



**Bapatla Engineering College: Bapatla -522102**

**(Autonomous)**

**Approved by AICTE :: Affiliated to ACHARYA NAGARJUNA UNIVERSITY**

---

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

**1.1.3 Average percentage of courses having focus on employability/ entrepreneurship/ skill development offered by the institution during the last five years.**

S.No	Programs in which Choice Based Credit System (CBCS)/elective course system has been implemented
1.	<b>B.Tech R-20, R-18, and R-14 Schemes</b>
2.	<b>M.Tech R-15 Scheme</b>
3.	<b>MCA R-20, R-19, and R-16 Schemes</b>
4.	<b>M.Sc (Computer Science) R-19, and R-16 Schemes</b>
5.	<b>M.Sc (Maths, Organic Chemistry, Analytical Chemistry, Physics, and Electronics) R-15, R-21 Schemes</b>
6.	<b>Diploma C-20, C-16, and C-14 Schemes</b>



## **BAPATLA ENGINEERING COLLEGE:: BAPATLA** **(Autonomous)**

**BAPATLA**



**B.Tech**

**Civil Engineering**

**Curriculum Effective from A.Y. 2020-21 (R20 Regulations)**



**Bapatla Engineering College:: Bapatla**

**(Autonomous under Acharya Nagarjuna University)**

***(Sponsored by Bapatla Education Society)***

**BAPATLA-522102, Guntur District, A.P.**

**[www.becbapatla.ac.in](http://www.becbapatla.ac.in)**

**Department of**  
**Civil Engineering**



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

## (Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Civil Engineering*  
Effective From the Academic Year 2020-2021  
First Year B.Tech(SEMESTER – I)

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	Total	CIE	SEE		
20CE101/MA01	BS	Linear Algebra and ODE	3	0	0	3	30	70	100	3
20CE102/PH02	BS	Advanced Optics and Material Testing	3	0	0	3	30	70	100	3
20CE103	ES	Introduction to civil Engineering	3	0	0	3	30	70	100	3
20CE104/HS01	HS	Communicative English	3	0	0	3	30	70	100	3
20CE105	ES	Electrical Technology& Mechanical Technology	3	0	0	3	30	70	100	3
20CEL101/CSL01	ES	Computer Programming Lab	1	0	4	5	30	70	100	3
20CEL102/PHL01	BS	Physics Lab	0	0	3	3	30	70	100	1.5
20CEL103/HSL01	HS	Communication Lab	0	0	3	3	30	70	100	1.5
		Induction Program								
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>10</b>	<b>26</b>	<b>240</b>	<b>560</b>	<b>800</b>	<b>21</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For  
**Civil Engineering**  
Effective From the Academic Year 2020-2021  
First Year B.Tech (SEMESTER – II)

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CE201/MA02	BS	Numerical Methods and Advanced Calculus	3	0	0	3	30	70	100	3
20CE202/CY01	BS	Engineering Chemistry	3	0	0	3	30	70	100	3
20CE203	ES	Engineering Mechanics	3	0	0	3	30	70	100	3
20CE204	PC	Building Materials, Planning and Construction	3	0	0	3	30	70	100	3
20CEL201/MEL01	ES	Engineering Graphics	1	0	4	5	30	70	100	3
20CEL202/CYL01	BS	Chemistry Lab	0	0	3	3	30	70	100	1.5
20CEL203/MEL02	ES	Work Shop	0	0	3	3	30	70	100	1.5
20CE01/MC01	MC	Environmental Studies	3	0	0	3	30	-	30	0
NCC/NSS										
<b>TOTAL</b>			<b>16</b>	<b>0</b>	10	<b>26</b>	<b>240</b>	<b>490</b>	<b>730</b>	<b>18</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

## (Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Civil Engineering*  
Effective From the Academic Year 2020-2021  
Second Year B.Tech (SEMESTER – III)

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CE301/MA03	BS	Probability and Statistics	3	0	0	3	30	70	100	3
20CE302	PC	Surveying	3	0	0	3	30	70	100	3
20CE303	PC	Solid Mechanics	3	0	0	3	30	70	100	3
20CE304	PC	Concrete Technology	3	0	0	3	30	70	100	3
20CE305	PC	Fluid Mechanics	3	0	0	3	30	70	100	3
20CE306/SOL01	SOC	MATLAB Programming for Civil Engineers	1	0	2	3	30	70	100	2
20CEL301	PCL	Building Drawing Lab	0	0	3	3	30	70	100	1.5
20CEL302	ESL	Engineering Geology Lab	0	0	3	3	30	70	100	1.5
20CEL303	PCL	Surveying Lab	0	0	3	3	30	70	100	1.5
20CE307/MC02	MC	Professional Ethics	2	0	0	2	30		30	0
<b>TOTAL</b>			<b>18</b>	0	<b>11</b>	<b>29</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>21.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course PC: Professional Core courses SOC : Skill Oriented course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

## (Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Civil Engineering*  
Effective From the Academic Year 2020-2021  
Second Year B.Tech (SEMESTER – IV)

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CE401/HS02	HS	Technical English	3	0	0	3	30	70	100	3
20CE402	PC	Environmental Engineering	3	0	0	3	30	70	100	3
20CE403	PC	Mechanics of Materials	3	0	0	3	30	70	100	3
20CE404	PC	Hydraulics & Hydraulic Machines	3	0	0	3	30	70	100	3
20CE405	PC	Soil Mechanics	3	0	0	3	30	70	100	3
20CE406/SOL02	SOC	Soft skills Lab	1	0	2	3	30	70	100	2.0
20CEL401	PCL	Environmental Engineering Lab	0	0	3	3	30	70	100	1.5
20CEL402	PCL	H & HM Lab	0	0	3	3	30	70	100	1.5
20CEL403	PCL	Materials Testing Laboratory	0	0	3	3	30	70	100	1.5
<b>TOTAL</b>			<b>16</b>	<b>0</b>	11	<b>27</b>	<b>270</b>	<b>630</b>	<b>900</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>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course PC: Professional Core courses SOC : Skill Oriented course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For  
*Civil Engineering*  
Effective From the Academic Year 2020-2021  
Third Year B.Tech(SEMESTER – V)

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CE501	PC	Structural Analysis	3	0	0	3	30	70	100	3
20CE502	PC	Foundation Engineering	3	0	0	3	30	70	100	3
20CE503	PC	Design of Concrete structures	3	0	0	3	30	70	100	3
20CE504/PEC01	PEC	PE-I	3	0	0	3	30	70	100	3
20CE505/JOE01	JOE	JOE-I	2	0	2	4	30	70	100	3
20CE506/SOL03	SOC (Advanced)	BIM	1	0	2	3	30	70	100	2
20CEL501	PCL	Geo technical Engineering Laboratory	0	0	3	3	30	70	100	1.5
20CEL502	ESL	Python Programming Laboratory	0	0	3	3	30	70	100	1.5
20CE507/MC03	MC	Indian Constitution	2	0	0	2	30	-	30	0
<b>Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester)</b>										1.5
<b>TOTAL</b>			<b>17</b>	<b>0</b>	10	<b>27</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
<b>Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)</b>										4

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

**Civil Engineering**

**Effective From the Academic Year 2020-2021**

**Third Year B.Tech (SEMESTER – VI)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CE601	PC	Design of steel structures	3	0	0	3	30	70	100	3
20CE602	PC	Water Resource Engineering	3	0	0	3	30	70	100	3
20CE603	PC	Highway Engineering	3	0	0	3	30	70	100	3
20CE604/PEC02	PEC	PE-II	3	0	0	3	30	70	100	3
20CE605/JOE02	JOE	JOE-II	2	0	2	4	30	70	100	3
20CE606/SOC04	SOC (Advanced)	Geographical Information System	1	0	2	3	30	70	100	2
20CEL601	PCL	Advanced Surveying Laboratory	0	0	3	3	30	70	100	1.5
20CEL602	PCL	Structural Analysis Design and Detailing Laboratory	0	0	3	3	30	70	100	1.5
20CEL603	PCL	Transportation Engineering Laboratory	0	0	3	3	30	70	100	1.5
20CE607/MC04	MC	Essence of Indian Traditional Knowledge	2	0	0	2	30	-	30	
<b>TOTAL</b>			<b>17</b>	<b>0</b>	13	<b>30</b>	<b>300</b>	<b>630</b>	<b>930</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>
<b>Industrial/Research Internship (Mandatory) 2 Months during summer vacation</b>										

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

## (Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Civil Engineering*  
Effective From the Academic Year 2020-2021  
Final Year B.Tech (SEMESTER – VII)

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CE701	PC	Construction Management	3	0	0	3	30	70	100	3
20CE702/PEC03	PE	PE-III	3	0	0	3	30	70	100	3
20CE703/PEC04	PE	PE-IV	3	0	0	3	30	70	100	3
20CE704/PEC05	PE	PE-V	3	0	0	3	30	70	100	3
20CE705/JOE03	JOE	JOE-III	2	0	2	4	30	70	100	3
20CE706/OEC01	OEC	Open Elective	2	0	2	4	30	70	100	3
20CE707/SOC05	SOC (Advanced)	Quantity Estimation & Project Management Laboratory	1	0	2	3	30	70	100	2
Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)										3
<b>TOTAL</b>			<b>17</b>	<b>0</b>	<b>6</b>	<b>23</b>	<b>210</b>	<b>490</b>	<b>700</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>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For  
**Civil Engineering**  
Effective From the Academic Year 2020-2021  
Final Year B.Tech (SEMESTER – VIII)

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CE801	PC	Project Project work, seminar and internship in industry	0	0	0	0	30	70	100	12
<b>INTERNSHIP (6 MONTHS)</b>										
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>12</b>
Honors/Minor Courses (MOOCs - I)										4
Honors/Minor Courses (MOOCs - II)										4

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



## **BAPATLA ENGINEERING COLLEGE:: BAPATLA** **(Autonomous)**

### **Semester –V**

#### **Job Oriented Elective – I**

20CE505/JOE01A	Remote sensing & Drone Technology
20CE505/JOE01B	Plumbing and Fire Services
20CE505/JOE01C	Rural Water supply distribution systems

### **Semester –VI**

#### **Job Oriented Elective – II**

20CE605/JOE02A	Estimation and quantity surveying
20CE605/JOE02B	Health Audit of structures and Retrofitting of structures
20CE605/JOE02C	Offshore Renewable Energy

### **Semester –VII**

#### **Job Oriented Elective – III**

20CE705/JOE03A	Bridge Engineering
20CE705/JOE03B	Green Buildings and Sustainability
20CE705/JOE03C	Quality Control and Quality Assurance

20CE706/OEC01\* - Open Elective

\*The students of CE will choose an Inter department Elective offered by other Departments



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

## (Autonomous)

### Professional Elective-I :

20CE504/PEC01A	Advanced Environmental Engineering
20CE504/PEC01B	Low cost Housing Techniques
20CE504/PEC01C	Town planning and Architecture
20CE504/PEC01D	Sustainable Engineering & Technology

### Professional Elective-II:

20CE604/PEC02A	Advanced structural Analysis
20CE604/PEC02B	Environmental Geotechnics
20CE604/PEC02C	Pre stressed concrete
20CE604/PEC02D	Air and Noise Pollution & Control

### Professional Elective-III:

20CE702/PEC03A	Advanced Design of Concrete structures
20CE702/PEC03B	Instrumentation and Sensor technology in Civil Engineering
20CE702/PEC03C	Watershed Management
20CE702/PEC03D	Ground Improvement Techniques

### Professional Elective-IV

20CE703/PEC04A	Railway and Air Port Engineering
20CE703/PEC04B	Earthquake Resistant Design of Structures
20CE703/PEC04C	Geosynthetics
20CE703/PEC04D	Ground Water Development and Management

### Professional Elective-V :

20CE704/PEC05A	Irrigation structures
20CE704/PEC05B	Pavement Analysis and Design
20CE704/PEC05C	Disaster preparedness and planning management
20CE704/PEC05D	Solid and Hazardous waste Management



# **BAPATLA ENGINEERING COLLEGE:: BAPATLA**

## **(Autonomous)**

### **LIST OF COURSES FOR MINOR**

- 1. The student can opt any 4 subjects from each pool.**
- 2. Concerned BOS can add or delete the subjects as per the decision of the board.**
- 3. Pre requisites to be defined by the board for each course.**
- 4. Compulsory MOOC/NPTEL Courses for 04 credits (02 courses@ 2 credits each)**

#### **General Minor Tracks**

S.No	Course Title	L	T	P	C
<b>1</b>	Construction Materials and Planning	<b>3</b>	<b>1</b>		<b>4</b>
<b>2</b>	Fluid Mechanics	3		2	4
<b>3</b>	Surveying	3		2	4
<b>4</b>	Solid Mechanics	3		2	4
<b>5</b>	Water Resource Engineering	3		2	4
<b>6</b>	Environmental Engineering	3		2	4
<b>7</b>	Basic Design of Concrete and Steel structures	3	1		4
<b>8</b>	Geotechnical Engineering	3		2	4
<b>9</b>	Estimation & Quantity Surveying	3	1		4
<b>10</b>	Transportation Engineering	3		2	4



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

## (Autonomous)

### LIST OF COURSES FOR HONORS

1. The subjects opted for Honors should be Advanced type which are not covered in regular curriculum
2. Students has to acquire 16 credits with minimum one subject from each pool.
3. Concerned BOS can add or delete the subjects as per the decision of the board.
4. Pre requisites to be defined by the board for each course.
5. Compulsory MOOC/NPTEL Courses for 04 credits (02 courses@ 2 credits each)

S.No	Course Title	L	T	P	C
<b>POOL-I</b>					
1	Advanced Surveying	3	1	-	4
2	Advanced Concrete Technology	3		2	4
3	Advanced Fluid Mechanics	3		2	4
4	Engineering Rock Mechanics	3	1		4
<b>POOL-II</b>					
1	Repair and Rehabilitation of Structures	3	1	-	4
2	Water power Engineering	3	1		4
3	Industrial Waste water Treatment	3		2	4
4	Geospatial Data Processing	3		2	4
<b>POOL-III</b>					
1	Prefabricated Structures	3	1	-	4
2	Environmental Impact Assessment and Management	3	1		4
3	Advanced Foundation Engineering	3	1		4
4	Urban Transportation planning	3	1		4
<b>POOL-IV</b>					
1	Design and Detailing of Irrigation Structures	3	1	-	4
2	Advanced Design of Steel structures	3		2	4
3	Soil Dynamics and Machine Foundation	3		2	4
4	Intelligent Transportation Systems	3	1		4



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**



**Scheme  
(w.e.f. 2020-2021)**

**4 Year B.Tech Program  
of  
Computer Science and Engineering**



**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(AUTONOMOUS UNDER ACHARYA NAGARJUNA UNIVERSITY)**  
**(SPONSORED BY BAPATLA EDUCATION SOCIETY)**  
**BAPATLA - 522102 GUNTUR DISTRICT, A.P.**  
**[www.becbapatla.ac.in](http://www.becbapatla.ac.in)**



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Course Structure Summary**

S.No	Category	Credits	% of Credits
1	Humanities & Social Science including Management Courses	10.5	6.5
2	Basic Science Courses	18	11.5
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	22.5	14.0
4	Professional Core Courses	48	23.5
5	Professional Elective Courses	12	7.5
6	Job Oriented/Open Elective Courses	16.5	10.5
7	Project work, seminar, and internship in industry or elsewhere	16.5	16.5
8	Skill Oriented Courses	16	10.0
9	Mandatory Courses [Environmental Science, PEHV, Indian Constitution, Essence of Indian Traditional Knowledge etc]	-	-
<b>Total</b>		<b>160</b>	<b>100</b>

**Semester Wise Credits Summary**

Semester	Credits	With Honor Credits
Semester-I	16.5	16.5
Semester-II	22.5	22.5
Semester-III	21.5	21.5
Semester-IV	21.5	25.5
Semester-V	21.5	25.5
Semester-VI	21.5	25.5
Semester-VII	23	27
Semester-VIII	12	16
<b>Total</b>	<b>160</b>	<b>180</b>



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Computer Science & Engineering*

First Year B.Tech (SEMESTER – I) structure as per APSCHE

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CS101/MA01	BS	Linear algebra and differential equations	2	1	0	3	30	70	100	3
20CS102/CY01	BS	Engineering Chemistry	3	0	0	3	30	70	100	3
20CS103/EL01	HS	Communicative English	3	0	0	3	30	70	100	3
20CSL101/MEL01	ES	Engineering Graphics	1	0	4	5	30	70	100	3
20CSL102/CYL01	BS	Chemistry Lab	0	0	3	3	30	70	100	1.5
20CSL103/ELL01	HS	English Communication skills Lab	0	0	3	3	30	70	100	1.5
20CSL104/MEL02	ES	Workshop Practice Lab	0	0	3	3	30	70	100	1.5
20CS104/MC01	MC	Environmental Studies	2	0	0	2	30	0	30	0
INDUCTION PROGRAM	First Three Weeks (Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Familiarization to Dept./Branch & Innovations)									
<b>TOTAL</b>			<b>11</b>	<b>1</b>	<b>13</b>	<b>25</b>	<b>240</b>	<b>490</b>	<b>730</b>	<b>16.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Computer Science & Engineering*

First Year B.Tech (SEMESTER – II)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CS201/MA02	BS	Numerical methods& Advanced Calculus	2	1	0	3	30	70	100	3
20CS202/PH03	BS	Semiconductor Physics	3	0	0	3	30	70	100	3
20CS203/EE01	ES	Basic Electrical & Electronics Engineering	3	0	0	3	30	70	100	3
20CS204/CS01	ES	Programming for Problem Solving	2	1	0	3	30	70	100	3
20CS205	ES	Digital Logic Design	3	0	0	3	30	70	100	3
20CS206	ES	Discrete Mathematics	3	0	0	3	30	70	100	3
20CSL201/PHL02	BS	Semiconductor Physics Lab	0	0	3	3	30	70	100	1.5
20CSL202/EEL01	ES	Basic Electrical & Electronics Engineering Lab	0	0	3	3	30	70	100	1.5
20CSL203/CSL01	ES	Programming for Problem Solving Lab	0	0	3	3	30	70	100	1.5
NCC/NSS			0	0	3	3				0
<b>TOTAL</b>			<b>16</b>	<b>2</b>	<b>12</b>	<b>30</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>22.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

*Computer Science & Engineering*

Second Year B.Tech (SEMESTER – III)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CS301/MA03	BS	Probability & Statistics	2	1	0	3	30	70	100	3
20CS302	PC	Data Structures	2	1	0	3	30	70	100	3
20CS303	PC	Object Oriented Programming	2	1	0	3	30	70	100	3
20CS304	PC	Operating System	3	0	0	3	30	70	100	3
20CS305	PC	Computer Organization	3	0	0	3	30	70	100	3
20CSL301/SO01	SO	Linux Essentials	2	0	3	5	30	70	100	3.5
20CSL302	PC	Data Structures Lab	0	0	3	3	30	70	100	1.5
20CSL303	PC	Object Oriented Programming Lab	0	0	3	3	30	70	100	1.5
20CS306/MC02	MC	Professional Ethics & Human Values	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>16</b>	<b>3</b>	<b>9</b>	<b>28</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

