
8	Digital Signal Processing Lab		3	2
9	Seminar		2	1
<b>Total Credits</b>				<b>22</b>

  
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**IV Year – I SEMESTER**

S. No.	Subject	T	P	Credits
1	VLSI Design	3+1	-	3
2	Computer Networks	3+1	-	3
3	Digital Image Processing	3+1	-	3
4	Computer Architecture & Organization	3+1	-	3
5	<b>Elective – I</b> 1. Electronic Switching Systems 2. Analog IC Design 3. Object Oriented Programming & O S 4. Radar Systems 5. Advanced Computer Architecture	3+1	-	3
6	<b>Elective – II</b> 1. Optical Communication 2. Digital IC Design 3. Speech Processing 4. Artificial Neural Network & Fuzzy Logic 5. Network Security & Cryptography	3+1	-	3
7	V L S I Lab	-	3	2
8	Microwave Engineering Lab	-	3	2
<b>Total Credits</b>				<b>22</b>

**IV Year – II SEMESTER**

S. No.	Subject	T	P	Credits
1	Cellular Mobile Communication	3+1		3
2	Electronic Measurements and Instrumentation	3+1		3
3	<b>Elective III</b> 1. Satellite Communication 2. Mixed signal Design 3. Embedded systems 4. RF Circuit Design 5. Cloud Computing	3+1		3
4	<b>Elective IV</b> 1. Wireless Sensors and Networks 2. System on Chip 3. Low Power IC Design 4. Bio-Medical Instrumentation 5. EMI/EMC	3+1		3
5	Project & Seminar			9
<b>Total Credits</b>				<b>21</b>

**Total course credits = 48 + 44 + 45 + 43 = 180**

**Open Electives:**

1. **Bio Medical Engineering**
2. Fuzzy & Neural Networks
3. Image Processing (not for ECE Students)
4. Principles of Signals, Systems and Communications (Not for ECE Students)
5. Electronic Instrumentation (Not for ECE Students)

  
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MADHURAWADA  
VISAKHAPATNAM - 530 043

# COURSE STRUCTURE AND SYLLABUS

For


## **ELECTRONICS AND COMMUNICATION ENGINEERING**

*(Applicable for batches admitted from 2016-2017)*



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


  
PRINCIPAL  
BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
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MADHURAWADA  
VISAKHAPATNAM - 530 048

## 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
<b>Total Credits</b>					<b>24</b>

## 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
<b>Total Credits</b>					<b>24</b>


  
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 VISAKHAPATNAM, TELANGANA  
 VISAKHAPATNAM, TELANGANA 501 303

## 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
<b>Total Credits</b>					<b>22</b>

## 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
<b>Total Credits</b>					<b>22</b>

  
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### 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	--	--
<b>Total Credits</b>					<b>21</b>

### 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	<b>OPEN ELECTIVE</b>	4	--	--	3
	1. OOPs through Java				
	2. Data Mining				
	3. Industrial Robotics				
	4. Power Electronics				
	5. Bio-Medical Engineering				
6. Artificial Neural Networks					
6	Micro Processors & Micro Controllers Lab	--	--	3	2
7	VLSI Lab	--	--	3	2
8	Digital Communications Lab	--	--	3	2
MC	IPR & Patents	--	2	--	--
<b>Total Credits</b>					<b>21</b>

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#### 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	<b>Elective I</b> 1. TV Engineering 2. Electronic Switching Systems 3. System Design through Verilog	4	--	--	3
6	<b>Elective II</b> 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
<b>Total Credits</b>					<b>22</b>

#### 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	<b>Elective III</b> 1. Wireless sensors & Networks 2. Digital IC Design 3. Operating Systems	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
<b>Total Credits</b>					<b>24</b>

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

  
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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**

**B. TECH ELECTRONICS AND COMMUNICATION ENGINEERING**

*(Applicable for batches admitted from 2019-2020)*



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**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA**

**KAKINADA - 533 003, Andhra Pradesh, India**

PRINCIPAL  
BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
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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
<b>Total Credits</b>			<b>16</b>	<b>0</b>	<b>12</b>	<b>19</b>

**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
			<b>15</b>	<b>0</b>	<b>12</b>	<b>21</b>

  
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 VISAKHAPATNAM DISTRICT  
 VISAKHAPATNAM - 531 127