*Computer Science & Engineering*

Second Year B.Tech (SEMESTER – IV)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	Total	CIE	SEE		
20CS401	ES	Microprocessor & Microcontrollers	3	0	0	3	30	70	100	3
20CS402	PC	Web Technologies	3	0	0	3	30	70	100	3
20CS403	PC	Database Management System	3	0	0	3	30	70	100	3
20CS404	PC	Design and Analysis of Algorithms	2	1	0	3	30	70	100	3
20CS405/EL02	HS	Technical English	3	0	0	3	30	70	100	3
20CSL401/SO02	SO	Python Programming	2	0	3	5	30	70	100	3.5
20CSL402	PC	Web Technologies Lab	0	0	3	3	30	70	100	1.5
20CSL403	PC	RDBMS Lab	0	0	3	3	30	70	100	1.5
<b>TOTAL</b>			<b>16</b>	<b>1</b>	<b>9</b>	<b>26</b>	<b>240</b>	<b>560</b>	<b>800</b>	<b>21.5</b>
20CSM4 / 20CSH4 _	<b>Honors/Minor Course (Pool 1)</b>		<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>19</b>	<b>2</b>	<b>9</b>	<b>30</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Computer Science & Engineering*

Third Year B.Tech (SEMESTER – V)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	Total	CIE	SEE		
20CS501	PC	Automata Theory & Formal Languages	2	1	0	3	30	70	100	3
20CS502	PC	Computer Networks	3	0	0	3	30	70	100	3
20CS503	PC	Software Engineering	3	0	0	3	30	70	100	3
20CS504/PE__	PE	Professional Elective - 1	3	0	0	3	30	70	100	3
20CS505/JO__	JO	Job Oriented Elective - 1	3	0	0	3	30	70	100	3
20CSL501/SO03	SO	Soft Skills	1	0	2	3	30	70	100	2
20CSL502	PC	Software Engineering Lab	0	0	3	3	30	70	100	1.5
20CSL503	JO	Job Oriented Elective-1 Lab	0	0	3	3	30	70	100	1.5
20CSL504 /INT01	INT	Summer Internship	0	0	0	0	0	0	0	1.5
20CS506/MC03	MC	Essence of Indian Traditional Knowledge	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>17</b>	<b>1</b>	<b>8</b>	<b>26</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20CSM5_ / 20CSH5_	<b>Honors/Minor Course (Pool 2)</b>		<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>20</b>	<b>2</b>	<b>8</b>	<b>30</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Computer Science & Engineering*

Third Year B.Tech (SEMESTER – VI)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	Total	CIE	SEE		
20CS601	PC	Compiler Design	3	0	0	3	30	70	100	3
20CS602	PC	Machine Learning	2	1	0	3	30	70	100	3
20CS603	PC	Cryptography & Network Security	3	0	0	3	30	70	100	3
20CS604/PE_ _	PE	Professional Elective -2	3	0	0	3	30	70	100	3
20CS605/JO_ _	JO	Job Oriented Elective - 2	3	0	0	3	30	70	100	3
20CSL601/SO04	SO	Advanced Skill Oriented - 1	2	0	3	5	30	70	100	3.5
20CSL602	PC	Machine Learning Lab	0	0	3	3	30	70	100	1.5
20CSL603	JO	Job Oriented Elective -2 Lab	0	0	3	3	30	70	100	1.5
20CS606/MC04	MC	Constitution of India	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>18</b>	<b>1</b>	<b>9</b>	<b>28</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20CSM6_/_ 20CSH6_	<b>Honors/Minor Course (Pool 3)</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>21</b>	<b>2</b>	<b>9</b>	<b>32</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Computer Science & Engineering*

Fourth Year B.Tech (SEMESTER – VII)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	Total	CIE	SEE		
20CS701/PE__	PE	Professional Elective - 3	3	0	0	3	30	70	100	3
20CS702/PE__	PE	Professional Elective – 4 (MOOCs)	-	-	-	-	-	-	-	3
20CS703/JO__	JO	Job Oriented Elective - 3	3	0	0	3	30	70	100	3
20CS704/OE__	OE	Open Elective	3	0	0	3	30	70	100	3
20CS705/ME05	HS	Industrial Management & Entrepreneurship Development	3	0	0	3	30	70	100	3
20CSL701/SO05	SO	Advanced Skill Oriented - 2	2	0	3	5	30	70	100	3.5
20CSL702	JO	Job Oriented Elective – 3 Lab	0	0	3	3	30	70	100	1.5
20CSL703/INT02	INT	Industrial/ Research Internship	0	0	0	0	0	0	0	3
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>6</b>	<b>20</b>	<b>180</b>	<b>420</b>	<b>600</b>	<b>23</b>
20CSM7_/ 20CSH7_	<b>Honors/Minor Course (Pool 4)</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>17</b>	<b>1</b>	<b>6</b>	<b>24</b>	<b>210</b>	<b>490</b>	<b>700</b>	<b>27</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



# BAPATLA ENGINEERING COLLEGE:: BAPATLA

(Autonomous)

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Computer Science & Engineering*

Fourth Year B.Tech (SEMESTER – VIII)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CS801/PW01	PW	Project Work	0	0	0	0	50	100	150	12
20CSM8_/ 20CSH8_	<b>Honors/Minor Courses (MOOCs - 1)</b>		0	0	0	0	0	0	0	2
20CSM8_/ 20CSH8_	<b>Honors/Minor Courses (MOOCs - 2)</b>		0	0	0	0	0	0	0	2
<b>Grand Total</b>			0	0	0	0	50	100	150	16

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

#### **List of Professional Electives:-**

1. Wireless Networks
2. Data Warehousing & Data Mining
3. Distributed Systems
4. Artificial Intelligence
5. Digital Image Processing,
6. Block chain Technologies.
7. Protocols for Secure Electronic Commerce.
8. Artificial Neural Networks and Deep Learning,
9. Natural Language Processing.

#### **List of Job Oriented Electives:-**

1. Enterprise Programming.
2. Middleware Technologies.
3. Mobile Application Development.
4. Cloud Programming.
5. Statistics with R.
6. Cyber Security.
7. Internet of Things.
8. Big Data Analytics.
9. Software Testing Methodologies.

#### **List of Advanced Skill Oriented Elective:-**

1. Introduction to Computer Animation
2. Full Stack Development
3. DevOps
4. Robotic Process Automation
5. Introduction to Game Design



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**List of Subjects offered under Honors in CSE**

**Note:** - Students have to acquire 20 credits for the award of Honors in CSE.

- i. 16 credits (04 courses@ 4 credits each) should be earned through the following list of courses.
- ii. 4 credits (02 courses@ 2 credits each) must be acquired through two MOOCs from the following list of courses with a minimum duration of 8/12 weeks.
- iii. Before choosing those courses, students must complete prerequisites

**HONORS POOL**

- A. Advanced Data Structures.
- B. Advanced Computer Architecture.
- C. Graph Theory
- D. Numerical Optimization.
- E. Advanced Database Systems
- F. Real Time Operating Systems.
- G. Parallel Algorithms.
- H. Embedded Systems
- I. Design Patterns.
- J. Storage Area Networks
- K. Computational Complexity.
- L. Competitive Programming.
- M. Web Semantics.
- N. Spatial Informatics.
- O. Perception & Computer Vision.
- P. Virtual Reality



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**List of Subjects offered under Minor in CSE**

Students have to acquire 20 additional credits for the award of Minor in CSE.

- I. 16 credits (04 courses@ 4 credits each) should be earned through the following pool.
- II. 04 credits (02 courses@ 2 credits each) must be acquired by two courses of the following list, through the MOOCs/NPTEL with a minimum duration of 8/12 weeks.
- III. Before choosing the courses from Minor Pool, students must complete prerequisites.

**MINOR POOL**

- A. Computer System Architecture.
- B. Operating Systems.
- C. Data Structures using C.
- D. Object Oriented Programming using Java.
- E. Discrete Mathematics.
- F. Statistics with R
- G. Design & Analysis of Algorithms.
- H. Database Management Systems.
- I. Software Engineering.
- J. Computer Networks.
- K. Web Application Programming.
- L. Artificial Intelligence.

# Bapatla Engineering College

(Autonomous)  
BAPATLA



## ACADEMIC RULES & REGULATIONS and SYLLABUS (2020-2021) Electronics and Communications Engineering

B.Tech.



**Bapatla Engineering College:: Bapatla**

(Autonomous under Acharya Nagarjuna University) (Sponsored by Bapatla  
Education Society) BAPATLA-522102, Guntur District, A.P.

[www.becbapatla.ac.in](http://www.becbapatla.ac.in)



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

## (Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Electronics and Communications Engineering*

Effective from the Academic Year 2020-2021 (R20 Regulations)

First Year B. Tech (SEMESTER – I)

Code No.		Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20EC101 / MA01	BS	Linear Algebra and ODE	3	1	0	4	30	70	100	3
20EC102 / PH01	BS	Waves and Modern Physics	3	1	0	4	30	70	100	3
20EC103 / CY01	BS	Engineering Chemistry	3	1	0	4	30	70	100	3
20EC104 / CS01	ES	Problem Solving with Programming	3	1	0	4	30	70	100	3
20EC105/ MC01	MC	Environmental Studies	3	0	0	3	30	70	100	0
20ECL101 / CYL01	BS	Engineering Chemistry Lab	0	0	3	3	30	70	100	1.5
20ECL102	ES	Hardware Lab	0	0	3	3	30	70	100	1.5
20ECL103 / CSL01	ES	Problem Solving with Programming Lab	0	0	3	3	30	70	100	1.5
		TOTAL	15	4	9	28	240	560	800	16.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

BS: Basic Science Courses

ES: Engineering Science Courses

MC: Mandatory Course



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

## (Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### *Electronics and Communications Engineering*

Effective from the Academic Year 2020-2021 (R20 Regulations)

First Year B. Tech (SEMESTER – II)

Code No.		Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20EC201 / MA02	BS	Numerical Methods and Advanced Calculus	3	1	0	4	30	70	100	3
20EC202	ES	Basic Instrumentation	3	1	0	4	30	70	100	3
20EC203 / HS01	BS	Communicative English	3	1	0	4	30	70	100	3
20EC204 / CS02	ES	Programming with C ++	3	1	0	4	30	70	100	3
20EC205	ES	Circuit Theory	3	1	0	4	30	70	100	3
20EC206	PC	Fundamentals of Digital Electronics	3	1	0	4	30	70	100	3
20ECL201 / PHL01	BS	Physics lab	0	0	3	3	30	70	100	1.5
20ECL202 / HSL01	BS	English Communication and Skills Lab	0	0	3	3	30	70	100	1.5
20ECL203 / CSL02	ES	Programming with C ++ Lab	0	0	3	3	30	70	100	1.5
		TOTAL	18	6	9	33	270	630	900	22.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

BS: Basic Science Courses

ES: Engineering Science Courses

PC: Professional Core



**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Electronics and Communications Engineering***

**Effective from the Academic Year 2020-2021 (R20 Regulations)**

**Second Year B. Tech (SEMESTER – III)**

<b>Code No.</b>		<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
			<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
20EC301/ MA03	BS	Probability and Statistics	3	0	0	3	30	70	100	3
20EC302	PC	Signals & Systems	3	0	0	3	30	70	100	3
20EC303	PC	Electronic Devices and Circuits	3	0	0	3	30	70	100	3
20EC304	PC	Electromagnetic Field Theory	3	0	0	3	30	70	100	3
20EC305	PC	Digital Logic Design	3	0	0	3	30	70	100	3
20EC306/S O01	SOC	Data structures Using Python	1	0	2	3	30	70	100	2
20ECL31	PC	Data Structures using Python Lab	0	0	3	3	30	70	100	1.5
20ECL32	PC	Electronic Devices Lab	0	0	3	3	30	70	100	1.5
20ECL33	PC	Signals & Systems Lab	0	0	3	3	30	70	100	1.5
20EC307/M C03	MC	Constitution of India	2	0	0	2	30	0	30	0
		<b>TOTAL</b>	<b>18</b>	<b>0</b>	<b>11</b>	<b>29</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>21.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

BS: Basic Science Courses

ES: Engineering Science Courses

MC: Mandatory Course



**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Electronics and Communications Engineering***

**Effective from the Academic Year 2020-2021 (R20 Regulations)**

**Second Year B. Tech (SEMESTER – IV)**

<b>Code No.</b>		<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
			<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
20EC401/ MA04	BS	Complex Variables and Special Functions	3	0	0	3	30	70	100	3
20EC402	PC	Electronic Circuit Analysis	3	0	0	3	30	70	100	3
20EC403	PC	EM Waves and Transmission Lines	3	0	0	3	30	70	100	3
20EC404	ES	Analog Communication	3	0	0	3	30	70	100	3
20EC405/S O02	SOC	Microprocessor and Microcontroller	2	1	0	3	30	70	100	2
20EC406	HSS	Technical English	3	0	0	3	30	70	100	3
20ECL41	PC	Electronic Circuits Lab	0	0	3	3	30	70	100	1.5
20ECL42	PC	Digital Logic Design lab	0	0	3	3	30	70	100	1.5
20ECL43	PC	Microprocessor and Microcontroller lab	0	0	3	3	30	70	100	1.5
		<b>TOTAL</b>	17	1	9	27	270	630	900	21.5
<b>Internship 2 Months (Mandatory) during summer vacation</b>										
<b>Honors/Minor courses (Maximum Two courses can be registered) (The hours distribution can be 3-0-2 or 3-1-0 also)--- Credits 4</b>										

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

BS: Basic Science Courses

ES: Engineering Science Courses

PC: Professional Core



**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

**For**

***Electronics and Communications Engineering***

**Effective from the Academic Year 2020-2021 (R20 Regulations)**

**Third Year B. Tech (SEMESTER – V)**

		Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20EC501	PC	Linear Integrated Circuits	3	0	0	3	30	70	100	3
20EC502	PC	Antennas and wave propagation	3	0	0	3	30	70	100	3
20EC503	PC	Digital communication	3	0	0	3	30	70	100	3
20ECJ11,.. 14	JOE	Elective-1	2	0	2	4	30	70	100	3
20ECD11,.. 14	PEC	Elective-1	3	0	0	3	30	70	100	3
20EC504	SAC	Machine Learning	1	0	2	3	30	70	100	2
20ECMC51	MC	Essence of Indian Traditional Knowledge	2	0	0	2	30	0	30	0
20ECL51	PC	Analog & Digital Communications Lab	0	0	3	3	30	70	100	1.5
20ECL52	PC	Linear Integrated Circuits Lab	0	0	3	3	30	70	100	1.5
20ECL53 /INT01	INT	Summer Internship 2 Months (Mandatory)	0	0	0	0	0	0	0	1.5
TOTAL			17	0	10	27	270	560	830	21.5
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)									4	

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

BS: Basic Science Courses

ES: Engineering Science Courses

PC: Professional Core

JOC Elective-I

20ECJ11: Embedded System & Design

20ECJ12: Data Communication & Computer Networks

20ECJ13: Programming with JAVA

20ECJ14: Computer organization and architecture

PEC Elective-I

20ECD11: Information Theory & Coding

20ECD12: Telecommunication Switching Systems and Networks

20ECD13: Pulse and Switching Circuits

20ECD14: Optical Communications



**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Electronics and Communications Engineering***

**Effective from the Academic Year 2020-2021 (R20 Regulations)**

**Third Year B. Tech (SEMESTER – VI)**

		Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20EC601	PC	VLSI Design	3	0	0	3	30	70	100	3
20EC602	PC	Linear Control Systems	3	0	0	3	30	70	100	3
20EC603	PC	Digital signal Processing	3	0	0	3	30	70	100	3
20ECJ21,.. 24	JOE	Elective-2	2	0	2	4	30	70	100	3
20ECD21,.. 14	PEC	Elective-2	3	0	0	3	30	70	100	3
20EC604	SAC	Internet of Things	1	0	2	3	30	70	100	2
20ECMC6 1	MC	Professional Ethics and Human Values	2	0	0	0	30	0	30	0
20ECL61	PC	DSP lab	0	0	3	3	30	70	100	1.5
20ECL62	PC	IOT Lab	0	0	3	3	30	70	100	1.5
20ECL63	PC	VLSI Design Lab	0	0	3	3	30	70	100	1.5
		TOTAL	17	0	13	30	300	630	930	21.5
		Honors /Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)								4
<b>Industrial/Research Internship (Mandatory) 2 Months during summer vacation</b>										

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

BS: Basic Science Courses

ES: Engineering Science Courses

PC: Professional Core

**JOCElective-2**

20ECJ21: Digital Design Using Verilog HDL

20ECJ22: Artificial intelligence

20ECJ23: Biomedical instrumentation

20ECJ24: Advanced Microcontrollers

**PECElective-2**

20ECDC21: Microwave Engineering

20ECDC22: Mobile & Cellular Communications

20ECDC23: Global Positioning Systems

20ECDC24: Pattern Recognition and Application



**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Electronics and Communications Engineering***

Effective from the Academic Year 2020-2021 (R20 Regulations)

Fourth Year B. Tech (SEMESTER – VII)

		Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20ECD31,...34	PC	Professional Elective: III	3	0	0	3	30	70	100	3
20ECD41,...44	PC	Professional Elective: IV	3	0	0	3	30	70	100	3
20EC703	PC	Professional Elective: V (MOOC)	3	0	0	3	30	70	100	3
20ECJ31,...34	JOE	JOC-Elective III	2	0	0	2	30	70	100	3
20ECD21,..,14	JOE	JOC-ElectiveIV(MOOC)	2	0	0	2	30	70	100	3
	HSS	Industrial Management and Entrepreneurship Development	3	0	0	3	30	70	100	3
	SOC	Artificial neural networks	1	0	2	3	30	70	100	2
		Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VIII semester)								3
		TOTAL	17	0	2	19	210	420	630	23
		Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)								4

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

BS: Basic Science Courses

ES: Engineering Science Courses

PC: Professional Core

**PEC Elective-III:**

20ECD31:RADAR Engineering

20ECD32:Speech Processing

20ECD33:FPGA Design

20ECD34:MEMS

**PEC Elective-IV:**

20ECD41:Satellite communication

20ECD42:Wireless communications

20ECD43:Advanced DSP

20ECD44:Cloud computing



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

## (Autonomous)

### Open/JOC Elective-V

20ECJ31:Digital Image Processing

20ECJ32:Biomedical signal processing

20ECJ33:Robotics

20ECJ34:Deep learning

Semester VIII (Fourth Year)

Code		Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
EC461	PC	Project work, Seminar and internship in Industry	-	-	-	3	30	70	100	12



**BAPATLA ENGINEERING COLLEGE :: BAPATLA**

(Autonomous)

**Department  
of  
Electrical and Electronics  
Engineering**

**COURSE STRUCTURE  
AND  
SYLLABUS FOR 1<sup>st</sup> and 2<sup>nd</sup> YEAR  
B.TECH.**



## BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

### Department of Electrical and Electronics Engineering

#### Course Structure Summary

S.No	Category	Credits	% of Credits
1	Humanities & Social Science including Management Courses	10.5	6.5
2	Basic Science Courses	21	13.1
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	24	15
4	Professional Core Courses	51	31.9
5	Professional Elective Courses	15	9.4
6	Open Elective Courses/Job Oriented Courses	12	7.5
7	Project work, seminar, and internship in industry or elsewhere	16.5	10.3
8	Skill Oriented Courses	10	6.3
9	Mandatory Courses [Environmental Science, PEHV, Indian Constitution, Essence of Indian Traditional Knowledge etc]	-	-
<b>Total</b>		<b>160</b>	<b>100</b>

#### Semester Wise Credits Summary

Semester	Credits	With Honor Credits
Semester-I	16.5	16.5
Semester-II	22.5	22.5
Semester-III	21	21
Semester-IV	21	25
Semester-V	22.5	26.5
Semester-VI	21.5	25.5
Semester-VII	23	27
Semester-VIII	12	16
<b>Total</b>	<b>160</b>	<b>180</b>



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

### For *Electrical and Electronics Engineering*

First Year B.Tech (SEMESTER – I)  
for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)					Scheme of Examination (Maximum marks)			No. of Credits
			L	T	S	P	Total	CIE	SEE	Total Marks	
20EE101/MA01	BS	Linear algebra and differential equations	3	0	1	0	4	30	70	100	3
20EE102/PH01	BS	Waves and Modern Physics	3	0	0	0	3	30	70	100	3
20EE103/EL01	HS	Communicative English	3	0	0	0	3	30	70	100	3
20EEL101/PHL01	BS	Physics Lab	0	0	0	3	3	30	70	100	1.5
20EEL102/ELL01	HS	English Communication skills Lab	0	0	0	3	3	30	70	100	1.5
20EEL103/MEL02	ES	Workshop Practice Lab	0	0	0	3	3	30	70	100	1.5
20EEL104/MEL01	ES	Engineering Graphics	1	0	0	4	5	30	70	100	3
20EE104/MC01	MC	Environmental Studies	2	0	0	0	2	30	0	30	0
INDUCTION PROGRAM		First Three Weeks (Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Familiarization to Dept./Branch & Innovations)									
<b>TOTAL</b>			12	0	1	13	26	240	490	730	16.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical S: Self-study

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Self-study (S) per week - 0 credits

2 Hours Practical (Lab)/week - 1 credit



## BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Electrical and Electronics Engineering*

First Year B.Tech (SEMESTER – II)  
for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)					Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	S	Total	CIE	SEE	Total Marks	
20EE201/ MA02	BS	Numerical methods& Advanced Calculus	3	0	0	1	4	30	70	100	3
20EE202/ PH03	BS	Semiconductor Physics and Nano Materials	3	0	0	0	3	30	70	100	3
20EE203/ CY01	BS	Chemistry	3	0	0	0	3	30	70	100	3
20EE204/ CS01	ES	Programming for Problem Solving	3	0	0	1	4	30	70	100	3
20EE205	PC	Circuit Theory	3	0	0	1	4	30	70	100	3
20EE206/ CE03	ES	Engineering Mechanics	3	0	0	1	4	30	70	100	3
20EEL201/ CY L01	BS	Chemistry Lab	0	0	3	0	3	30	70	100	1.5
20EEL202	PC	Circuit Theory Lab	0	0	3	0	3	30	70	100	1.5
20EEL203/ CS L01	ES	Programming for Problem Solving Lab	0	0	3	0	3	30	70	100	1.5
NCC/NSS			0	0	3	0	3	0	0	0	0
<b>TOTAL</b>			<b>18</b>	<b>0</b>	<b>12</b>	<b>4</b>	<b>34</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>22.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

S: Self-study

BS: Basic Science courses

HS: Humanities and Social science

ES: Engineering Science Courses

MC: Mandatory course



## BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Electrical and Electronics Engineering*  
Second Year B.Tech (SEMESTER – III)  
for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)					Scheme of Examination (Maximum marks)			No. of Credit s
			L	T	P	S	Total	CIE	SE E	Total Marks	
20EE301/MA03	BS	Probability and Statistics	3	0	0	1	4	30	70	100	3
20EE302	PC	Network Analysis	3	0	0	1	4	30	70	100	3
20EE303	PC	Electro Magnetic Fields	3	0	0	0	3	30	70	100	3
20EE304	PC	DC Machines and Transformers	3	0	0	1	4	30	70	100	3
20EE305/EL02	HS	Technical English	2	0	0	0	2	30	70	100	2
20EEL301 / SO01	SO	Software Tools to Electrical Engineering	1	0	2	0	3	30	70	100	2
20EEL302	ES	Measurement and Instrumentation Lab	2	0	2	0	4	30	70	100	3
20EEL303 /IT01	ES	Data Structures and Algorithms Lab	1	0	2	0	3	30	70	100	2
20EE306/MC02	MC	Professional Ethics and Human Values	2	0	0	0	2	30	0	30	0
NCC/NSS			0	0	3	0	3	0	0	0	0
<b>TOTAL</b>			<b>20</b>	<b>0</b>	<b>9</b>	<b>3</b>	<b>32</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

S: Self-study

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course PC: Professional Core Course SO: Skill Oriented Course



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
***Electrical and Electronics Engineering***  
 Second Year B.Tech (SEMESTER – IV)  
 for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)					Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	S	Total	CIE	SEE		
20EE401	PC	Analog Electronics	3	0	0	0	3	30	70	100	3
20EE402	PC	Digital Electronics	3	0	0	1	4	30	70	100	3
20EE403	PC	Induction Motors and Synchronous machines	3	0	0	1	4	30	70	100	3
20EE404	PC	Signals & Systems	3	0	0	1	4	30	70	100	3
20EE405	PC	Generation and Transmission	3	0	0	0	3	30	70	100	3
20EEL401/ SO02	SO	Python	1	0	2	0	3	30	70	100	2
20EEL402	PC	Analog and Digital Electronics Lab	0	0	3	0	3	30	70	100	1.5
20EEL403	PC	DC Machines and Transformers Lab	0	0	3	0	3	30	70	100	1.5
20EEL404/ ELL02	HS	Soft Skills Lab	0	0	2	0	2	30	70	100	1
Internship during summer (2 months)											
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>10</b>	<b>3</b>	<b>29</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>21</b>
20EEM41_ / 20EEH41_	<b>Minor/Honor Course</b>		<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>19</b>	<b>1</b>	<b>10</b>	<b>3</b>	<b>33</b>	<b>300</b>	<b>700</b>	<b>1000</b>	<b>25</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

S: Self-study

BS: Basic Science courses

HS: Humanities and Social science

ES: Engineering Science Courses

MC: Mandatory course PC: Professional Core Course SO: Skill Oriented Course



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

### For Electrical and Electronics Engineering

Third Year B.Tech (SEMESTER – V)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)					Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	S	Total	CIE	SEE		
20EE501	ES	Micro Processor and Microcontroller	3	0	0	0	3	30	70	100	3
20EE502	PC	Power System Analysis	3	0	0	1	4	30	70	100	3
20EE503	PC	Control Systems	3	0	0	1	4	30	70	100	3
20EE504	PC	Power Electronics	3	0	0	1	4	30	70	100	3
20EE505/ PE	PE	Professional Elective Course -I	3	0	0	0	3	30	70	100	3
20EEL501/ SO03	SO	Application of IOT in Electrical Engineering	1	0	2	0	3	30	70	100	2
20EEL502	ES	Micro Processor and Microcontroller Lab	0	0	2	0	2	30	70	100	1
20EEL503	PC	Induction Motors and Synchronous machines Lab	0	0	3	0	3	30	70	100	1.5
20EEL504	PC	Control Systems Lab	0	0	3	0	3	30	70	100	1.5
20EEL505/ INT01	INT	Internship	0	0	0	0	0	30	70	100	1.5
20EE506/ MC03	MC	Constitution of India	2	0	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>18</b>	<b>0</b>	<b>10</b>	<b>3</b>	<b>31</b>	<b>330</b>	<b>700</b>	<b>1030</b>	<b>22.5</b>
20EEM52 / 20EEH52	<b>Minor/Honor Course</b>		3	1	0	0	4	30	70	100	4
<b>Grand Total</b>			<b>21</b>	<b>1</b>	<b>10</b>	<b>3</b>	<b>35</b>	<b>360</b>	<b>770</b>	<b>1130</b>	<b>26.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture      T: Tutorial      P: Practical      S: Self-study

BS: Basic Science Courses    HS: Humanities and Social science    ES: Engineering Science Courses

MC: Mandatory Course    PC: Professional Core Course    SO: Skill Oriented Course    PE: Professional Elective Courses    JE: Job oriented elective courses



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

### For *Electrical and Electronics Engineering*

Third Year B.Tech (SEMESTER – VI)

for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)		No. of Credits	
			L	T	P	S	Total	CIE	SEE		
20EE601	PC	Power System Protection	3	0	0	0	3	30	70	100	3
20EE602/ PE	PE	Professional Elective Course -II	3	0	0	0	3	30	70	100	3
20EE603/ PE	PE	Professional Elective Course -III	3	0	0	0	3	30	70	100	3
20EE604/ JO	JO	Job Oriented Elective - I	2	0	2	0	4	30	70	100	3
20EE605/ JO	JO	Job Oriented Elective - II	2	0	2	0	4	30	70	100	3
20EEL601/ SO04	SO	Placement Training	1	0	2	0	3	30	70	100	2
20EEL602	PC	Power Electronics Lab	0	0	3	0	3	30	70	100	1.5
20EEL603	PC	Power Systems Lab	0	0	3	0	3	30	70	100	1.5
20EEL604	PC	Electronics Design Lab	0	0	3	0	3	30	70	100	1.5
20EE606/ MC04	MC	Indian Traditional Knowledge	2	0	0	0	2	30	0	30	0
Internship during summer (2 months)											
<b>TOTAL</b>			<b>16</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>31</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>21.5</b>
20EEM63_/ 20EEH63_	<b>Minor/Honor Course</b>		<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>19</b>	<b>1</b>	<b>15</b>	<b>0</b>	<b>35</b>	<b>330</b>	<b>700</b>	<b>1030</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

S: Self-study

BS: Basic Science Courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory Course PC: Professional Core Course SO: Skill Oriented Course PE: Professional Elective Courses JE: Job oriented elective courses



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

**For  
Electrical and Electronics Engineering**

**Fourth Year B.Tech (SEMESTER – VII)**

**for the Academic Year 2020-21**

Code No.	Category code	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	S	Total	CIE	SEE	Total Marks	
20EE701	PC	Power System Operation Control and Stability	3	0	0	1	4	30	70	100	3
20EE702/ PE	PE	Professional Elective Course - IV	3	0	0	0	3	30	70	100	3
20EE703/ PE	PE	Professional Elective Course - V	3	0	0	0	3	30	70	100	3
20EE704/ JO	JO	Job Oriented Elective - III	2	0	2	0	4	30	70	100	3
20EE705/ JO	JO	Job Oriented Elective - IV	2	0	2	0	4	30	70	100	3
20EE706	HS	Industrial Management & Entrepreneurship Development	3	0	0	0	3	30	70	100	3
20EEL701/S O05	SO	Industrial Automation	1	0	2	0	3	30	70	100	2
20EEL702/ INT02	INT	Internship						30	70	100	3
<b>TOTAL</b>			<b>17</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>24</b>	<b>240</b>	<b>560</b>	<b>800</b>	<b>23</b>
20EEM74_2 0EEH74_			<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>20</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>28</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>27</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture      T: Tutorial      P: Practical

S: Self-study

BS: Basic Science Courses    HS: Humanities and Social science    ES: Engineering Science Courses

MC: Mandatory Course    PC: Professional Core Course    SO: Skill Oriented Course    PE: Professional Elective Courses    JE: Job oriented elective courses



## BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Electrical and Electronics Engineering*  
Fourth Year B.Tech (SEMESTER – VIII)  
for the Academic Year 2020-21

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	S	Total	CIE	SEE	Total Marks	
20EE801/PW01	PW	Project Work	0	0	24	0	24	50	100	150	12
20EEM85 / 20EEH85		Minor/Honor Course (Through MOOC only)	0	0	0	0	0	0	0	0	2
20EEM85 / 20EEH85		Minor/Honor Course (Through MOOC only)	0	0	0	0	0	0	0	0	2
<b>TOTAL</b>			<b>0</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>24</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>16</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture      T: Tutorial      P: Practical      S: Self-study

BS: Basic Science Courses      HS: Humanities and Social science      ES: Engineering Science Courses

MC: Mandatory Course      PC: Professional Core Course      SO: Skill Oriented Course      PE: Professional Elective Courses      JE: Job oriented elective courses

**Note:** Any one course of Professional Elective courses is permitted to pursue through MOOC during four years of B.Tech course i.e., 3 credits shall be earned.



# BAPATLA ENGINEERING COLLEGE:: BAPATLA (Autonomous)

## **Professional Elective Courses (15 credits):**

### **Professional Elective – I:**

- PE51: Electrical Power Distribution System
- PE52: Renewable Energy Sources
- PE53: Electrical Machine Design

### **Professional Elective – II & III:**

- PE61: Switched Mode Power Supply
- PE62: Industrial Drives
- PE63: HVDC & FACTS
- PE64: Machine Modeling and Analysis
- PE65: Digital Control Systems
- PE66: Optimization Techniques

### **Professional Elective – IV & V:**

- PE71: High Voltage Engineering
- PE72: Advanced Electrical Drives
- PE73: Solar & Fuel cell Energy Systems
- PE74: Smart Grid Technology and Applications
- PE75: Adaptive Control Systems
- PE76: AI Applications to Electrical Engineering

## **Job oriented/ Open elective courses (12 credits):**

Choose any two courses from POOL – 1 for sixth semester electives and any two courses from POOL – 2 for seventh semester electives.

### **POOL - 1:**

- JO61: Java programming
- JO62: Data Analytics
- JO63: Operations Research
- JO64: Computer Applications in power systems
- JO65: Solar PV and Wind Plant Design
- JO66: Digital Signal Processing
- JO67: English for Commutative Examination

### **POOL - 2:**

- JO71: Cyber Security
- JO72: Analog VLSI
- JO73: Embedded Systems

**Honor Courses (20 Credits):** Additional courses offered to B.Tech., EEE students to obtain Honors degree in Electrical and Electronics Engineering

JO74: Power Quality

JO75: Digital Protection of Power System

JO76: Met heuristic Techniques to Electrical Engineering

**Minor Courses (20 Credits):** Courses offered to non EEE branch B.Tech., students for obtaining Minor degree in Electrical and Electronics Engineering.

### **Track I: Power Systems**

- 1. Power Generation and Transmission
- 2. Power Quality
- 3. Smart Grid

### **Track II: Power Electronics**

- 1. Principles of Power Electronics
- 2. Industrial Drives
- 3. Hybrid Electrical Vehicles

### **Track III: Control Systems**

- 1. Signals and Systems
- 2. Linear Control System
- 3. Digital Control Systems

### **Track IV: Energy Systems**

- 1. Energy Conservation & Audit
- 2. Utilization of Electrical Energy
- 3. Solar & Fuel cell Energy Systems

# Bapatla Engineering College

(Autonomous)

BAPATLA



**B.Tech**  
**Electronics and instrumentation Engineering**  
**Curriculum Effective from A.Y. 2020-21(R20 Regulations)**  
**Department Of Electronics An Instrumentation Engineering**  
**SCHEMES**



**Bapatla Engineering College:: Bapatla**  
(Autonomous under Acharya Nagarjuna University)  
(Sponsored by Bapatla Education Society)  
BAPATLA - 522102 Guntur District, A.P., India  
[www.becbapatla.ac.in](http://www.becbapatla.ac.in)



# Bapatla Engineering College: Bapatla

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

*Electronics and Instrumentation Engineering*

Effective From the Academic Year 2020-2021 (R20 Regulations)

First Year B. Tech (SEMESTER – I)

Code No.	Subject	Scheme of Instruction				Scheme of Examination			NO. OF CREDITS	CATEGORY		
		(Hours per week)				(Maximum marks)						
		L	T	P	Total	CIE	SEE	Total Marks				
20EI101/ MA01	Linear Algebra and Ordinary Differential Equations	3	0	0	3	30	70	100	3	BS		
20EI102/ PH01	Physics -1 waves and Modern Physics	3	0	0	3	30	70	100	3	BS		
20EI103/ CY01	Engineering Chemistry	3	0	0	3	30	70	100	3	BS		
20EI104/ EL01	Communicative English	3	0	0	3	30	70	100	3	HS		
20EIL101/ MEL01	Engineering Graphics	1	0	4	5	30	70	100	3	ES		
20EIL102/ PHL01	Physics Lab	0	0	3	3	30	70	100	1.5	BS		
20EIL103/ ELL01	English communications and skills laboratory	0	0	3	3	30	70	100	1.5	HS		
20EIL104/ MEL02	Workshop	0	0	3	3	30	70	100	1.5	ES		
	TOTAL	13	0	13	26	240	560	800	19.5			

BS – Basic Sciences	CIE – Continuous Internal Evaluation	L - Lecture Hours
ES – Engineering Sciences	SEE – Semester End Examination	
HS – humanities & Social sciences		T - Tutorial
MC – Mandatory Courses		P - Practical

CATEGORY	CREDITS
<b>BS – Basic Sciences</b>	<b>10.5</b>
<b>HS – Humanities</b>	<b>4.5</b>
<b>ES – Engineering Sciences</b>	<b>4.5</b>
<b>Total</b>	<b>19.5</b>



# Bapatla Engineering College: Bapatla

(Autonomous)

SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

Electronics and Instrumentation Engineering

Effective From the Academic Year 2020-2021 (R20 Regulations)

First Year B. Tech (SEMESTER – II)

Code No.	Subject	Scheme of Instruction				Scheme of Examination			NO. OF CREDITS	CATEGORY		
		(Hours per week)				(Maximum marks)						
		L	T	P	Total	CIE	SEE	Total Marks				
20EI201/MA02	Numerical Methods and Advanced Calculus	3	0	0	3	30	70	100	3	BS		
20EI202/PH03	Semiconductor Physics and Nano Materials	3	0	0	3	30	70	100	3	BS		
20EI203	Instrumentation & Nanotechnology	3	0	0	3	30	70	100	3	ES		
20EI204/CS01	Problem Solving using programming	3	0	0	3	30	70	100	3	ES		
20EI205/EE02	Basic Electrical Engineering	3	0	0	3	30	70	100	3	ES		
20EI206/MC01	Environmental Studies	3	0	0	3	30	70	100	0	MC		
20EIL201/CYL01	Chemistry Lab	0	0	3	3	30	70	100	1.5	BS		
20EIL202/CSL01	Problem Solving using Programming Lab	0	0	3	3	30	70	100	1.5	ES		
20EIL203/EEL02	Basic Electrical Engineering Lab	0	0	3	3	30	70	100	1.5	ES		
	<b>TOTAL</b>	23	0	9	27	270	630	900	19.5			

BS – BASIC SCIENCES	CIE – CONTINUOUS INTERNAL EVALUATION	L - LECTURE HOURS
HS – HUMANITIES	SEE – SEMESTER END EXAMINATION	T – TUTORIAL
ES – ENGINEERING SCIENCES		P – PRACTICAL
<b>CATEGORY</b>		<b>CREDITS</b>
BS – BASIC SCIENCES		10.5
HS – HUMANITIES		4.5
ES – ENGINEERING SCIENCES		4.5
<b>TOTAL</b>		19.5



# Bapatla Engineering College: Bapatla

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

Electronics and Instrumentation Engineering

Effective From the Academic Year 2020-2021 (R20 Regulations)

Second Year B. Tech (SEMESTER – III)

Code No.	Subject	Scheme of Instruction				Scheme of Examination			NO. OF CREDITS	CATEGORY		
		Hours per week				(Maximum marks)						
		L	T	P	Total	CIE	SEE	Total Marks				
20EI301/ MA03	Probability and Statistics	3	0	0	3	30	70	100	3	BS		
20EI302	Electronic Devices and Circuits	3	0	0	3	30	70	100	3	PC		
20EI303	Digital Electronics	3	0	0	3	30	70	100	3	PC		
20EI304	Network Theory	3	0	0	3	30	70	100	3	PC		
20EI305	Transducers	3	0	0	3	30	70	100	3	PC		
20EIL301/ SO01	Skill Oriented Course * Data Structures using 'C'	1	0	2	3	30	70	100	2	SOC		
20EIL302	Electronic Devices Lab	0	0	3	3	30	70	100	1.5	PC		
20EIL303	Digital Electronics Lab	0	0	3	3	30	70	100	1.5	PC		
20EIL304	Transducers Lab	0	0	3	3	30	70	100	1.5	PC		
20EI306/ MC01	Mandatory course / *Constitution of India	2	0	0	3	30	00	00	0	MC		
	<b>TOTAL</b>	19	0	1 1	30	300	700	900	21. 5	0		