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**KAKINADA – 533 003, Andhra Pradesh, India**  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

### II Year – I Semester

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 – II Semester

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

  
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**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						<b>21</b>

### 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						<b>21</b>

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**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

  
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**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





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**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**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

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MADHURAWADA  
VISAKHAPATNAM - 530 013



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**KAKINADA – 533 003, Andhra Pradesh, India**

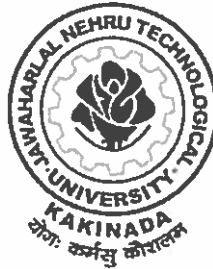
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

## **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**

PRINCIPAL  
BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
BAKKANNAPALEM (V), P.M. PALEM,  
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VISAKHAPATNAM - 530 048



**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
<b>Total Credits</b>						<b>19.5</b>

**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
<b>Total Credits</b>						<b>19.5</b>



**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
<b>Total Credits</b>						<b>21.5</b>

**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
<b>Total Credits</b>						<b>21.5</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>						<b>4</b>

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**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
		<b>Total credits</b>				<b>21.5</b>
		<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>				<b>4</b>

**PE1:**

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

**OE1:**

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

  
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**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
<b>Total credits</b>						<b>21.5</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>						<b>4</b>

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

**PE2:**

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

**OE2:**

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

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**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	<b>*Humanities and Social Science Elective</b>	3	0	0	3
7	SC	<b>Designer tools (HFSS, Microwave Studio CST. Cadence Virtuoso. Synopsys, Mentor Graphics, Xilinx.)</b>	1	0	2	2
<b>Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester</b>			0	0	0	3
<b>Total credits</b>						<b>23</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>						<b>4</b>

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

**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
<b>INTERNSHIP (6 MONTHS)</b>							
<b>Total credits</b>						<b>12</b>	

  
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# ACADEMIC REGULATIONS & COURSE STRUCTURE

For

**VLSI, VLSID, VLSISD**

*(Applicable for batches admitted from 2016-2017)*



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## I Semester

S. No.	Name of the Subject	L	P	C
1	Digital System Design	4	-	3
2	VLSI Technology and Design	4	-	3
3	CMOS Analog IC Design	4	-	3
4	CMOS Digital IC Design	4	-	3
5	<b>Elective I</b>	4	-	3
	1. Digital Design using HDL			
	2. Advanced Operating Systems			
	3. Soft Computing Techniques			
	4. Cyber Security			
6	<b>Elective II</b>	4	-	3
	1. CPLD and FPGA Architectures and Applications			
	2. Advanced Computer Architecture			
	3. Hardware Software Co-Design			
7	Front end VLSI Design Laboratory	-	3	2
<b>Total Credits</b>				<b>20</b>

## II Semester

S. No.	Name of the Subject	L	P	C
1	CMOS Mixed Signal Circuit Design	4	-	3
2	Embedded System Design	4	-	3
3	Low Power VLSI Design	4	-	3
4	Design For Testability	4	-	3
5	<b>Elective III</b>	4	-	3
	1. CAD for VLSI			
	2. DSP Processors & Architectures			
	3. VLSI Signal Processing			
6	<b>Elective IV</b>	4	-	3
	1. System on Chip Design			
	2. Optimization Techniques in VLSI Design			
	3. Semiconductor Memory Design and Testing			
7	1. Back end VLSI Design Laboratory	-	3	2
<b>Total Credits</b>				<b>20</b>

  
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### III Semester

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

### IV Semester

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

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

**COURSE STRUCTURE & SYLLABUS M.Tech ECE**  
**VLSI, VLSI Design, VLSI System Design,**  
**VLSI Micro-Electronic Programme**  
*(Applicable for batches admitted from 2019-2020)*



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I Semester								
S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PC	CMOS Analog IC Design			3	0	0	3
2	PC	CMOS Digital IC design			3	0	0	3
3	PE	1. VLSI Technology 2. Nanomaterials and Nanotechnology 3. MEMS Technology			3	0	0	3
4	PE	1. Device Modeling 2. Nano-electronics 3. Photonics			3	0	0	3
5		Research methodology and IPR			2	0	0	2
6	Lab 1	CMOS Analog IC Design Lab			0	0	4	2
7	Lab 2	CMOS Digital IC Design 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	Mixed Signal & RF IC Design			3	0	0	3
2	PC	Physical Design Automation			3	0	0	3
3	PE	1. Design For Testability 2. IOT & its Applications 3. VLSI Signal Processing			3	0	0	3
4	PE	1. Network Security & Cryptography 2. Microcontrollers & programmable Digital Signal Processors 3. Low Power VLSI Design			3	0	0	3
5	Lab 1	Mixed Signal IC Design Lab			0	0	4	2
6	Lab 2	Physical Design Automation 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.