BS – Basic Sciences	CIE – Continuous Internal Evaluation	L - lecture hours
PC – Professional Core Courses	SEE – Semester End Examination	T - Tutorial
SC – Skill Oriented Courses		P - practical
MC – Mandatory Courses		
<b>CATEGORY</b>		<b>CREDITS</b>
BS – Basic Sciences		3
PC – Professional Core Courses		16.5
SOC – Skill Oriented Courses		2
MC – Mandatory Courses		0
<b>TOTAL</b>	<b>21.5</b>	



# Bapatla Engineering College: Bapatla

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

### *Electronics and Instrumentation Engineering*

Effective From the Academic Year 2020-2021 (R20 Regulations)

Second Year B. Tech (SEMESTER – IV)

Code No.	Subject	Scheme of Instruction				Scheme of Examination			NO. OF CREDITS	CATEGORY		
		(Hours per week)				(Maximum marks)						
		L	T	P	Total	CIE	SEE	Total Marks				
20EI401/ MA04	Complex Analysis and Special functions	3	0	0	3	30	70	100	3	ES		
20EI402	Signals and Systems	3	0	0	3	30	70	100	3	PC		
20EI403	Electrical & Electronic Measurements	3	0	0	3	30	70	100	3	PC		
20EI404	Analog Electronic Circuits	3	0	0	3	30	70	100	3	PC		
20EI405/ EL02	Technical English	3	0	0	3	30	70	100	3	HS		
<b>20EIL401</b>	<b>Skill oriented course*</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>2</b>	<b>SOC</b>		
20EIL402	Analog Electronic Circuits Lab	0	0	3	3	30	70	100	1.5	PC		
20EIL403	Measurements Lab	0	0	3	3	30	70	100	1.5	PC		
20EIL404	Signals and systems lab	0	0	3	3	30	70	100	1.5	PC		
	<b>TOTAL</b>	<b>16</b>	<b>0</b>	<b>11</b>	<b>27</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>19.5</b>			
Internship 2 months (Mandatory) during summer vacation												
20EIH11-14 -Honours 20EIM11-14 -Minor course		3	1	0	4	30	70	100	4	HC MC		

BS – Basic Sciences	CIE – Continuous Internal Evaluation					L - Lecture Hours		
ES – Engineering Sciences	SEE – Semester End Examination					T – Tutorial		
PC – Professional Core Courses						P – Practical		
SOC – Skill Oriented Courses								



## Bapatla Engineering College: Bapatla

(Autonomous)

CATEGORY		CREDITS
1	ES – Engineering Sciences	3
2	PC –Professional Core Courses	13.5
3	SC – Skill Oriented Courses	2
4	HS- Humanities	3
	<b>Total</b>	<b>21.5</b>
6	Honours /minor	4
	<b>Total</b>	<b>25.5</b>



# Bapatla Engineering College: Bapatla

### *(Autonomous)*

**BAPATLA ENGINEERING COLLEGE: BAPATLA**

### *(Autonomous)*

## **SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

## ***Electronics and Instrumentation Engineering***

## **Effective From the Academic Year2020-2021(R20 Regulations)**

## **Third Year B. Tech (SEMESTER – V)**



## Bapatla Engineering College: Bapatla (Autonomous)

BS – Basic Sciences	CIE – Continuous Internal Evaluation	L - Lecture Hours
PC –Professional Core Courses	SEE – Semester End Examination	T - Tutorial
ES – Engineering Sciences		P - Practical
SC – Skill Oriented Courses		
MC – Mandatory Courses		

### COURSES & CREDIT DISTRIBUTION :

S.No.	Type of Course	No. of Courses		Credits		Total
		Theory	Lab	Theory	Lab	
1	PC –Professional Core Courses	3	2	9	3	12
2	JO -Job oriented courses	1	-	3	-	3
3	PE - Professional Elective Course	1	-	3	-	3
4	SAC – Skill Advanced Courses		1		2	2
5	MC – Mandatory Courses	1	-	-	-	-
6	Internship					1.5
	Total	7	3			21.5
7.	Honours /minor	1		4	-	4
	Total	8	3	19	5	25.5



# Bapatla Engineering College: Bapatla

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

*Electronics and Instrumentation Engineering*

Effective From the Academic Year 2020-2021 (R20 Regulations)

Third Year B. Tech (SEMESTER – VI)

Code No.	Subject	Scheme of Instruction				Scheme of Examination			No. of Credits	CATEGORY		
		(HOURS per week)			Total	(Maximum marks)						
		L	T	P		CIE	SEE	Total Marks				
20EI601	Process Control	3	0	0	3	30	70	100	3	PC		
20EI602	Digital Signal Processing	3	0	0	3	30	70	100	3	PC		
20EI603	BIO Medical Instrumentation	3	0	0	3	30	70	100	3	PC		
20EID 21-23	Professional Elective -2	3	0	0	3	30	70	100	3	PE		
20EI605/ JO 01-09	Job Oriented Elective	2	0	2	3	30	70	100	3	JO		
20EIL601 /EL04,	Soft skills Course /LAB	1	0	2	3	30	70	100	2	SAC		
20EIL601	Process Control Lab	0	0	3	3	30	70	100	1.5	PC		
20EIL602	Digital Signal Processing Lab	0	0	3	3	30	70	100	1.5	PC		
20EIL603	Biomedical Instrumentation Lab	0	0	3	3	30	70	100	1.5	JO		
20EIM	Mandatory Course as per AICTE	2	0	0	0	30		30	0	MC		
								1.5	IN			
	TOTAL	17	1	8	24	270	560	830	21.5			
Industrial / Research Internship (Mandatory) 2 months during summer vacation												
20EIH31-34 HONORS/MINOR COURSES		4	0	0					4	HC MC		

BS – Basic Sciences	CIE – Continuous Internal Evaluation	L - Lecture Hours
PC – Professional Core Courses	SEE – Semester End Examination	T - Tutorial
ES – Engineering Sciences		P - Practical
SC – Skill Oriented Courses		
MC – Mandatory Courses		



## Bapatla Engineering College: Bapatla

(Autonomous)

### COURSES & CREDIT DISTRIBUTION :

S.No.	Type of Course	No. of Courses		Credits		Total
		Theory	Lab	Theory	Lab	
1	PC –Professional Core Courses	3	3	9	4.5	13.5
2	JO -Job oriented courses	1	-	3	-	3
3	PE - Professional Elective Course	1	-	3	-	3
4	SAC – Skill Advanced Courses		1		2	2
5	MC – Mandatory Courses	1	-	-	-	-
	Total	7	3			<b>21.5</b>
7.	Honours /minor	1		4	-	4
	Total	8	3	19	5	<b>25.5</b>



**Bapatla Engineering College: Bapatla**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

**For**

***Electronics and Instrumentation Engineering***

**Effective From the Academic Year 2020-2021 (R20 Regulations)**

**Fourth Year B. Tech (SEMESTER – VII)**

Code No.	Subject	Scheme of Instruction (hours per week)				Scheme of Examination (Maximum marks)			NO. OF CREDITS	COURSE TYPE
		L	T	P	Total	CIE	SEE	Total Marks		
20EID 31-33	Professional Elective Course	3	0	0	3	30	70	100	3	PE
20EID 41-43	Professional Elective Course	3	0	0	3	30	70	100	3	PE
20EID 51-53	Professional Elective Course	3	0	0	3	30	70	100	3	PE
20EIJ0 1-09	Open Elective/ Job oriented Course	2	0	2	4	30	70	100	3	JO
20EIJ0 1-09	Open Elective/ Job oriented Course.	2	0	2	4	30	70	100	3	JO
20EIH 01-09	<i>Humanities and Social Science Elective</i>	3	0	0	3	30	70	100	3	HS
20EISA 01-09	Skill Advanced/ soft skill Course	1	0	2	3	30	70	100	2	SAC
Industrial research/ INTERNSHIP 2 months (Mandatory) after third year ( to be evaluated during the VII semester )								3		
	TOTAL	19	0	2	35	210	490	700	23	
20EIH41-44-Honours/ Minor course		3	1			30	70	100	4	HC



## Bapatla Engineering College: Bapatla

(Autonomous)

BS – Basic Sciences	CIE – Continuous Internal Evaluation	L - Lecture Hours
PC –Professional Core Courses	SEE – Semester End Examination	T - Tutorial
ES – Engineering Sciences		P - Practical
SC – Skill Oriented Courses		
MC – Mandatory Courses		

S.No.	CATEGORY	Credits
1	PC –Professional Core Courses	
2	JO -Job oriented courses	6
3	PE - Professional Elective Course	9
4	MC – Mandatory Courses	
5	Humanities and Social Science	3
6	SC – Skill Advanced Courses	2
7	Internship	3
	<b>Total</b>	<b>23</b>
8	Honours /minor	4
	<b>Total</b>	<b>27</b>



# Bapatla Engineering College: Bapatla (Autonomous)

## **SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

**Electronics and Instrumentation Engineering**

**Effective From the Academic Year2020-2021(R20 Regulations)**

## **Second Year B. Tech (SEMESTER – VIII)**



## Bapatla Engineering College: Bapatla (Autonomous)

### PROFESSIONAL ELECTIVES

#### ELECTIVE -1

- 1 [Analog and Digital Communications](#)
- 2 [Digital control systems](#)
- 3 [Operating Systems](#)

#### ELECTIVE - 2

1. [Industrial Instrumentation](#)
2. [Power Plant Instrumentation](#)
3. [Robotics and Automation](#)

#### ELECTIVE - 3

- 1 [Analytical Instrumentation](#)
- 2 [Adaptive control systems](#)
- 3 [Artificial intelligence](#)

#### ELECTIVE - 4

1. [Optoelectronics and laser instrumentation](#)
2. [Sensor Networks.](#)
3. [Instrumentation for Aerospace and Navigation](#)

#### ELECTIVE - 5

- 1 [Data Communications](#)
- 2 [Digital Image Processing\(7\)](#)
- 3 [Telemetry and SCADA](#)

### JOB ORIENTED ELECTIVES

- 1 [Embedded Systems](#)
- 2 [Programmable logic Controllers](#)
- 3 [Object oriented programming with JAVA.](#)
- 4 [Virtual instrumentation](#)
- 5 [Python Programming](#)
- 6 [Internet of Things](#)
- 7 [Automation Technologies](#)
- 8 [Data structures and analysis of algorithms.](#)
- 9 [VLSI design](#)



## Bapatla Engineering College: Bapatla *(Autonomous)*

### **LIST OF SUBJECTS HONOURS SPECIALIZATIONS**

#### **Pool- 1**

- 1 Intelligent sensors and instrumentation
- 2 Advanced computer architectures
- 3 Wavelet theory and applications

#### **Pool-2**

- 1 Real-time operating systems
- 2 Advanced embedded systems
- 3 Advanced digital signal processing

#### **Pool-3**

- 1 Distributed control systems
- 2 Speech signal processing
- 3 Bio signal processing

#### **Pool-4**

- 1 Instrumentation in petro chemical industries
- 2 Wireless Sensor Networks.
- 3 Optimization in Engineering Design



## Bapatla Engineering College: Bapatla (Autonomous)

### **MINOR PROGRAM**

#### **General Minor Courses**

Note:-

- > The student can opt any 4 subjects from the given list of the departments .
- >compulsory MOOC/ NPTEL courses for 4 credits (2 courses , 2 credits each) must be completed.
- > A total of 20 credits must be completed in order to get the minor Degree in the other branch specialization .

#### **pre requisites :**

- >as mentioned in the APSCHE guidelines.

### **LIST OF SUBJECTS For Minor SPECIALIZATIONS**

Code No.	Subject	Scheme of Instruction (HOURS per week)			Scheme of Examination (Maximum marks)			No. of Credits	
		L	T	P	Total	CIE	SEE		
20EIM01	Transducers	3	1	0	4	30	70	100	4
20EIM02	Electrical and electronic measurements	3	1	0	4	30	70	100	4
20EIM03	Industrial instrumentation	3	1	0	4	30	70	100	4
20EIM04	Programmable logic controllers	3	1	0	4	30	70	100	4
20EIM05	Analytical instrumentation	3	1	0	4	30	70	100	4
20EIM06	Bio medical instrumentation	3	1	0	4	30	70	100	4

# **Bapatla Engineering College**

**( Autonomous )**



***B.Tech***

**Information Technology**

**Curriculum Effective from A.Y. 2020-21**

**(R20 Regulation)**



**Bapatla Engineering College :: Bapatla**

(Autonomous under Acharya Nagarjuna University)

(Sponsored by Bapatla Education Society)

BAPATLA - 522102 Guntur District, A.P., INDIA

[www.becbapatla.ac.in](http://www.becbapatla.ac.in)

Table 1: Distribution of Credits across Course Categories

S.No.	Category	Code	Credits		
			Proposed	APSCHE	AICTE
1	Humanities & Social Science including Management Courses	HSMC	10.5	10.5	12.0
2	Basic Science Courses	BSC	18.0	21.0	25.0
3	Engineering Science courses	ESC	22.5	24.0	24.0
4	Professional Core Courses	PCC	48.0	51.0	48.0
5	Professional Elective Courses	PEC	12.0	15.0	18.0
6	Open/Job Oriented Elective Courses	JOEC	16.5	12.0	18.0
7	Internship, Seminar & Project work	PROJ	16.5	16.5	15.0
8	Skill Oriented Courses	SC	16.0	10.0	-
9	Mandatory Courses	MC		non-credit	
<b>Total Credits</b>			160	160	160

**Scheme of Instruction and Examination**  
 B.Tech., I Semester  
 in  
**Information Technology**

<b>Course Code</b>	<b>Type</b>	<b>Course Title</b>	<b>Hours per week</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>Credits</b>
			<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Tot</b>	<b>CIE</b>	<b>SEE</b>	<b>Tot</b>	
20IT101 /MA01	BS	Linear Algebra and Ordinary Differential Equations	2	1	0	3	30	70	100	3
20IT102 /CY01	BS	Engineering Chemistry	3	0	0	3	30	70	100	3
20IT103 /EE01	ES	Basic Electrical and Electronics Engineering	3	0	0	3	30	70	100	3
20ITL101 /MEL01	ES	Engineering Graphics	1	0	4	5	30	70	100	3
20ITL102 /CYL01	BS	Chemistry Lab	0	0	3	3	30	70	100	1.5
20ITL103 /EEL01	ES	Basic Electrical and Electronics Engineering Lab	0	0	3	3	30	70	100	1.5
20ITL104 /MEL2	ES	Workshop Practice Lab	0	0	3	3	30	70	100	1.5
MC01	MC	Environmental Studies	2	0	0	2	30	0	30	0
Induction Program	First Three Weeks (Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Familiarization to Dept./Branch & Innovations)									
<b>TOTAL</b>			<b>11</b>	<b>1</b>	<b>13</b>	<b>25</b>	<b>240</b>	<b>490</b>	<b>730</b>	<b>16.5</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**Scheme of Instruction and Examination**  
 B.Tech., II Semester  
 in  
**Information Technology**

<b>Course Code</b>	<b>Type</b>	<b>Course Title</b>	<b>Hours per week</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>Credits</b>
			<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Tot</b>	<b>CIE</b>	<b>SEE</b>	<b>Tot</b>	
20IT201 /MA02	BS	Numerical Methods and Advanced Calculus	2	1	0	3	30	70	100	3
20IT202 /PH03	BS	Semiconductor Physics	3	0	0	3	30	70	100	3
20IT203 /EL01	HS	Communicative English	3	0	0	3	30	70	100	3
20IT204 /CS01	ES	Programming for Problem Solving	2	1	0	3	30	70	100	3
20IT205	ES	Digital Logic Design	3	0	0	3	30	70	100	3
20IT206	ES	Discrete Mathematics	3	0	0	3	30	70	100	3
20ITL201 /PHL02	BS	Semiconductor Physics Lab	0	0	3	3	30	70	100	1.5
20ITL202 /ELL01	HS	English Communication Skills Lab	0	0	3	3	30	70	100	1.5
20ITL203 /CSL01	ES	Programming for Problem Solving Lab	0	0	3	3	30	70	100	1.5
NCC / NSS			0	0	3	3				0
<b>TOTAL</b>			<b>16</b>	<b>2</b>	<b>12</b>	<b>30</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>22.5</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**Scheme of Instruction and Examination**  
 B.Tech., III Semester  
 in  
**Information Technology**

<b>Course Code</b>	<b>Type</b>	<b>Course Title</b>	<b>Hours per week</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>Credits</b>
			<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Tot</b>	<b>CIE</b>	<b>SEE</b>	<b>Tot</b>	
20IT301	ES	Microprocessor and Microcontrollers	3	0	0	3	30	70	100	3
20IT302	PC	Data Structures	2	1	0	3	30	70	100	3
20IT303	PC	Object Oriented Programming	2	1	0	3	30	70	100	3
20IT304	PC	Operating System	3	0	0	3	30	70	100	3
20IT305	PC	Computer Organization	3	0	0	3	30	70	100	3
20IT306 /EL02	HS	Technical English	3	0	0	3	30	70	100	3
20ITL301 /SO01	SO	Linux Essentials	2	0	3	5	30	70	100	3.5
20ITL302	PC	Data Structures Lab	0	0	3	3	30	70	100	1.5
20ITL303	PC	Object Oriented Programming Lab	0	0	3	3	30	70	100	1.5
<b>TOTAL</b>			<b>18</b>	<b>2</b>	<b>9</b>	<b>29</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>24.5</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**Scheme of Instruction and Examination**

B.Tech., IV Semester

in

**Information Technology**

Course Code	Type	Course Title	Hours per week				Scheme of Examination (Maximum marks)			Credits
			Lec	Tut	Pra	Tot	CIE	SEE	Tot	
20IT401 /MA03	BS	Probability and Statistics	2	1	0	3	30	70	100	3
20IT402	PC	Web Technologies	3	0	0	3	30	70	100	3
20IT403	PC	Database Management Systems	3	0	0	3	30	70	100	3
20IT404	PC	Design and Analysis of Algorithms	2	1	0	3	30	70	100	3
20ITL401 /SO02	SO	Python Programming	2	0	3	5	30	70	100	3.5
20ITL402	PC	Web Technologies Lab	0	0	3	3	30	70	100	1.5
20ITL403	PC	RDBMS Lab	0	0	3	3	30	70	100	1.5
MC02	MC	Professional Ethics & Human Values	2	0	0	2	30	0	30	0
<b>Total</b>			<b>14</b>	<b>2</b>	<b>9</b>	<b>25</b>	<b>240</b>	<b>490</b>	<b>730</b>	<b>18.5</b>
20ITH41_	<b>Honors(Set I) / Minor(Set II) Course</b>		3	1	0	4	30	70	100	4
20ITM41_										
<b>Grand Total</b>			<b>17</b>	<b>3</b>	<b>9</b>	<b>29</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>22.5</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture

**Tut :** Tutorial

**Pra :** Practical

**Scheme of Instruction and Examination**  
 B.Tech., V Semester  
 in  
**Information Technology**

<b>Course Code</b>	<b>Type</b>	<b>Course Title</b>	<b>Hours per week</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>Credits</b>
			<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Tot</b>	<b>CIE</b>	<b>SEE</b>	<b>Tot</b>	
20IT501	PC	Automata Theory & Formal Languages	2	1	0	3	30	70	100	3
20IT502	PC	Computer Networks	3	0	0	3	30	70	100	3
20IT503	PC	Software Engineering	3	0	0	3	30	70	100	3
20IT504	PE	Professional Elective - 1	3	0	0	3	30	70	100	3
20IT505	JO	Job Oriented Elective - 1	3	0	0	3	30	70	100	3
20ITL501 /SO03	SO	Soft Skills	1	0	2	3	30	70	100	2
20ITL502	PC	Software Engineering Lab	0	0	3	3	30	70	100	1.5
20ITL503	JO	Job Oriented Elective Lab -1	0	0	3	3	30	70	100	1.5
20ITL504 /INT01	INT	Summer Internship	0	0	0	0	0	0	0	1.5
20IT506 /MC03	MC	Essence of Indian Traditional Knowledge	2	0	0	2	30	0	30	0
<b>Total</b>			<b>17</b>	<b>1</b>	<b>8</b>	<b>26</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20ITH5_	<b>Honors(Set I) / Minor(Set II) Course</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>20</b>	<b>2</b>	<b>8</b>	<b>30</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**Scheme of Instruction and Examination**  
 B.Tech., VI Semester  
 in  
**Information Technology**

Course Code	Type	Course Title	Hours per week				Scheme of Examination (Maximum marks)			Credits
			Lec	Tut	Pra	Tot	CIE	SEE	Tot	
20IT601	PC	Compiler Design	3	0	0	3	30	70	100	3
20IT602	PC	Machine Learning	2	1	0	3	30	70	100	3
20IT603	PC	Cryptography and Network Security	3	0	0	3	30	70	100	3
20IT604 /PE-	PE	Professional Elective - 2	3	0	0	3	30	70	100	3
20IT605 /JO-	JO	Job Oriented Elective - 2	3	0	0	3	30	70	100	3
20ITL601 /SO-	SO	Advanced skill oriented - 1	2	0	3	5	30	70	100	3.5
20ITL602	PC	Machine Learning Lab	0	0	3	3	30	70	100	1.5
20ITL603	JO	Job Oriented Elective - 2 Lab	0	0	3	3	30	70	100	1.5
20IT606 /MC04	MC	Constitution of India	2	0	0	2	30	0	30	0
<b>Total</b>			<b>18</b>	<b>1</b>	<b>9</b>	<b>28</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20ITH6_	<b>Honors(Set I) /</b>		3	1	0	4	30	70	100	4
20ITM6_	<b>Minor(Set II) Course</b>									
<b>Grand Total</b>			<b>21</b>	<b>2</b>	<b>9</b>	<b>32</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**Scheme of Instruction and Examination**  
 B.Tech., VII Semester  
 in  
**Information Technology**

Course Code	Type	Course Title	Hours per week				Scheme of Examination (Maximum marks)			Credits
			Lec	Tut	Pra	Tot	CIE	SEE	Tot	
20IT701 /PE-	PE	Professional Elective - 3	3	0	0	3	30	70	100	3
20IT702 /PEMC	PE	Professional Elective - 4 (MOOC)	1	1	1	1	1	1	1	3
20IT703 /JO-	JO	Job Oriented Elective - 3	3	0	0	3	30	70	100	3
20IT704 /OE01	OE	Open Elective	3	0	0	3	30	70	100	3
20IT705 /ME05	HS	Industrial Management & Entrepreneurship Development	3	0	0	3	30	70	100	3
20ITL701 /SO-	SO	Advanced skill oriented - 2	2	0	3	5	30	70	100	3.5
20ITL702	JO	Job Oriented Elective – 3 Lab	0	0	3	3	30	70	100	1.5
20ITL703 /INT02	INT	Industrial / Research Internship	0	0	0	0	0	0	0	3
<b>Total</b>			<b>14</b>	<b>0</b>	<b>6</b>	<b>20</b>	<b>180</b>	<b>420</b>	<b>600</b>	<b>23</b>
20ITH7_	<b>Honors(Set I) / Minor(Set II) Course</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>17</b>	<b>1</b>	<b>6</b>	<b>24</b>	<b>210</b>	<b>490</b>	<b>700</b>	<b>27</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**Scheme of Instruction and Examination**  
 B.Tech., VIII Semester  
 in  
**Information Technology**

<b>Course Code</b>	<b>Type</b>	<b>Course Title</b>	<b>Hours per week</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>Credits</b>
			<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Tot</b>	<b>CIE</b>	<b>SEE</b>	<b>Tot</b>	
20IT801	PW	Project Work	0	0	0	0	50	100	150	12
20ITH8 20ITM8	<b>Honors / Minor Course (MOOCS-1)</b>		0	0	0	0	0	0	0	2
20ITH8 20ITM8	<b>Honors / Minor Course (MOOCS-2)</b>		0	0	0	0	0	0	0	2
<b>Grand Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>16</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture              **Tut :** Tutorial    **Pra :** Practical

Table 2: List of Professional Electives

SN	Title
1	Wireless Networks
2	Data Warehousing & Data Mining
3	Distributed Systems
4	Artificial Intelligence
5	Digital Image Processing
6	Block Chain Technologies
7	Protocols for Secure Electronics Commerce Bioinformatics
8	ANN & Deep Learning
9	Natural Language Processing

Table 3: List of Job Oriented Electives

SN	Title
1	Enterprise Programming
2	Middleware Technologies
3	Mobile Application Development
4	Cloud Programming
5	R Programming
6	Cyber Security
7	Internet of Things
8	Big Data Analytics
9	Software Testing Methodologies

Table 4: List of Advanced Skill Oriented Electives

SN	Title
1	Introduction to Computer Animation
2	Full Stack Development
3	DevOps
4	Robotic Process Automation
5	Introduction to Game Design

Table 5: Set I, Additional courses offered to B.Tech., IT students to obtain Honors degree in Information Technology

<b>Code</b>	<b>Title</b>	<b>Prerequisites</b>
A	Advanced Data Structures	Data Structures (20IT302)
B	Advanced Computer Architecture	Computer Organization (20IT305)
C	Graph Theory	Data Structures (20IT302)
D	Numerical Optimization	None
E	Advanced Database Management Systems	Database Management Systems (20IT403)
F	Real Time Operating Systems	Operating Systems (20IT304)
G	Parallel Algorithms	Design and Analysis of Algorithms (20IT404)
H	Embedded Systems	Operating Systems (20IT304) and Microprocessor and Microcontrollers (20IT401)
I	Software Project Management	Software Engineering (20IT503)
J	Storage Area Networks	Operating Systems (20IT304) and Database Management Systems (20IT403)
K	Computational Complexity	Design and Analysis of Algorithms (20IT404)
L	Competitive Programming	Object Oriented Programming (20IT303), Computational Complexity (20ITHN11)
M	Game Theory	Numerical Optimization (20ITHN04)
N	Spatial Informatics	Database Management Systems (20IT403)
O	Perception and Computer Vision	Digital Image Processing
P	Virtual Reality	Computer Animation

Table 6: Set II, Courses offered to non CSE and IT branch B.Tech., students for obtaining Minor degree in Information Technology

<b>Code</b>	<b>Title</b>	<b>Prerequisites</b>
A	Computer System Architecture	None
B	Operating Systems	None
C	Data Structures	Programming for Problem Solving (CS01)
D	Object Oriented Programming	Programming for Problem Solving(CS01)
E	Discrete Mathematics	None
F	Design and Analysis of Algorithms	Programming for Problem Solving (CS01)
G	Database Management Systems	None
H	Computer Networks	None

**BAPATLA ENGINEERING COLLEGE: BAPATLA**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**Revised Curriculum – R 20**

**Academic Regulations,**

**Scheme & Course structure**

**and**

**Syllabus**

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**Effective from the Academic Year2020-2021 (R20 Regulations)**  
**First Year B.Tech (SEMESTER – I)**

Code No.	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
20ME101/MA01	Mathematics-I (Linear Algebra and Ordinary Differential Equations)	3	0	0	3	30	70	100	3
20ME102/PH01	Physics (Advanced Optics and Material Testing)	3	0	0	3	30	70	100	3
20ME103/EE01	Basic Electrical and Electronics Engineering	3	0	0	3	30	70	100	3
20ME104	Engineering Mechanics-I	3	0	0	3	30	70	100	3
20ME105/CS01	Problem Solving using Programming	3	0	0	3	30	70	100	3
20MEL101/PHL01	Physics Laboratory	0	0	3	3	30	70	100	1.5
20MEL102/EEL01	Basic Electrical and Electronics Engineering Lab	0	0	3	3	30	70	100	1.5
20MEL103/CPL01	Problem Solving Using Programming lab	0	0	3	3	30	70	100	1.5
Induction Program	First Three Weeks (Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Familiarization to Dept./Branch & Innovations)								
	<b>TOTAL</b>	<b>15</b>	<b>0</b>	<b>9</b>	<b>24</b>	<b>240</b>	<b>400</b>	<b>800</b>	<b>19.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,      T: Tutorial,      P: Practical

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**Effective from the Academic Year2020-2021 (R20 Regulations)**  
**First Year B.Tech (SEMESTER – II)**

Code No.	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
20ME201/MA02	Mathematics-II (Numerical Methods and Advanced Calculus)	3	0	0	3	30	70	100	3
20ME202/CY01	Engineering Chemistry	3	0	0	3	30	70	100	3
20ME203/EL01	Communicative English	3	0	0	3	30	70	100	3
20ME204	Engineering Mechanics- II	3	0	0	3	30	70	100	3
20ME205/CE01	Environmental Studies	2	0	0	2	30	--	30	0
20MEL201/MEL01	Engineering Graphics	1	0	4	5	30	70	100	3
20MEL202/CYL01	Engineering Chemistry Laboratory	0	0	3	3	30	70	100	1.5
20MEL203/ELL01	English Communication Skills Laboratory	0	0	3	3	30	70	100	1.5
20MEL204/MEL02	Workshop Practice Lab	0	0	3	3	30	70	100	1.5
	NCC/NSS	0	0	2	2	--	--	--	0
	<b>TOTAL</b>	<b>15</b>	<b>0</b>	<b>15</b>	<b>30</b>	<b>450</b>	<b>450</b>	<b>830</b>	<b>19.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,            T: Tutorial,            P: Practical

MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**PROPOSED SCHEME OF INSTRUCTION**  
**For**  
***Mechanical Engineering***  
**(R20 Regulations)**  
**Second Year B.Tech(SEMESTER – III)**

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credit s
			L	T	P	Total	CIE	SEE	Total Marks	
20ME301/MA03	S	Mathematics- III	3	0	0	3	30	70	100	3
20ME302	PC	Basic manufacturing processes	3	0	0	3	30	70	100	3
20ME303	PC	Strength of Materials	3	0	0	3	30	70	100	3
20ME304/ES	ES	Engineering Thermodynamics	3	0	0	3	30	70	100	3
20ME305	PC	Fluid Mechanics & Hydraulic Machines	3	0	0	3	30	70	100	3
20MEL301	PC	Machine Drawing lab	0	0	3	3	30	70	100	1.5
20MEL302	PC	SM&FM lab	0	0	3	3	30	70	100	1.5
20MEL303	PC	Basic Manufacturing Processes lab	0	0	3	3	30	70	100	1.5
20ME306/SO	SO	Pneumatic & Hydraulic drives Lab	0	1	2	3	30	70	100	2
20ME307/MC	MC	Professional Ethics and Human Values	2	0	0	2	30	0	30	0
		TOTAL	17	1	11	29	300	630	930	21.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

ES- Engineering Science

SO- Skill Oriented MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**PROPOSED SCHEME OF INSTRUCTION**  
**For**  
***Mechanical Engineering***  
**(R20 Regulations)**  
**Second Year B.Tech (SEMESTER – IV)**

<b>Code No.</b>	<b>Category Code</b>	<b>Subject</b>	<b>Scheme of Instruction (Hours per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
			<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
20ME401/BS	S	Materials Engineering	3	0	0	3	30	70	100	3
20ME402	PC	Metal Cutting & Machine Tools	3	0	0	3	30	70	100	3
20ME403	PC	Kinematics of Machines	3	0	0	3	30	70	100	3
20ME404	PC	Applied Thermodynamics	3	0	0	3	30	70	100	3
20ME405/HS	HS	Industrial Engineering & Management	3	0	0	3	30	70	100	3
20MEL401	PC	Modeling lab	0	0	3	3	30	70	100	1.5
20MEL402	PC	Fuels & Oil testing lab	0	0	3	3	30	70	100	1.5
20MEL403	PC	Machine shop Practice	0	0	3	3	30	70	100	1.5
20ME406/SO	SO	Sensorics & PLC LAB	0	1	2	3	30	70	100	2
<b>TOTAL</b>			<b>15</b>	<b>1</b>	<b>11</b>	<b>27</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>21.5</b>
<b>Honors/Minors course (pool-I)</b>			<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>18</b>	<b>2</b>	<b>11</b>	<b>31</b>	<b>300</b>	<b>700</b>	<b>1000</b>	<b>25.5</b>

ES- Engineering Science  
 Sciences

SO- Skill Oriented

HS- Humanities and Social

CIE: Continuous Internal Evaluation  
 L: Lecture, T: Tutorial,

SEE: Semester End Examination

P: Practical

1 Hr. Lecture (L) per week - 1 credit  
 1 Hr. Tutorial (T) per week - 1 credit  
 1 Hr. Practical (P) per week - 0.5 credits  
 2 Hours Practical (Lab)/week - 1 credit

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**PROPOSED SCHEME OF INSTRUCTION**  
**For**  
**Mechanical Engineering**  
**(R20 Regulations)**  
**Second Year B.Tech (SEMESTER – V)**

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20ME501	PC	Dynamics of Machines	3	0	0	3	30	70	100	3
20ME502	PC	Design of Machine Elements	3	0	0	3	30	70	100	3
20ME503	PC	Manufacturing Technology	3	0	0	3	30	70	100	3
20ME504-PE	PE-I		3	0	0	3	30	70	100	3
20ME505-JO	OE/JO		3	0	0	3	30	70	100	3
20MEL501	PC	IC Engines lab	0	0	3	3	30	70	100	1.5
20MEL502	PC	Design and Metrology lab	0	0	3	3	30	70	100	1.5
20ME506/ SO	SO	Internet of Things	0	1	2	3	30	70	100	2
20ME507/ MC	MC	Design Thinking & Product Innovation	2	0	0	2	30	0	30	0
20MEL503/ INT	INT	Summer Internship	0	0	0	0	0	0	0	1.5
		TOTAL	17	1	8	26	270	560	830	21.5
<b>Honors/Minors course (pool-II)</b>			<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>20</b>	<b>2</b>	<b>8</b>	<b>30</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

**Professional Elective-I**

1. Advanced Strength of Materials
2. Non-Destructive Evaluation
3. I.C. Engines & Gas Turbines
4. Nano Technology

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**PROPOSED SCHEME OF INSTRUCTION**  
**For**  
***Mechanical Engineering***  
**(R20 Regulations)**  
**Second Year B.Tech (SEMESTER – VI)**

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20ME601	PC	CAD/CAM	3	0	0	3	30	70	100	3
20ME602	PC	Design of Transmission Elements	3	0	0	3	30	70	100	3
20ME603	PC	Heat Transfer	3	0	0	3	30	70	100	3
20ME604-PE	PE -II		3	0	0	3	30	70	100	3
20ME605-JO	JO		3	0	0	3	30	70	100	3
20MEL601	PC	Heat Transfer lab	0	0	3	3	30	70	100	1.5
20MEL602	PC	CAE lab	0	0	3	3	30	70	100	1.5
20MEL603	PC	CAM lab	0	0	3	3	30	70	100	1.5
20ME606/SS	SS	Soft Skills	0	0	3	3	30	70	100	2
20ME607/MC	MC	Constitution of India	2	0	0	2	30	0	0	0
TOTAL			17	0	12	29	300	630	930	21.5
<b>Honors/Minors course (pool-III)</b>			3	1	0	4	30	70	100	4
<b>Grand Total</b>			20	1	8	33	330	700	1030	25.5

**Professional Elective-II**

1. Finite Element Analysis
2. Non-Conventional Energy Sources
3. Advanced Manufacturing Processes
4. Operations Research

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**PROPOSED SCHEME OF INSTRUCTION**  
**For**  
***Mechanical Engineering***  
**(R20 Regulations)**  
**Second Year B.Tech (SEMESTER – VII)**

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20ME701-PE	E-III		3	0	0	3	30	70	100	3
20ME702-PE	PE-IV		3	0	0	3	30	70	100	3
20ME703-PE	PE-V		3	0	0	3	30	70	100	3
20ME704-JO	JO		3	0	0	3	30	70	100	3
20ME705-OE	OE		3	0	0	3	30	70	100	3
20ME706-HSE	HSE		2	0	2	4	30	70	100	3
20ME707/SA	SA	3D Printing	0	1	2	3	30	70	100	2
20MEL701/ INT	INT	Summer Internship	0	0	0	0	0	0	0	3
TOTAL			17	1	04	22	210	490	700	23
<b>Honors/Minors course (pool-IV)</b>			<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>20</b>	<b>2</b>	<b>4</b>	<b>26</b>	<b>240</b>	<b>560</b>	<b>800</b>	<b>27</b>

<b>Professional Elective-III</b> <b>20ME701-PE</b> 1. Mechanical Vibrations 2. Energy Conservation and Management 3. Robotics 4. Farm Machinery and Equipment	<b>Professional Elective-IV</b> <b>20ME702-PE</b> 1. Computational Fluid Dynamics 2. Automobile Engineering 3. Composite Materials 4. Mechatronics	<b>Professional Elective-V</b> <b>20ME703-PE</b> 1. Refrigeration & Air Conditioning. 2. Computer Integrated Manufacturing 3. Operations Management 4. Product Design and Development	<b>Humanities and Social Sciences Elective</b> <b>20ME706-HSE</b> 1. Engineering Economics & Financial Analysis 2. Entrepreneurship Development 3. Supply chain Management 4. Total Quality Management
--	---	--	---

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**(R20 Regulations)**  
**Second Year B.Tech(SEMESTER – VIII)**

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20MEL801	PROJ	Project Work	0	0	0	0	50	100	150	12
<b>Honors/Minors course (MOOCs-1)</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>Honors/Minors course (MOOCs-2)</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>Grand Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>16</b>

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

\* Students has to Select 12 week MOOC's (NPTEL/Swayam) Program in opting the Programme Course Electives, for a maximum of two MOOC's (NPTEL/Swayam) Program's out of five Programme Course Electives.

### LIST OF JOB ORIENTED COURSES

S.No.	SUBJECT	L	T	P	Credits
1	Java Programming	2	0	2	3
2	Database Management	2	0	2	3
3	Introduction to Data Analytics	2	0	2	3
4	Python Programming	2	0	2	3
5	Inspection and quality Control	2	0	2	3
6	Supply chain analysis	2	0	2	3
7	Industrial safety Engineering	2	0	2	3
8	Industry 4.0	2	0	2	3

### List of Open Electives offered by Mechanical Engineering

S.NO.	SUBJECT	L	T	P	Credits
1	Automobile Engineering	4	0	0	4
2	Project Management	4	0	0	4
3	Entrepreneurship Development	4	0	0	4
4	Non-conventional energy sources	4	0	0	4
5	Product Design & Development	4	0	0	4

### List of Honors courses

S.No.	SUBJECT	L	T	P	Credits
1	Advanced Strength of Materials	4	0	0	4
2	Non-Destructive Evaluation	4	0	0	4
3	Analysis and Synthesis of Mechanisms	4	0	0	4
4	Nano Technology	4	0	0	4
5	Finite Element Analysis	4	0	0	4
6	Advanced Manufacturing Processes	4	0	0	4
7	Design of Heat Transfer Equipment	4	0	0	4
8	Vibration and Noise Control	4	0	0	4
9	Energy Conservation and Management	4	0	0	4
10	Computational Fluid Dynamics	4	0	0	4
11	Composite Materials	4	0	0	4
12	Computer Integrated Manufacturing	4	0	0	4
13	Product Design and Development	4	0	0	4
14	Entrepreneurship Development	4	0	0	4
15	Supply chain Management	4	0	0	4
16	Total Quality Management	4	0	0	4

\*For obtaining Honors/Minors, the students has to complete two MOOC's (NPTEL/Swayam) Programs of eight weeks each, in-addition to the four courses scheduled in the course structure, not exceeding two courses (One for Honor and One for Minor) in a semester.