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III Semester*								
S.No	Course No	Course Name	P.Os	Category	L	T	P	Credits
1	PE	1. Scripting Languages for VLSI 2. Digital System Design & Verification 3. Hardware Software co-design			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**

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills

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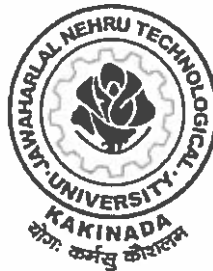
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

## 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
<b>Total Credits</b>			<b>19.5</b>			

**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
<b>Total Credits</b>			<b>19.5</b>			



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**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
<b>Total Credits</b>			<b>21.5</b>			

**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
<b>Total Credits</b>			<b>21.5</b>			

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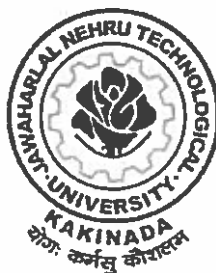
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

## **COURSE STRUCTURE AND SYLLABUS**

**For**


**B. Tech **COMPUTER SCIENCE & ENGINEERING****

*(Applicable for batches admitted from **2019-2020**)*



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**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
<b>Total Credits</b>			<b>16</b>	<b>0</b>	<b>12</b>	<b>19</b>

**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
<b>Total Credits</b>			<b>18</b>	<b>1</b>	<b>10</b>	<b>21</b>

  
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**II Year – I SEMESTER**

S.No	Course Code	Courses	L	T	P	Credits
1	CS2101	Mathematical Foundations of Computer Science	3	1	0	4
2	CS2102	Software Engineering	3	0	0	3
3	ES2101	Python Programming	3	0	0	3
4	CS2103	Data Structures	3	0	0	3
5	CS2104	Object Oriented Programming through C++	3	0	0	3
6	CS2105	Computer Organization	3	0	0	3
7	ES2102	Python Programming Lab	0	0	3	1.5
8	CS2106	Data Structures through C++ Lab	0	0	3	1.5
9	MC2101	Essence of Indian Traditional Knowledge	2	0	0	0
10	MC2102	Employability Skills- I*	2	0	0	0
<b>Total</b>			<b>23</b>	<b>1</b>	<b>6</b>	<b>22</b>
*Internal Evaluation through Seminar / Test for 50 marks						

**II Year – II SEMESTER**

S.No	Course Code	Courses	L	T	P	Credits
1	BS2201	Probability and Statistics	3	0	0	3
2	CS2201	Java Programming	2	1	0	3
3	CS2202	Operating Systems	3	0	0	3
4	CS2203	Database Management Systems	3	1	0	4
5	CS2204	Formal Languages and Automata Theory	3	0	0	3
6	CS2205	Java Programming Lab	0	0	3	1.5
7	CS2206	UNIX Operating System Lab	0	0	2	1
8	CS2207	Database Management Systems Lab	0	0	3	1.5
9	MC2201	Professional Ethics & Human Values	3	0	0	0
10	PR2201	Socially Relevant Project*	0	0	2	1
<b>Total</b>			<b>17</b>	<b>2</b>	<b>10</b>	<b>21</b>
*Internal Evaluation through Seminar for 50 marks						

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**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	<b>Professional Elective- I</b> 1. Computer Graphics 2. Principles of Programming Languages 3. <b>Advanced Data Structures</b> 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	<b>Professional Elective -II</b> (NPTEL/SWAYAM) Duration: 12 Weeks Minimum *Course/subject title can't be repeated	3	0	0	3
5	OE3201	<b>Open Elective- I (Inter Disciplinary)</b>	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