### MINOR COURSES OFFERED BY MECHANICAL ENGINEERING

S.No.	SUBJECT	L	T	P	Credits
1	Elements of Mechanical Engineering	4	0	0	4
2	Engineering Mechanics	4	0	0	4
3	Engineering economics and financial analysis	4	0	0	4
4	3D printing	4	0	0	4
5	Mechatronics	4	0	0	4
6	Entrepreneurship development	4	0	0	4
7	Automobile Engineering	4	0	0	4
8	Thermal engineering	4	0	0	4
9	Non conventional energy sources	4	0	0	4
10	Robotics	4	0	0	4
11	Manufacturing Science	4	0	0	4
12	Fundamentals of Mechanical Design	4	0	0	4



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**



**Scheme  
(w.e.f. 2020-2021)**

**4 Year B.Tech Program  
of  
Cyber Security**



**DEPARTMENT OF CYBER SECURITY**  
**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(AUTONOMOUS UNDER ACHARYA NAGARJUNA UNIVERSITY)**  
**(SPONSORED BY BAPATLA EDUCATION SOCIETY)**  
**BAPATLA - 522102 GUNTUR DISTRICT, A.P.**  
**[www.becbapatla.ac.in](http://www.becbapatla.ac.in)**



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**

**Course Structure Summary**

S.No	Category	Credits	% of Credits
1	Humanities & Social Science including Management Courses	10.5	6.5
2	Basic Science Courses	18	11.5
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	22.5	14.0
4	Professional Core Courses	48	23.5
5	Professional Elective Courses	12	7.5
6	Job Oriented/Open Elective Courses	16.5	10.5
7	Project work, seminar, and internship in industry or elsewhere	16.5	16.5
8	Skill Oriented Courses	16	10.0
9	Mandatory Courses [Environmental Science, PEHV, Indian Constitution, Essence of Indian Traditional Knowledge etc]	-	-
<b>Total</b>		<b>160</b>	<b>100</b>

**Semester Wise Credits Summary**

Semester	Credits	With Honor Credits
Semester-I	16.5	16.5
Semester-II	22.5	22.5
Semester-III	21.5	21.5
Semester-IV	21.5	25.5
Semester-V	21.5	25.5
Semester-VI	21.5	25.5
Semester-VII	23	27
Semester-VIII	12	16
<b>Total</b>		<b>180</b>



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**First Year B.Tech (SEMESTER – I)**

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB101/MA01	BS	Linear algebra and differential equations	2	1	0	3	30	70	100	3
20CB102/PH03	BS	Semiconductor Physics	3	0	0	3	30	70	100	3
20CB103/EE01	ES	Basic Electronics & Electrical Engineering	3	0	0	3	30	70	100	3
20CB104/EL01	HS	Communicative English	3	0	0	3	30	70	100	3
20CBL101/PHL02	BS	Semiconductor Physics Lab	0	0	3	3	30	70	100	1.5
20CBL102/EEL01	ES	Basic Electronics & Electrical Engineering Lab	0	0	3	3	30	70	100	1.5
20CBL103/ELL01	HS	English Communication skills Lab	0	0	3	3	30	70	100	1.5
20CB105/CE01	MC	Environmental Studies	2	0	0	2	30	0	30	0
INDUCTION PROGRAM	First Three Weeks (Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Familiarization to Dept./Branch & Innovations)									
<b>TOTAL</b>			13	1	09	23	240	490	730	16.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**First Year B.Tech (SEMESTER – II)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB201/MA02	BS	Numerical Methods & Advanced Calculus	2	1	0	3	30	70	100	3
20CB202/CY01	BS	Engineering Chemistry	3	0	0	3	30	70	100	3
20CB203/CS01	ES	Programming for Problem Solving	2	1	0	3	30	70	100	3
20CB204	ES	Digital Logic Design	3	0	0	3	30	70	100	3
20CB205	ES	Discrete Mathematics	3	0	0	3	30	70	100	3
20CBL201/MEL01	ES	Engineering Graphics	1	0	4	5	30	70	100	3
20CBL202/CYL01	BS	Chemistry Lab	0	0	3	3	30	70	100	1.5
20CBL203/CSL01	ES	Programming for Problem Solving Lab	0	0	3	3	30	70	100	1.5
20CBL204/MEL02	ES	Workshop Practice Lab	0	0	3	3	30	70	100	1.5
NCC/NSS			0	0	3	3				0
<b>TOTAL</b>			<b>14</b>	<b>2</b>	<b>16</b>	<b>32</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>22.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**Second Year B.Tech (SEMESTER – III)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB301/MA03	BS	Probability & Statistics	2	1	0	3	30	70	100	3
20CB302	PC	Data Structures	2	1	0	3	30	70	100	3
20CB303	PC	Object Oriented Programming	2	1	0	3	30	70	100	3
20CB304	PC	Operating System	3	0	0	3	30	70	100	3
20CB305	PC	Computer Organization	3	0	0	3	30	70	100	3
20CBL301/SO01	SO	Python Programming	2	0	3	5	30	70	100	3.5
20CBL302	PC	Data Structures Lab	0	0	3	3	30	70	100	1.5
20CBL303	PC	Object Oriented Programming Lab	0	0	3	3	30	70	100	1.5
20CB306/MC02	MC	Professional Ethics & Human Values	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>16</b>	<b>3</b>	<b>9</b>	<b>28</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**Second Year B.Tech (SEMESTER – IV)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB401/MA04	ES	Mathematical Foundations of Security	3	0	0	3	30	70	100	3
20CB402	PC	Web Technologies	3	0	0	3	30	70	100	3
20CB403	PC	Database Management System	3	0	0	3	30	70	100	3
20CB404	PC	Design and Analysis of Algorithms	2	1	0	3	30	70	100	3
20CB405/EL02	HS	Technical English	3	0	0	3	30	70	100	3
20CBL401/SO02	SO	Kali Linux Virtual Lab Setup	2	0	3	5	30	70	100	3.5
20CBL402	PC	Web Technologies Lab	0	0	3	3	30	70	100	1.5
20CBL403	PC	RDBMS Lab	0	0	3	3	30	70	100	1.5
<b>TOTAL</b>			<b>16</b>	<b>1</b>	<b>9</b>	<b>26</b>	<b>240</b>	<b>560</b>	<b>800</b>	<b>21.5</b>
20CBM4_ / 20CBH4_	<b>Honors/Minor Course (Pool 1)</b>		<b>1</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>19</b>	<b>2</b>	<b>9</b>	<b>30</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**Third Year B.Tech (SEMESTER – V)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB501	PC	Automata Theory & Formal Languages	2	1	0	3	30	70	100	3
20CB502	PC	Computer Networks	3	0	0	3	30	70	100	3
20CB503	PC	Software Engineering	3	0	0	3	30	70	100	3
20CB504/PE__	PE	Professional Elective - 1	3	0	0	3	30	70	100	3
20CB505/JO__	JO	Job Oriented Elective - 1	3	0	0	3	30	70	100	3
20CBL501/SO03	SO	Soft Skills	1	0	2	3	30	70	100	2
20CBL502	PC	Software Engineering Lab	0	0	3	3	30	70	100	1.5
20CBL503	JO	Job Oriented Elective Lab -1	0	0	3	3	30	70	100	1.5
20CBL504 /INT01	INT	Summer Internship	0	0	0	0	0	0	0	1.5
20CB506/MC03	MC	Essence of Indian Traditional Knowledge	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>17</b>	<b>1</b>	<b>8</b>	<b>26</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20CBM5_ / 20CBH5_	<b>Honors/Minor Course (Pool 2)</b>		1	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>20</b>	<b>2</b>	<b>8</b>	<b>30</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**Third Year B.Tech (SEMESTER – VI)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB601	PC	Compiler Design	3	0	0	3	30	70	100	3
20CB602	PC	Machine Learning	2	1	0	3	30	70	100	3
20CB603	PC	Cryptography & Network Security	3	0	0	3	30	70	100	3
20CB604/PE_	PE	Professional Elective -2	3	0	0	3	30	70	100	3
20CB605/JO_	JO	Job Oriented Elective - 2	3	0	0	3	30	70	100	3
20CBL601/ SO04	SO	Advanced Skill Oriented - 1	2	0	3	5	30	70	100	3.5
20CBL602	PC	Machine Learning Lab	0	0	3	3	30	70	100	1.5
20CBL603	JO	Job Oriented Elective Lab - 2	0	0	3	3	30	70	100	1.5
20CB606/MC04	MC	Constitution of India	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>18</b>	<b>1</b>	<b>9</b>	<b>28</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20CBM6 / 20CBH6_	<b>Honors/Minor Course (Pool 3)</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>21</b>	<b>2</b>	<b>9</b>	<b>32</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**Fourth Year B.Tech (SEMESTER – VII)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB701/PE_	PE	Professional Elective - 3	3	0	0	3	30	70	100	3
20CB702/PE_	PE	Professional Elective – 4 (MOOCs)	1	1	1	3	10	10	10	3
20CB703/JO_	JO	Job Oriented Elective - 3	3	0	0	3	30	70	100	3
20CB704/OE_	OE	Open Elective	3	0	0	3	30	70	100	3
20CB705/ME05	HS	Industrial Management & Entrepreneurship Development	3	0	0	3	30	70	100	3
20CBL701/SO05	SO	Advanced Skill Oriented - 2	2	0	3	5	30	70	100	3.5
20CBL702	JO	Job Oriented Elective – 3 Lab	0	0	3	3	30	70	100	1.5
20CBL703/INT02	INT	Industrial/ Research Internship	0	0	0	0	0	0	0	3
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>6</b>	<b>20</b>	<b>180</b>	<b>420</b>	<b>600</b>	<b>23</b>
20CBM7 / 20CBH7_	<b>Honors/Minor Course (Pool 4)</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>17</b>	<b>1</b>	<b>6</b>	<b>24</b>	<b>210</b>	<b>490</b>	<b>700</b>	<b>27</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Cyber Security***  
**Fourth Year B.Tech (SEMESTER – VII)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20CB801/PW01	PROJ	Project Work	0	0	0	0	50	100	150	12
20CBM8 / 20CBH8 _	<b>Honors/Minor Courses (MOOCs - 1)</b>		0	0	0	0	0	0	0	2
20CBM8 / 20CBH8 _	<b>Honors/Minor Courses (MOOCs - 2)</b>		0	0	0	0	0	0	0	2
<b>Grand Total</b>			0	0	0	0	50	100	150	16

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

**List of Professional Electives:-**

1. Introduction to Information Security and Cyber Laws
2. Malware Analysis & Reverse Engineering
3. Security Assessment & Risk Analysis
4. Information Theory & Audit Monitoring
5. Cyber Crime Investigation and Digital Forensics
6. Protocols for Secure Electronic Commerce
7. Block chain Technologies
8. Wireless Networks
9. Distributed Systems.

**List of Job Oriented Electives:-**

1. Web & Data Security
2. Ethical Hacking & Social Engineering
3. Intrusion Detection and Prevention System
4. Secure Coding
5. Bio Metric Security
6. Digital Watermarking & Steganography
7. Mobile Application Security
8. Cloud Security
9. IoT security

**List of Advanced Skill Oriented Elective:-**

1. Introduction to Computer Animation
2. Full Stack Development
3. DevOps
4. Robotic Process Automation
5. Introduction to Game Design



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**

**List of Subjects offered under Honors in Cyber Security**

**Note:** - Students have to acquire 20 credits for the award of Honors in Cyber Security.

- i. 16 credits (04 courses@ 4 credits each) shall be earned through the following list of courses.
- ii. 4 credits (02 courses@ 2 credits each) must be acquired through two MOOCs from the following list of courses with a minimum duration of 8/12 weeks.
- iii. Before choosing those courses, students must complete prerequisites.  
  
A. Advanced Data Structures.  
B. Advanced Computer Architecture  
C. Graph Theory  
D. Numerical Optimization.  
E. Advanced Database Systems  
F. Real Time Operating Systems.  
G. Parallel Algorithms.  
H. Embedded Systems.  
I. Secure Computation  
J. Firewall & VPN Security  
K. Network Security & Cyber Laws.  
L. Cyberspace Operations and Design.  
M. Applied Cryptography.  
N. Security Governance, Risk and compliance.  
O. Perception & Computer Vision.  
P. Secure Software Design & Enterprise Computing



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**



**Scheme  
(w.e.f. 2020-2021)**

**4 Year B.Tech Program  
of  
Data Science**



**DEPARTMENT OF DATA SCIENCES**  
**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(AUTONOMOUS UNDER ACHARYA NAGARJUNA UNIVERSITY)**  
**(SPONSORED BY BAPATLA EDUCATION SOCIETY)**  
**BAPATLA - 522102 GUNTUR DISTRICT, A.P.**  
**[www.becbapatla.ac.in](http://www.becbapatla.ac.in)**



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**

**Course Structure Summary**

S.No	Category	Credits	% of Credits
1	Humanities & Social Science including Management Courses	10.5	6.5
2	Basic Science Courses	18	11.5
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	22.5	14.0
4	Professional Core Courses	48	23.5
5	Professional Elective Courses	12	7.5
6	Job Oriented/Open Elective Courses	16.5	10.5
7	Project work, seminar, and internship in industry or elsewhere	16.5	16.5
8	Skill Oriented Courses	16	10.0
9	Mandatory Courses [Environmental Science, PEHV, Indian Constitution, Essence of Indian Traditional Knowledge etc]	-	-
<b>Total</b>		<b>160</b>	<b>100</b>

**Semester Wise Credits Summary**

Semester	Credits	With Honor Credits
Semester-I	16.5	16.5
Semester-II	22.5	22.5
Semester-III	21.5	21.5
Semester-IV	21.5	25.5
Semester-V	21.5	25.5
Semester-VI	21.5	25.5
Semester-VII	23	27
Semester-VIII	12	16
<b>Total</b>	<b>160</b>	<b>180</b>



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**First Year B.Tech (SEMESTER – I)**

Code No.	Category Code	Subject	Scheme of Instruction (Hours per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS101/MA01	BS	Linear algebra and differential equations	2	1	0	3	30	70	100	3
20DS102/PH03	BS	Semiconductor Physics	3	0	0	3	30	70	100	3
20DS103/EE01	ES	Basic Electronics & Electrical Engineering	3	0	0	3	30	70	100	3
20DS104/EL01	HS	Communicative English	3	0	0	3	30	70	100	3
20DSL101/PHL02	BS	Semiconductor Physics Lab	0	0	3	3	30	70	100	1.5
20DSL102/EEL01	ES	Basic Electronics & Electrical Engineering Lab	0	0	3	3	30	70	100	1.5
20DSL103/ELL01	HS	English Communication skills Lab	0	0	3	3	30	70	100	1.5
20DS105/MC01	MC	Environmental Studies	2	0	0	2	30	0	30	0
INDUCTION PROGRAM	First Three Weeks (Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Familiarization to Dept./Branch & Innovations)									
<b>TOTAL</b>			13	1	09	23	240	490	730	16.5

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

1 Hr. Lecture (L) per week - 1 credit

1 Hr. Tutorial (T) per week - 1 credit

1 Hr. Practical (P) per week - 0.5 credits

2 Hours Practical (Lab)/week - 1 credit



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**First Year B.Tech (SEMESTER – II)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS201/MA02	BS	Numerical Methods & Advanced Calculus	2	1	0	3	30	70	100	3
20DS202/CY01	BS	Engineering Chemistry	3	0	0	3	30	70	100	3
20DS203/CS01	ES	Programming for Problem Solving	2	1	0	3	30	70	100	3
20DS204	ES	Digital Logic Design	3	0	0	3	30	70	100	3
20DS205	ES	Discrete Mathematics	3	0	0	3	30	70	100	3
20DSL201/MEL01	ES	Engineering Graphics	1	0	4	5	30	70	100	3
20DSL202/CYL01	BS	Chemistry Lab	0	0	3	3	30	70	100	1.5
20DSL203/CSL01	ES	Programming for Problem Solving Lab	0	0	3	3	30	70	100	1.5
20DSL204/MEL02	ES	Workshop Practice Lab	0	0	3	3	30	70	100	1.5
NCC/NSS			0	0	3	3				0
<b>TOTAL</b>			<b>14</b>	<b>2</b>	<b>16</b>	<b>32</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>22.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**Second Year B.Tech (SEMESTER – III)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS301/MA03	BS	Probability & Statistics	2	1	0	3	30	70	100	3
20DS302	PC	Data Structures	2	1	0	3	30	70	100	3
20DS303	PC	Object Oriented Programming	2	1	0	3	30	70	100	3
20DS304	PC	Operating System	3	0	0	3	30	70	100	3
20DS305	PC	Computer Organization	3	0	0	3	30	70	100	3
20DSL301/SO01	SO	Python Programming	2	0	3	5	30	70	100	3.5
20DSL302	PC	Data Structures Lab	0	0	3	3	30	70	100	1.5
20DSL303	PC	Object Oriented Programming Lab	0	0	3	3	30	70	100	1.5
20DS306/MC02	MC	Professional Ethics & Human Values	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>16</b>	<b>3</b>	<b>9</b>	<b>28</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**Second Year B.Tech (SEMESTER – IV)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS401/MA04	ES	Mathematical Foundations of Data Sciences	3	0	0	3	30	70	100	3
20DS402	PC	Web Technologies	3	0	0	3	30	70	100	3
20DS403	PC	Database Management System	3	0	0	3	30	70	100	3
20DS404	PC	Design and Analysis of Algorithms	2	1	0	3	30	70	100	3
20DS405/EL02	HS	Technical English	3	0	0	3	30	70	100	3
20DSL401/SO02	SO	R Programming	2	0	3	5	30	70	100	3.5
20DSL402	PC	Web Technologies Lab	0	0	3	3	30	70	100	1.5
20DSL403	PC	RDBMS Lab	0	0	3	3	30	70	100	1.5
<b>TOTAL</b>			<b>16</b>	<b>1</b>	<b>9</b>	<b>26</b>	<b>240</b>	<b>560</b>	<b>800</b>	<b>21.5</b>
20DSM4_ / 20DSH4_	<b>Honors/Minor Course (Pool 1)</b>		<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>Grand Total</b>			<b>19</b>	<b>2</b>	<b>9</b>	<b>30</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**Third Year B.Tech (SEMESTER – V)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS501	PC	Automata Theory & Formal Languages	2	1	0	3	30	70	100	3
20DS502	PC	Computer Networks	3	0	0	3	30	70	100	3
20DS503	PC	Software Engineering	3	0	0	3	30	70	100	3
20DS504/PE__	PE	Professional Elective - 1	3	0	0	3	30	70	100	3
20DS505/JO__	JO	Job Oriented Elective - 1	3	0	0	3	30	70	100	3
20DSL501/SO03	SO	Soft Skills	1	0	2	3	30	70	100	2
20DSL502	PC	Software Engineering Lab	0	0	3	3	30	70	100	1.5
20DSL503	JO	Job Oriented Elective Lab -1	0	0	3	3	30	70	100	1.5
20DSL504 /INT01	INT	Summer Internship	0	0	0	0	0	0	0	1.5
20DS506/MC03	MC	Essence of Indian Traditional Knowledge	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>17</b>	<b>1</b>	<b>8</b>	<b>26</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20DSM5_ / 20DSH5_	<b>Honors/Minor Course (Pool 2)</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>20</b>	<b>2</b>	<b>8</b>	<b>30</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**Third Year B.Tech (SEMESTER – VI)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS601	PC	Compiler Design	3	0	0	3	30	70	100	3
20DS602	PC	Machine Learning	2	1	0	3	30	70	100	3
20DS603	PC	Cryptography & Network Security	3	0	0	3	30	70	100	3
20DS604/PE_	PE	Professional Elective -2	3	0	0	3	30	70	100	3
20DS605/JO_	JO	Job Oriented Elective - 2	3	0	0	3	30	70	100	3
20DSL601/SO04	SO	Advanced Skill Oriented - 1	2	0	3	5	30	70	100	3.5
20DSL602	PC	Machine Learning Lab	0	0	3	3	30	70	100	1.5
20DSL603	JO	Job Oriented Elective Lab - 2	0	0	3	3	30	70	100	1.5
20DS606/MC04	MC	Constitution of India	2	0	0	2	30	0	30	0
<b>TOTAL</b>			<b>18</b>	<b>1</b>	<b>9</b>	<b>28</b>	<b>270</b>	<b>560</b>	<b>830</b>	<b>21.5</b>
20DSM6_ / 20DSH6_	<b>Honors/Minor Course (Pool 3)</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>21</b>	<b>2</b>	<b>9</b>	<b>32</b>	<b>300</b>	<b>630</b>	<b>930</b>	<b>25.5</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**Fourth Year B.Tech (SEMESTER – VII)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS701/PE_	PE	Professional Elective - 3	3	0	0	3	30	70	100	3
20DS702/PE_	PE	Professional Elective – 4 (MOOCs)	1	1	1	3	10	10	10	3
20DS703/JO_	JO	Job Oriented Elective - 3	3	0	0	3	30	70	100	3
20DS704/OE_	OE	Open Elective	3	0	0	3	30	70	100	3
20DS705/ME05	HS	Industrial Management & Entrepreneurship Development	3	0	0	3	30	70	100	3
20DSL701/SO05	SO	Advanced Skill Oriented - 2	2	0	3	5	30	70	100	3.5
20DSL702	JO	Job Oriented Elective – 3 Lab	0	0	3	3	30	70	100	1.5
20DSL703/INT02	INT	Industrial/ Research Internship	0	0	0	0	0	0	0	3
<b>TOTAL</b>			<b>14</b>	<b>0</b>	<b>6</b>	<b>20</b>	<b>180</b>	<b>420</b>	<b>600</b>	<b>23</b>
20DSM7 / 20DSH7_	<b>Honors/Minor Course (Pool 4)</b>		3	1	0	4	30	70	100	4
<b>Grand Total</b>			<b>17</b>	<b>1</b>	<b>6</b>	<b>24</b>	<b>210</b>	<b>490</b>	<b>700</b>	<b>27</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Data Sciences***  
**Fourth Year B.Tech (SEMESTER – VII)**

Code No.	Category Code	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
			L	T	P	Total	CIE	SEE	Total Marks	
20DS801/PW01	PROJ	Project Work	0	0	0	0	50	100	150	12
20DSM8_ / 20DSH8_	<b>Honors/Minor Courses (MOOCs - 1)</b>		0	0	0	0	0	0	0	2
20DSM8_ / 20DSH8_	<b>Honors/Minor Courses (MOOCs - 2)</b>		0	0	0	0	0	0	0	2
<b>Grand Total</b>			0	0	0	0	50	100	150	16

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

BS: Basic Science courses HS: Humanities and Social science ES: Engineering Science Courses

MC: Mandatory course

**List of Professional Electives:-**

1. Data Warehousing & Data Mining.
2. Artificial Intelligence.
3. Matrix Computation & Optimization.
4. Social Network Analysis.
5. Probabilistic Graphical Models.
6. Pattern Recognition & Computer Vision.
7. Natural Language Processing.
8. Block chain Technologies.
9. Distributed Computing.

**List of Job Oriented Electives:-**

1. Data Handling and Visualization
2. Feature Engineering.
3. Web Analytics
4. Big Data Analytics
5. Biomedical Image Processing
6. Artificial Neural networks & Deep Learning
7. Mobile Application Development
8. Cloud Programming
9. Internet of Thing

**List of Advanced Skill Oriented Elective:-**

1. Introduction to Computer Animation
2. Full Stack Development
3. DevOps
4. Robotic Process Automation
5. Introduction to Game Design



**BAPATLA ENGINEERING COLLEGE:: BAPATLA**  
**(Autonomous)**  
**DEPARTMENT OF CYBER SECURITY & DATA SCIENCE**

**List of Subjects offered under Honors in Data Sciences**

**Note:** - Students have to acquire 20 credits for the award of Honors in Data Sciences.

- i. 16 credits (04 courses@ 4 credits each) shall be earned through the following list of courses.
- ii. 4 credits (02 courses@ 2 credits each) must be acquired through two MOOCs from the following list of courses with a minimum duration of 8/12 weeks.
- iii. Before choosing those courses, students must complete prerequisites.  
  
A. Advanced Data Structures.  
B. Advanced Computer Architecture  
C. Graph Theory  
D. Numerical Optimization.  
E. Advanced Database Systems  
F. Real Time Operating Systems.  
G. Parallel Algorithms.  
H. Embedded Systems.  
I. Stochastic Models.  
J. Combinatorial Optimization.  
K. Intelligent Systems and Interfaces.  
L. Computer Vision.  
M. Advanced Statistical Algorithms  
N. Social Media Data Mining.  
O. Detection and Estimation Theory.  
P. Computations Systems Biology.

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Civil Engineering*  
**Effective From the Academic Year 2018-2019 (R18 Regulations)**  
**First Year B.Tech (SEMESTER – I)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA001	Linear Algebra and ODE	4	0	0	4	50	50	100	3
18PH002	Advanced Optics and Material Testing	4	1	0	5	50	50	100	4
18CE103	Introduction to civil Engineering	4	0	0	4	50	50	100	3
18EL001	Communicative English	3	0	0	3	50	50	100	2
18CE002	Biology for Engineers	3	0	0	3	50	50	100	2
18PHL01	Physics Lab	0	0	3	3	50	50	100	1
18ELL01	Communication Lab	0	0	3	3	50	50	100	1
18CSL01	Computer Programming Lab	2	0	3	5	50	50	100	2
	NCC/NSS/Internship/MOOCs								
	<b>TOTAL</b>	20	1	9	30	400	400	800	18

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Civil Engineering*  
**Effective From the Academic Year 2018-2019 (R18 Regulations)**  
**First Year B.Tech (SEMESTER – II)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA002	Numerical Methods and Advanced Calculus	4	0	0	4	50	50	100	3
18CY001	Engineering Chemistry	4	0	0	4	50	50	100	3
18CE203	Engineering Mechanics	4	1	0	5	50	50	100	4
18CE001	Environmental Studies	3	0	0	3	50	50	100	2
18CE205	Electrical Technology& Mechanical Technology	4	0	0	4	50	50	100	3
18MEL01	Engineering Graphics	1	0	4	5	50	50	100	4
18CYL01	Chemistry Lab	0	0	3	3	50	50	100	1
18MEL02	Work Shop	0	0	3	3	50	50	100	1
	NCC/NSS/Internship/MOOCs								
	<b>TOTAL</b>	20	1	10	31	400	400	800	21

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Civil Engineering***  
**Effective From the Academic Year 2018-2019 (R18 Regulations)**  
**Second Year B.Tech(SEMESTER – III)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18MA003	Probability and Statistics	4	0	0	4	50	50	100	3
18CE302	Surveying	4	1	0	5	50	50	100	4
18CE303	Solid Mechanics	3	1	0	4	50	50	100	3
18CE304	Building Materials, Planning and Construction	4	0	0	4	50	50	100	3
18CE305	Fluid Mechanics	3	1	0	4	50	50	100	3
18HU001	Indian Constitution	2	0	0	2	50	50	100	0
18CEL31	Building Drawing Lab	0	0	3	3	50	50	100	1
18CEL32	Engineering Geology Lab	2	0	3	5	50	50	100	2
18CEL33	Surveying Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	22	3	9	34	450	450	900	20

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

**For**

***Civil Engineering***

**Effective From the Academic Year 2018-2019 (R18 Regulations)**

**Second Year B.Tech (SEMESTER – IV)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18CE401	Professional Practice, Law & Ethics	4	0	0	4	50	50	100	3
18CE402	Environmental Engineering	4	0	0	4	50	50	100	3
18CE403	Mechanics of Materials	3	1	0	4	50	50	100	3
18CE404	Hydraulics & Hydraulic Machines	3	1	0	4	50	50	100	3
18CE405	Concrete Technology	4	0	0	4	50	50	100	3
18EL002	Technical English	3	0	0	3	50	50	100	2
18CEII1	<b>Internship*</b>	0	0	0	0	-	-	-	2
18CEL41	H & HM Lab	0	0	3	3	50	50	100	1
18CEL42	Environmental Engineering Lab	0	0	3	3	50	50	100	1
18CEL43	Materials Testing Laboratory	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	21	2	9	32	450	450	900	22

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

\* Students will go to the Industry to identify the problem and survey the literature for a feasible solution. The work will be carried out during summer vacation after IV Semester.

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Civil Engineering*  
**Effective From the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B.Tech (SEMESTER – V)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18CE501	Structural Analysis	4	1	0	5	50	50	100	4
18CE502	Remote Sensing &GIS	4	0	0	4	50	50	100	3
18CE503	Design of Concrete Structures	4	1	0	5	50	50	100	4
18CE504	Design of Steel Structures	4	1	0	5	50	50	100	4
18CE505	Water Resources Engineering	4	0	0	4	50	50	100	3
18CE506	Soil Mechanics	4	0	0	4	50	50	100	3
18CEM01	<b>Self Learning Elective Course)* (MOOCS)</b>	0	0	0	0	50	50	100	2
18CEL51	Geographical Information System Laboratory	0	0	3	3	50	50	100	1
18CEL52	Soft Skills Laboratory	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	24	3	6	33	450	450	900	25

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

- Students can opt any one of the self-learning courses prescribed by the Department. Students register and complete the opted course in approved MOOCS platform on or before the Last Instruction Day of V semester. They have to submit the certificate before Last Instruction Day of VI semester

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**Effective From the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B.Tech (SEMESTER – VI)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18CE601	Estimation & Quantity Surveying	4	0	0	4	50	50	100	3
18CE602	Irrigation Structures	4	0	0	4	50	50	100	3
18CE603	Foundation Engineering	4	0	0	4	50	50	100	3
18CE604	Highway Engineering	4	0	0	4	50	50	100	3
18CED11...14	Elective-I	4	0	0	4	50	50	100	3
18CED21...24	Elective-II	4	0	0	4	50	50	100	3
18CEL61	Advanced Surveying Laboratory	0	0	3	3	50	50	100	1
18CEL62	Structural Analysis Design and Detailing Laboratory	0	0	3	3	50	50	100	1
18CEL63	Geo technical Engineering Laboratory	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	24	0	9	33	450	450	900	21

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**Effective From the Academic Year 2018-2019 (R18 Regulations)**  
**Final Year B.Tech (SEMESTER – VII)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18CE701	Construction Management	4	0	0	4	50	50	100	3
18CED31...34	Elective-III	4	0	0	4	50	50	100	3
18CED41...44	Elective-IV	4	0	0	4	50	50	100	3
18—I--	Institution Elective-I	4	0	0	4	50	50	100	3
18CEP01	Project-I	0	0	5	5				2
18CEL71	Design and Detailing of Irrigation Structures Laboratory	0	0	3	3	50	50	100	1
18CEL72	Transportation Engineering Laboratory	0	0	3	3	50	50	100	1
18CEL73	Quantity Estimation & Project Management Laboratory	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	16	0	14	30	350	350	700	17

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Civil Engineering***  
**Effective From the Academic Year 2018-2019 (R18 Regulations)**  
**Final Year B.Tech (SEMESTER – VIII)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18CE801	Engineering Economics & Management	4	0	0	4	50	50	100	3
18—I--	Institution Elective-II	4	0	0	4	50	50	100	3
18CED51...54	Elective - V	4	0	0	4	50	50	100	3
18CED61...64	Elective – VI	4	0	0	4	50	50	100	3
18CELP02	Project -II	0	0	24	24	75	75	150	10
	<b>TOTAL</b>	16	0	24	40	275	275	550	22

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**Elective-I :**

18CED11	Advanced Structural Analysis
18CED12	Instrumentation and Sensor technology in Civil Engineering
18CED13	Sustainable Engineering & Technology
18CED14	Advanced Fluid Mechanics

**Elective-II:**

18CED21	Advanced Design of Structures
18CED22	Offshore Engineering
18CED23	Disaster preparedness and planning management
18CED24	Construction Engineering Materials

**Elective-III:**

18CED31	Pre stressed Concrete
18CED32	Environmental Geotechnics
18CED33	Low cost Housing Techniques
18CED34	Repair & Rehabilitation of Structures

**Elective-IV**

18CED41	Railway and Air Port Engineering
18CED42	Ground Water Development and Management
18CED43	Finite Element Analysis
18CED44	Solid and Hazardous Management

**Elective-V :**

18CED51	Advanced Environmental Engineering
18CED52	Bridge Engineering
18CED53	Water Resources Field Methods
18CED54	Ground Improvement Techniques

**Elective-VI :**

18CED61	Earthquake Resistant Design of Structures
18CED62	Environmental Impact Assessment and Management
18CED63	Pavement Analysis and Design
18CED64	Town planning and Architecture

**Open Elective-I & II:**

The students of CE will choose an Inter department Elective offered by other Departments.

**Open Electives offered by Civil Engineering Department**

**Open Elective-I:** 1) Air Pollution & Control 2) Rural Water Supply and Environment Sanitation

**Open Elective-II:** 1) Disaster Management 2) Remote Sensing & GIS

**Institutional Elective-I (in VII semester – position as 6<sup>th</sup> theory subject)**

18CEI01	Air Pollution & Control
18CEI02	Rural Water Supply and Environment Sanitation
18CSI01	Java Programming
18CSI02	Database Management Systems
18ECI01	Consumer Electronics
18ECI02	Embedded Systems
18EEI01	Application of Wavelets to Engineering Problems
18EEI02	Industrial Electrical Systems
18EII01	Principles & Applications of MEMS
18EII02	Power System Instrumentation
18ITI01	Data Analytics
18ITI02	Cyber Security
18MEI01	Fluid Power and Control Systems
18MEI02	Project Management
18MAI01	Linear Algebra
18PHI01	Nano - Materials and Technology
18PHI02	Fiber Optic Communication
18HUI01	System Thinking
18ELI01	English for Competitive Examinations
18ELI02	Professional Communication

**Institutional Elective-II (in VIII semester – position as 3<sup>rd</sup> theory subject)**

18CEI03	Disaster Management
18CEI04	Remote sensing & GIS
18CSI03	Python Programming
18CSI04	Computer Networks
18ECI03	Artificial Neural Network
18ECI04	Internet of Things (IoT)
18EEI03	High Voltage Engineering
18EEI04	Energy Auditing and Conservation
18EII03	Robotics and Automation
18EII04	Advanced Computer Control Systems
18ITI03	Mobile Application Developments
18ITI04	Web Technology
18MEI03	Non-Conventional Energy Sources
18MEI04	Automobile Engineering
18MAI02	Graph Theory
18PHI03	Advanced Materials
18PHI04	Optical Electronics
18HUI02	Organizational Psychology
18HUI03	Telugu Modern Literature
18ELI03	English Through Media

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**First Year B.Tech (SEMESTER – I)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
<b>INDUCTION PROGRAM</b>									
18MA001	Linear Algebra and ODE	4	0	0	4	50	50	100	3
18CY001	Engineering Chemistry	4	0	0	4	50	50	100	3
18CE001	Environmental Studies	3	0	0	3	50	50	100	2
18EL001	Communicative English	3	0	0	3	50	50	100	2
18MEL01	Engineering Graphics	1	0	4	5	50	50	100	3
18CYL01	Chemistry Lab	0	0	3	3	50	50	100	1
18MEL02	Workshop	0	0	3	3	50	50	100	1
18ELL01	English Communication Lab	0	0	3	3	50	50	100	1
<b>TOTAL</b>		15	0	13	28	400	400	800	16

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**First Year B.Tech (SEMESTER – II)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18MA002	Numerical methods and Advanced Calculus	4	0	0	4	50	50	100	3
18PH001	Semiconductor Physics	4	1	0	5	50	50	100	4
18CS203	Professional Ethics & Human Values	4	0	0	4	50	50	100	3
18CS204	Digital Logic Design	4	0	0	4	50	50	100	3
18EE001	Basic Electronics & Electrical Engineering	4	0	0	4	50	50	100	3
18CS001	Problem Solving using Programming	4	0	0	4	50	50	100	3
18PHL01	Semiconductor Physics Lab	0	0	3	3	50	50	100	1
18EEL01	Basic Electronics & Electrical Engineering Lab	0	0	3	3	50	50	100	1
18CSL01	Problem Solving using Programming Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	<b>24</b>	<b>1</b>	<b>9</b>	<b>34</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>22</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Second Year B.Tech (SEMESTER – III)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18MA003	Probability & Statistics	4	0	0	4	50	50	100	3
18CS302	Data Structures	4	0	0	4	50	50	100	3
18CS303	Discrete Mathematics	4	0	0	4	50	50	100	3
18CS304	Object Oriented Programming	4	0	0	4	50	50	100	3
18CS305	Operating System	4	0	0	4	50	50	100	3
18CS306	Microprocessor & Microcontrollers	4	0	2	6	50	50	100	4
18CSL31	Unix Programming Lab	2	0	3	5	50	50	100	3
18CSL32	Data Structures Lab	0	0	3	3	50	50	100	1
18CSL33	OOPs Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	26	0	11	37	450	450	900	24

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Second Year B.Tech (SEMESTER – IV)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18MA005	Operation Research	4	0	0	4	50	50	100	3
18CS402	Web Technologies	4	0	0	4	50	50	100	3
18CS403	Database Management System	4	0	0	4	50	50	100	3
18CS404	Computer Organization	4	0	0	4	50	50	100	3
18EL002	Technical English	3	0	0	3	50	50	100	2
18CS406	Design and Analysis of Algorithms	4	0	0	4	50	50	100	3
18CSL41	Python Programming Lab	2	0	3	5	50	50	100	3
18CSL42	Web Technologies Lab	0	0	3	3	50	50	100	1
18CSL43	RDBMS Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	26	0	9	35	450	450	900	22

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B.Tech (SEMESTER – V)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18CS501	Software Engineering	4	0	0	4	50	50	100	3
18CS502	Automata Theory & Formal Languages	4	0	0	4	50	50	100	3
18CS503	Enterprise Programming	4	0	0	4	50	50	100	3
18CS504	Computer Networks	4	0	0	4	50	50	100	3
18CS505	Essence of Indian Traditional Knowledge	3	0	0	3	50	50	100	0
<b>18CSD1_</b>	<b>Department Elective-I</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18CSL51	C# Programming	2	0	3	5	50	50	100	3
18CSL52	Enterprise Programming Lab	0	0	3	3	50	50	100	1
18ELL02	Soft Skills Lab	0	0	3	3	50	50	100	1
18CSMO1	MOOCs								2
	<b>TOTAL</b>	<b>25</b>	<b>0</b>	<b>9</b>	<b>34</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>22</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

<b>Department Elective-I</b>	
18CSD11	Advanced Computer Architecture.
18CSD12	Data Warehousing & Data Mining
18CSD13	Distributed Computing.