  
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**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	<b>Open Elective -II (Inter Disciplinary)</b>	3	0	0	3
5	PE4101	<b>Professional Elective- III</b> 1. Mobile Computing 2. Data Science 3. NoSQL Databases 4. Internet of Things 5. <b>Software Project Management</b>	3	0	0	3
6	PE4102	<b>Professional Elective- IV</b> 1. Web Services 2. <b>Cloud Computing</b> 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
<b>Total</b>			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	<b>Open Elective- III (Inter Disciplinary)</b>	3	0	0	3
3	PE4201	<b>Professional Elective-V</b> 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
<b>Total</b>			9	0	0	16

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 MACHILIPATNAM  
 VISAKHAPATNAM - 533 018




**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:**

<p><b>Open Elective I:</b></p> <ol style="list-style-type: none"> <li>1. Data Structures</li> <li>2. Java Programming</li> <li>3. Data Base Management Systems</li> <li>4. C++ Programming</li> <li>5. Operating Systems</li> <li>6. Internet of Things</li> </ol>	<p><b>Open Elective II:</b></p> <ol style="list-style-type: none"> <li>1. Problem Solving using Python</li> <li>2. Web Technologies</li> <li>3. Machine Learning</li> <li>4. Distributed Computing</li> <li>5. AI Tools &amp; Techniques</li> <li>6. Data Science</li> </ol>
<p><b>Open Elective III:</b></p> <ol style="list-style-type: none"> <li>1. Big Data</li> <li>2. Image Processing</li> <li>3. Mobile Application Development</li> <li>4. Cyber Security</li> <li>5. Deep Learning</li> <li>6. Blockchain Technologies</li> </ol>	

  
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 VISAKHAPATNAM - 533048

# 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

  
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GABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
BAKKANNAPALEM (V), P.M. PALEM,  
KAKINADA

### 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
<b>Total Credits</b>					<b>24</b>

### 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
<b>Total Credits</b>					<b>24</b>

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 VISAKHAPATNAM - 530 048




## 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
<b>Total Credits</b>					<b>22</b>

## 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
<b>Total Credits</b>					<b>22</b>


  
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MADHURAWADA  
VICARBAIDY, TN - 625 003

### 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	--	--
<b>Total Credits</b>					<b>21</b>

### 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	<b>Open Elective:</b> 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	--	--
<b>Total Credits</b>					<b>21</b>

  
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 MACHURAWADA  
 VISAKHAPATNAM - 522 003

### 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	<b>Elective-I</b> i. Big Data Analytics ii. Information Retrieval Systems iii. Mobile Computing	4	--	--	3
6	<b>Elective-II</b> 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
<b>Total Credits</b>					<b>22</b>

### 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	<b>Elective-III</b> i. Concurrent and Parallel Programming ii. Artificial Neural Networks iii. Operations Research	4	--	--	3
5	Seminar	--	3	--	2
6	Project	--	--	--	10
<b>Total Credits</b>					<b>24</b>

Total Course Credits = 18 + 41 Sciences + 42 + 46 = 180

BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
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VISHAKHAPATNAM - 530 048

# ACADEMIC REGULATIONS COURSE STRUCTURE AND DETAILED SYLLABUS

**COMPUTER  
SCIENCE AND  
ENGINEERING**

For

COMPUTER SCIENCE AND ENGINEERING FOUR DEGREE COURSE

*(Applicable for batches admitted from 2013-2014)*

  
DABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
BAKKANNAGALEN (V), D.M. PALEM.



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA**

**KAKINADA - 533 003, Andhra Pradesh, India**

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MADHURAWADA  
VISAKHAPATNAM - 530 048

## COURSE STRUCTURE

### I Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	English – I	3+1	--	3
2	Mathematics - I	3+1	--	3
3	Engineering Chemistry	3+1	--	3
4	Engineering Mechanics	3+1	--	3
5	Computer Programming	3+1	--	3
6	Environmental Studies	3+1	--	3
7	Engineering Chemistry Laboratory	--	3	2
8	English - Communication Skills Lab - I	--	3	2
9	C Programming Lab	--	3	2
<b>Total Credits</b>				<b>24</b>

### I Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	English – II	3+1	--	3
2	Mathematics – II (Mathematical Methods)	3+1	--	3
3	Mathematics – III	3+1	--	3
4	Engineering Physics	3+1	--	3
5	Professional Ethics and Human Values	3+1	--	3
6	Engineering Drawing	3+1	--	3
7	English - Communication Skills Lab - II	--	3	2
8	Engineering Physics Lab	--	3	2
9	Engineering Physics – Virtual Labs - Assignments	--	2	--
10	Engg. Workshop & IT Workshop	--	3	2
<b>Total Credits</b>				<b>24</b>

### II Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Managerial Economics and Financial Analysis	4	--	3
2	Object Oriented Programming through C++	4	--	3
3	Mathematical Foundations of Computer Science	4	--	3
4	Digital Logic Design	4	--	3
5	Data Structures	4	--	3
6	Object Oriented Programming Lab	--	3	2
7	Data Structures Lab	--	3	2
8	Digital Logic Design Lab	--	3	2
9	Seminar	--	--	1
<b>Total Credits</b>				<b>22</b>

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MACHURAWADA  
V: SANGHARITHAN - 530 048

## II Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	Probability and statistics	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	Advanced Data Structures Lab	--	3	2
7	Java Programming Lab	--	3	2
8	Free Open Source Software(FOSS) Lab	--	3	2
<b>Total Credits</b>				<b>21</b>

## III Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Compiler Design	4	-	3
2	Data Communication	4	-	3
3	Principles of Programming Languages	4	-	3
4	Database Management Systems	4	-	3
5	Operating Systems	4	-	3
6	Compiler Design Lab	-	3	2
7	Operating System Lab	-	3	2
8	Database Management Systems Lab		3	2
9	Linux Programming Lab	-	3	2
10	IPR and Patents- I	2	-	-
11	Seminar	--	--	1
<b>Total Credits</b>				<b>24</b>

## III Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	Computer Networks	4	-	3
2	Data Ware housing and Mining	4	-	3
3	Design and Analysis of Algorithms	4	-	3
4	Software Engineering	4	-	3
5	Web Technologies	4	-	3
6	Computer Networks Lab	-	3	2
7	Software Engineering Lab	-	3	2
8	Web Technologies Lab	-	3	2
9	IPR and Patents- II	2	--	--
<b>Total Credits</b>				<b>21</b>

## IV Year – I SEMESTER

S. No.	Subject	T	P	Credits
1	Cryptography and Network Security	4	-	3
2	UML & Design Patterns	4	-	3
3	Mobile Computing	4	-	3
4	<b>Elective –I</b>	4	-	3
5	<b>Elective –II</b>	4	-	3
	UML & Design Patterns Lab	-	3	2
	Mobile Application Development Lab	-	3	2

8	Software Testing Lab	-	3	2
9	Hadoop & BigData Lab	-	3	2
<b>Total Credits</b>				<b>23</b>

#### IV Year – II SEMESTER

S. No.	Subject	T	P	Credits
1	<b>Elective – III</b>	4	-	3
2	<b>Elective – IV</b>	4	-	3
3	Distributed Systems	4	-	3
4	Management Science	4	-	3
5	Project	-	-	9
<b>Total Credits</b>				<b>21</b>

#### Elective – I:

- i) Software Testing Methodologies
- ii) Simulation Modeling
- iii) Information Retrieval Systems
- iv) Artificial Intelligence
- v) Multimedia Computing
- vi) High Performance Computing

#### Elective – II:

- i. Digital Forensics
- ii. Hadoop and Big Data
- iii. Software Project Management
- iv. Machine Learning
- v. Advanced Databases

#### Elective – III:

- i) Human Computer Interaction
- ii) Advanced Operating Systems
- iii) Mobile Adhoc & Sensor Networks
- iv) Pattern Recognition
- v) Digital Image Processing
- vi) Micro processors and Multi Core Systems

#### Elective-IV:

- i) Embedded and Real Time Systems
- ii) Neural Networks & Soft Computing
- iii) Social Networks and the Semantic Web
- iv) Cloud Computing

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 JADUPETA, DA  
 VISAKHAPATNAM - 520 013



# ACADEMIC REGULATIONS & COURSE STRUCTURE

For

**MBA (Regular)**

*(Applicable for batches admitted from 2016-2017)*



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

  
PRINCIPAL  
BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
BAKKAMPALLE, GUNTUR DISTRICT, AP  
VIZAGAPATNAM - 531 003

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, KAKINADA: KAKINADA**  
**School of Management Studies**  
**Course Structure MBA (Regular) 2016-2017**  
(Effective for the students admitted into first year from the academic year 2016-2017)

**Semester - I**

Subject	Title	Marks	Credits
C-101	Principles of Management	100	3
C-102	Managerial Economics	100	3
C-103	Accounting for Managers	100	3
C-104	Managerial Communication & Soft skills	100	3
C-105	Business Environment	100	3
C-106	Quantitative Analysis for Business Decision	100	3
C-107	IT – LAB	100	3

**Semester - II**

Subject	Title	Marks	Credits
C-201	Financial Management	100	3
C-202	Human Resource Management	100	3
C-203	Marketing Management	100	3
C-204	Production and Operations Management	100	3
C-205	Business Research Methods	100	3
C-206	Organizational Behavior	100	3
C-207	Mini Project *	50	2
	Seminar on Mini Project	50	2


**Semester - III**

Subject	Title	Marks	Credits
C-301	Strategic Management	100	3
C -302	Legal Aspects of Business	100	3
C -303	Business Ethics & Corporate Governance	100	3
E -301	Elective – 1	100	3
E-302	Elective – 2	100	3
E-303	Elective – 3	100	3
E-304	Elective – 4	100	3

**Semester - IV**

Subject	Title	Marks	Credits
C -401	Logistic and Supply Chain Management	100	3
C -402	Entrepreneurship Development	100	3
E-401	Elective – 5	100	3
E-402	Elective – 6	100	3
E-403	Elective – 7	100	3
E-404	Elective – 8	100	3
	Major Project & Comprehensive Viva	Grade	8
<b>Total Marks / Credits</b>		<b>2700</b>	<b>90</b>

**Elective:** The student has to choose any **ONE** Specialization from the following areas in the beginning of III Semester

  
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**MADHURAY, JA**  
**VISAKHAPATNAM - 530 048**

III

SEMESTER

HR

S. no	SUBJECT TITLE
1	Leadership Management
2	Compensation and Reward Management
3	Performance Management
4	Strategic Human Resource Management

FINANCE

S. no	SUBJECT TITLE
1	Security Analysis & Portfolio Management
2	Banking and Insurance Management
3	Advance Management Accounting
4	Strategic Financial Management

MARKETING

S. no	SUBJECT TITLE
1	Consumer Behavior
2	Retail Management
3	Customer Relationship Management
4	Strategic Marketing Management

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## IV SEMESTER

### HR

	SUBJECT TITLE
Elective-5	Organizational Development & Change Management
Elective-6	Global HRM
Elective-7	Labor Welfare & Legislation
Elective-8	Management of Industrial Relations

### FINANCE


	SUBJECT TITLE
Elective-5	Financial Markets and Services
Elective-6	Global Financial Management
Elective-7	Risk Management
Elective-8	Tax Management

### MARKETING

	SUBJECT TITLE
Elective-5	Services Marketing
Elective-6	Promotional Distribution Management
Elective-7	Global Marketing Management
Elective-8	Supply Chain Management

#### \*Mini Project Report

The student should undergo survey based fieldwork under the guidance of Internal Faculty and submit the report before the completion of II Semester End Examinations.

  
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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

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BABA INSTITUTE OF TECHNOLOGY AND SCIENCES  
BAKKANNAPALEM (V), P.M. PALEM,  
KAKINADA - 533003

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	2	0	2	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	Information Technology – Lab1(Spreadsheet and Tally)	50	0	0	2	2
<b>Total</b>			<b>750</b>	<b>28</b>	<b>0</b>	<b>2</b>	<b>30</b>

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
<b>Total</b>			<b>650</b>	<b>24</b>	<b>0</b>	<b>2</b>	<b>26</b>

  
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 MADHURAWADA  
 VISAKHAPATNAM - 530 043

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	150	4	0	0	4
<b>Total</b>			<b>750</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>24</b>

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
<b>Total Marks / Credits</b>			<b>650</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>22</b>
			<b>2800</b>				<b>102</b>

\*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.


  
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**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

  
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VISAKHAPATNAM - 530 048



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


  
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**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

  
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