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B.Tech (SEMESTER – VI)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18CS601	Machine Learning	4	0	0	4	50	50	100	3
18CS602	Compiler Design	4	0	0	4	50	50	100	3
18CS603	Cryptography & Network Security	4	0	0	4	50	50	100	3
18CS604	Middleware Technologies	4	0	0	4	50	50	100	3
<b>18CSD2_</b>	<b>Department Elective-II</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
<b>18CSD3_</b>	<b>Department Elective-III</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18CSL61	Machine Learning Lab	0	0	3	3	50	50	100	1
18CSL62	Middleware Technologies Lab	0	0	3	3	50	50	100	1
<b>18CSLD2_</b>	<b>Dept. Elective-II Lab</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>1</b>
<b>TOTAL</b>		<b>24</b>	<b>0</b>	<b>9</b>	<b>33</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>21</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

<b>Department Elective-II</b>	
18CSD21	Mobile Application Development
18CSD22	Cloud Programming
18CSD23	Statistics with R

<b>Dept. Elective-II Lab</b>	
18CSLD21	Mobile Application Development Lab
18CSLD22	Cloud Programming Lab
18CSLD23	Statistics with R Lab

<b>Department Elective-III</b>	
18CSD31	Artificial Intelligence
18CSD32	Software Project Management
18CSD33	Block chain Technologies

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Forth Year B.Tech (SEMESTER – VII)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18CS701	Full Stack Development	4	0	0	4	50	50	100	3
18CS702	Wireless Networks	4	0	0	4	50	50	100	3
18_I_	<b>Institutional Elective -I</b>	4	0	0	4	50	50	100	3
18CSD4_	<b>Department Elective-IV</b>	4	0	0	4	50	50	100	3
18CS705	Constitution of India	3	0	0	3	50	50	100	0
18CSL71	Unified Modeling Language Lab	2	0	3	5	50	50	100	3
18CSL72	Full Stack Development Lab	0	0	3	3	50	50	100	1
18CSLD4_	<b>Dept. Elective-IV Lab</b>	0	0	3	3	50	50	100	1
18CSP01	Project - I	0	0	4	4	50	50	100	2
18CSII1	Internship					100	--	100	2
	<b>TOTAL</b>	<b>21</b>	<b>0</b>	<b>13</b>	<b>34</b>	<b>550</b>	<b>450</b>	<b>1000</b>	<b>21</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

<b>Department Elective-IV</b>	
18CSD41	Cyber Security
18CSD42	Internet of Things
18CSD43	Big Data Analytics

<b>Dept. Elective-IV Lab</b>	
18CSLD41	Cyber Security Lab
18CSLD42	Internet of Things Lab
18CSLD43	Big Data Analytics Lab

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Computer Science and Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Forth Year B.Tech (SEMESTER – VIII)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18ME005	Industrial Management & Entrepreneurship Development	4	0	0	4	50	50	100	3
18_I_	<b>Institutional Elective -II</b>	4	0	0	4	50	50	100	3
18CSD5_	<b>Department Elective - V</b>	4	0	0	4	50	50	100	3
18CSP02	Project - II	0	0	10	10	75	75	150	10
	<b>TOTAL</b>	12	0	10	22	225	225	450	19

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

<b>Department Elective - V</b>	
18CSD51	Protocols for Secure Electronic Commerce
18CSD52	Artificial Neural Networks and Deep Learning
18CSD53	Natural Language Processing.

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Computer Science and Engineering*  
**Institutional Electives (R18 Regulations)**

**Institutional Elective – I**

S.NO	CODE	TITLE
1.	18CE101	AIR POLLUTION & CONTROL
2.	18CE102	RURAL WATER SUPPLY AND ENVIRONMENT SANITATION
3.	18CS101	JAVA PROGRAMMING
4.	18CS102	DATABASE MANAGEMENT SYSTEM
5.	18ECI01	DIGITAL IMAGE PROCESSING
6.	18ECI02	EMBEDDED SYSTEMS
7.	18EEI01	APPLICATIONS OF WAVELETS TO ENGINEERING PROBLEMS
8.	18EEI02	INDUSTRIAL ELECTRICAL SYSTEMS
9.	18EII01	PRINCIPLES & APPLICATIONS OF MEMS
10.	18EII02	POWER PLANT INSTRUMENTATION
11.	18ITI01	INTRODUCTION TO DATA ANALYTICS
12.	18ITI02	CYBER SECURITY
13.	18ME101	FLUID POWER & CONTROL SYSTEMS
14.	18ME102	PROJECT MANAGEMENT
15.	18MA006	GRAPH THEORY
16.	18PH101	NANO MATERIALS AND TECHNOLOGY
17.	18PH102	FIBER OPTICS COMMUNICATIONS
18.	18EL003	PROFESSIONAL COMMUNICATION
19.	18NC001	NCC (NATIONAL CADET CORPS)

**Institutional Elective – II**

S.NO	CODE	TITLE
1.	18CE103	DISASTER MANAGEMENT
2.	18CE104	REMOTE SENSING & GIS
3.	18CS103	PYTHON PROGRAMMING
4.	18CS104	COMPUTER NETWORKS
5.	18ECI03	WIRELESS COMMUNICATIONS
6.	18ECI04	ARTIFICIAL NEURAL NETWORKS
7.	18EEI03	HIGH VOLTAGE ENGINEERING
8.	18EEI04	ELECTRICAL ENERGY CONSERVATION & AUDITING
9.	18EII03	ROBOTICS AND AUTOMATION
10.	18EII04	SENSORS AND SIGNAL CONDITIONING
11.	18ITI03	MOBILE APPLICATION DEVELOPMENT
12.	18ITI04	WEB TECHNOLOGIES
13.	18ME103	NON-CONVENTIONAL ENERGY SOURCES
14.	18ME104	AUTOMOBILE ENGINEERING
15.	18PH103	ADVANCED MATERIALS
16.	18PH104	OPTO ELECTRONIC DEVICES AND APPLICATIONS
17.	18EL004	ENGLISH FOR COMPETITIVE EXAMINATIONS
18.	18NC001	NCC (NATIONAL CADET CORPS)

**BAPATLA ENGINEERING COLLEGE: BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

**For**

***Electronics and Communications Engineering***

**Effective from the Academic Year 2018-2019 (R18 Regulations)**

**First Year B.Tech (SEMESTER – I)**



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA001	Linear Algebra and ODE	4	0	0	4	50	50	100	3
18PH001	Waves and Modern Physics	4	0	0	4	50	50	100	3
18CY001	Engineering Chemistry	4	0	0	4	50	50	100	3
18CE001	Environmental Studies	3	0	0	3	50	50	100	2
18CS001	Problem Solving with Programming	4	0	0	4	50	50	100	3
18CYL01	Engineering Chemistry Lab	0	0	3	3	50	50	100	1
18ECL12	Hardware Lab	0	0	3	3	50	50	100	1
18CSL01	Problem Solving with Programming Lab	0	0	3	3	50	50	100	1
TOTAL		19	0	9	28	400	400	800	17

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communications Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**First Year B.Tech (SEMESTER – II)**



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA002	Numerical Methods and Advanced Calculus	4	0	0	4	50	50	100	3
18EC202	Basic Instrumentation	4	0	0	4	50	50	100	3
18EC203	Programming with C ++	4	0	0	4	50	50	100	3
18EL001	Communicative English	3	0	0	3	50	50	100	2
18EC205	Circuit Theory	4	1	0	5	50	50	100	4
18PHL01	Physics lab	0	0	3	3	50	50	100	1
18ECL22	Programming with C ++ Lab	0	0	3	3	50	50	100	1
18ELL01	English Communication and Skills Lab	0	0	3	3	50	50	100	1
<b>TOTAL</b>		19	1	9	29	400	400	800	18

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Electronics and Communications Engineering***

Effective from the Academic Year 2018-2019 (R18 Regulations)

Second Year B.Tech (SEMESTER – III)



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA003	Probability and Statistics	4	0	0	4	50	50	100	3
18EC302	Data Structures using Python	4	0	0	4	50	50	100	3
18EC303	Electronic Devices and Circuits	4	0	0	4	50	50	100	3
18EC304	Electromagnetic Field Theory	4	1	0	5	50	50	100	4
18EC305	Digital Electronics	4	1	0	5	50	50	100	4
18EL002	Technical English	3	0	0	3	50	50	100	2
18ECL31	Data Structures using Python Lab			3	3	50	50	100	1
18ECL32	Electronic Devices & Digital Electronics Lab			3	3	50	50	100	1
18ECL33	PSPICE Lab			3	3	50	50	100	1
	<b>TOTAL</b>	23	2	9	34	450	450	900	22

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Electronics and Communications Engineering***

Effective from the Academic Year 2018-2019 (R18 Regulations)

**Second Year B.Tech (SEMESTER – IV)**



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA004	Complex Variables and Special Functions	4	0	0	4	50	50	100	3
18EC402	Electronic Circuit Analysis	4	0	0	4	50	50	100	3
18EC403	EM Waves and Transmission Lines	4	1	0	5	50	50	100	4
18EC404	Signals & Systems	4	1	0	5	50	50	100	4
18EC405	Digital Design Using HDL	4	1	0	5	50	50	100	4
18EC406	Professional Ethics and Human Values	4	0	0	4	50	50	100	3
18ECL41	Electronic Circuits Lab			3	3	50	50	100	1
18ECL42	HDL Lab			3	3	50	50	100	1
18ECL43	Signals and Systems lab			3	3	50	50	100	1
	<b>TOTAL</b>	24	3	9	36	450	450	900	24

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communications Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B. Tech (SEMESTER – V)**



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EC501	Linear Integrated Circuits	4	0	0	4	50	50	100	3
18EC502	Linear Control Systems	4	1	0	5	50	50	100	4
18EC503	Microprocessors and Microcontrollers	4	0	0	4	50	50	100	3
18EC504	Digital Signal Processing	4	0	0	4	50	50	100	3
18EC505	Analog and Digital Communications	4	0	0	4	50	50	100	3
<b>18ECD11,...14</b>	<b>Elective-1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18ECL51	Microprocessors and Microcontrollers programming lab			3	3	50	50	100	1
18ECL52	Linear Integrated Circuits Lab			3	3	50	50	100	1
18ECL53	Analog and Digital Communications Lab			3	3	50	50	100	1
18ECMOOC1	MOOCs								2*
<b>TOTAL</b>		24	1	9	34	450	450	900	<b>24</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

\* Means No Classwork / Exam.

**Elective-I**

18ECD11: Computer Organization & Architecture

18ECD12: Data Communication and Computer Networks

18ECD13: Programming with JAVA

18ECD14: Pulse and Switching Circuits

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communications Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B. Tech (SEMESTER – VI)**



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EC601	Constitution of India	4	0	0	4	50	50	100	0
18EC602	Internet of Things	4	1	0	5	50	50	100	4
18EC603	Digital Image Processing	4	0	0	4	50	50	100	3
18EC604	Antenna and Wave Propagation	4	0	0	4	50	50	100	3
18EC605	VLSI Design	4	0	0	4	50	50	100	3
<b>18ECD21,...,24</b>	<b>Elective – II</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18ECL61	Signal and Image Processing using SCI Lab			3	3	50	50	100	1
18ECL62	Internet of Things Lab			3	3	50	50	100	1
18ELL02	Soft Skills Lab			3	3	50	50	100	1
	<b>TOTAL</b>	<b>24</b>	<b>1</b>	<b>9</b>	<b>34</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>19</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,      T: Tutorial,      P: Practical

**Elective – II**

18ECD21: Artificial Intelligence

18ECD22: Information Theory and Coding

18ECD23: Embedded System Design

18ECD24: Telecommunication Switching Systems and Networks

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Electronics and Communications Engineering***

**Effective from the Academic Year 2018-2019 (R18 Regulations)**

**Fourth Year B. Tech (SEMESTER – VII)**



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18ME002	Industrial Management and Entrepreneurship Development	4	0	0	4	50	50	100	3
18EC701	Microwave and Radar Engineering	4	0	0	4	50	50	100	3
18EC702	Wireless and Mobile Communications	4	0	0	4	50	50	100	3
18EC703	Fiber Optics Communications	4	0	0	4	50	50	100	3
18ECD31,...,34	Elective - III	4	0	0	4	50	50	100	3
18—I--	Institutional Elective - I	4	0	0	4	50	50	100	3
18ECL71	Fiber Optic and Microwave Engineering Lab			3	3	50	50	100	1
18ECL72	Wireless and Mobile Communications Lab			3	3	50	50	100	2
18ECP01	Term Paper			3	3	50	50	100	2
18ECII1	Internship				100			100	2*
	<b>TOTAL</b>	20	0	9	29	500	400	900	<b>24</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

**Elective – III**

18ECD31: Introduction to Nano-Science and Nanotechnology

18ECD32: Machine Learning

18ECD33: Bio-Medical Instrumentation

18ECD34: Pattern Recognition and Application

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communications Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Fourth Year B. Tech (SEMESTER – VIII)**



Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18ECD41,...,44	Elective – IV	4	0	0	4	50	50	100	3
18—I--	Institutional Elective – II	4	0	0	4	50	50	100	3
18ECD51,...,54	Elective – V	4	0	0	4	50	50	100	3
18ECP02	Project Work - II			12	12	75	75	150	10
	<b>TOTAL</b>	12	0	12	24	225	225	450	<b>19</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture, T: Tutorial, P: Practical

**Elective – IV**

- 18ECD41: Wireless Adhoc and Sensor Networks
- 18ECD42: Robotics
- 18ECD43: MEMS
- 18ECD44: Satellite Communications

**Elective – V**

- 18ECD51: Advanced DSP
- 18ECD52: Artificial Neural Networks
- 18ECD53: Software Defined Radio
- 18ECD54: FPGA Design for Embedded Systems

**Institutional Elective – I**

- 1. 18CE101 AIR POLLUTION & CONTROL
- 2. 18CE102 RURAL WATER SUPPLY AND ENVIRONMENT SANITATION
- 3. 18CS101 JAVA PROGRAMMING
- 4. 18CS102 DATABASE MANAGEMENT SYSTEM
- 5. 18ECI01 DIGITAL IMAGE PROCESSING
- 6. 18ECI02 EMBEDDED SYSTEMS
- 7. 18EEI01 APPLICATIONS OF WAVELETS TO ENGINEERING PROBLEMS
- 8. 18EEI02 INDUSTRIAL ELECTRICAL SYSTEMS
- 9. 18EII01 PRINCIPLES & APPLICATIONS OF MEMS
- 10. 18EII02 POWER PLANT INSTRUMENTATION
- 11. 18ITI01 INTRODUCTION TO DATA ANALYTICS
- 12. 18ITI02 CYBER SECURITY

- 13. 18ME101 FLUID POWER & CONTROL SYSTEMS
- 14. 18ME102 PROJECT MANAGEMENT
- 15. 18MA006 GRAPH THEORY
- 16. 18PH101 NANO MATERIALS AND TECHNOLOGY
- 17. 18PH102 FIBER OPTICS COMMUNICATIONS
- 18. 18EL003 PROFESSIONAL COMMUNICATION
- 19. 18NC001 NCC (NATIONAL CADET CORPS)

#### Institutional Elective – II

- 1. 18CE103 DISASTER MANAGEMENT
- 2. 18CE104 REMOTE SENSING &GIS
- 3. 18CS103 PYTHON PROGRAMMING
- 4. 18CS104 COMPUTER NETWORKS
- 5. 18ECI03 WIRELESS COMMUNICATIONS
- 6. 18ECI04 ARTIFICIAL NEURAL NETWORKS
- 7. 18EEI03 HIGH VOLTAGE ENGINEERING
- 8. 18EEI04 ELECTRICAL ENERGY CONSERVATION & AUDITING
- 9. 18EII03 ROBOTICS AND AUTOMATION
- 10. 18EII04 SENSORS AND SIGNAL CONDITIONING
- 11. 18ITI03 MOBILE APPLICATION DEVELOPMENT
- 12. 18ITI04 WEB TECHNOLOGIES
- 13. 18ME103 NON-CONVENTIONAL ENERGY SOURCES
- 14. 18ME104 AUTOMOBILE ENGINEERING
- 15. 18PH103 ADVANCED MATERIALS
- 16. 18PH104 OPTO ELECTRONIC DEVICES AND APPLICATIONS
- 17. 18EL004 ENGLISH FOR COMPETITIVE EXAMINATIONS
- 18. 18NC001 NCC (NATIONAL CADET CORPS)



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

*Electrical and Electronics Engineering*

Effective From the Academic Year 2018-2019 (R18 Regulations)

First Year B.Tech (SEMESTER – I)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA001	Mathematics – I (Linear algebra and differential equations)	3	1	0	4	50	50	100	3
18PH001	Physics – I Waves and Modern Physics	4	1	0	5	50	50	100	4
18CE001	Environmental Studies	3	0	0	3	50	50	100	2
18EL001	Communicative English	3	0	0	3	50	50	100	2
18MEL01	Engineering Graphics	1	0	4	5	50	50	100	3
18PH L01	Physics Lab	0	0	3	3	50	50	100	1
18ELL01	English Communication skills Lab	0	0	3	3	50	50	100	1
18MEL02	Workshop Practice Lab	0	0	3	3	50	50	100	1
	Induction program								
	<b>TOTAL</b>	<b>14</b>	<b>2</b>	<b>13</b>	<b>29</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>17</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Electrical and Electronics Engineering*  
Effective From the Academic Year 2018-2019 (R18 Regulations)  
First Year B.Tech(SEMESTER – II)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA002	Mathematics – II (Numerical methods& Advanced Calculus)	3	1	0	4	50	50	100	3
18CY001	Chemistry	4	0	0	4	50	50	100	3
18PH003	Physics – II (Semiconductor Physics and Nano Materials)	4	0	0	4	50	50	100	3
18EE204	Circuit Theory	4	0	0	4	50	50	100	3
18CS001	Programming for Problem Solving	3	0	0	3	50	50	100	2
18CY L01	Chemistry Lab	0	0	3	3	50	50	100	1
18EE L22	Circuit Theory Lab	0	0	3	3	50	50	100	1
18CS L01	Programming for Problem Solving Lab	0	0	3	3	50	50	100	1
	NCC/NSS								
	<b>TOTAL</b>	<b>18</b>	<b>1</b>	<b>9</b>	<b>28</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>17</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
*Electrical and Electronics Engineering*  
Effective from the Academic Year 2018-2019 (R18 Regulations)  
Second Year B.Tech (SEMESTER – III)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA003	Mathematics – III (Probability and Statistics)	3	1	0	4	50	50	100	3
18EE302	Network Analysis	4	1	0	5	50	50	100	4
18EE303	Analog Electronics	4	0	0	4	50	50	100	3
18EE304	Electrical Machines-I (DC Machines and Transformers)	4	1	0	5	50	50	100	4
18CE003	Engineering Mechanics	4	1	0	5	50	50	100	4
18EL002	Technical English	3	0	0	3	50	50	100	2
18EEL31	Analog Electronics Lab	0	0	3	3	50	50	100	1
18EEL32	Measurement and Instrumentation Lab	2	0	3	5	50	50	100	2
	<b>TOTAL</b>	<b>24</b>	<b>4</b>	<b>6</b>	<b>34</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>23</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

*Electrical and Electronics Engineering*

Effective from the Academic Year 2018-2019 (R18 Regulations)

Second Year B.Tech (SEMESTER – IV)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EE401	Electro Magnetic Fields	4	0	0	4	50	50	100	3
18EE402	Digital Electronics	4	1	0	5	50	50	100	4
18EE403	Electrical Machines-II (Induction motors and Synchronous machines)	4	1	0	5	50	50	100	4
18EE404	Signals & Systems	4	0	0	4	50	50	100	3
18CE002	Biology for Engineers	3	0	0	3	50	50	100	2
18EE406	Power Systems- I	4	0	0	4	50	50	100	3
18EEL41	Digital Electronics Lab	0	0	3	3	50	50	100	1
18EEL42	Electrical Machines Lab-I	0	0	3	3	50	50	100	1
18ITL01	Data Structures and Algorithms Lab	2	0	3	5	50	50	100	2
	<b>TOTAL</b>	<b>25</b>	<b>2</b>	<b>9</b>	<b>36</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>23</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

*Electrical and Electronics Engineering*

Effective from the Academic Year 2018-2019 (R18 Regulations)

Third Year B.Tech (SEMESTER – V)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EE501	Power System – II	4	1	0	5	50	50	100	4
18EE502	Control Systems	4	1	0	5	50	50	100	4
18EE503	Power Electronics	4	1	0	5	50	50	100	4
18EE504	Microprocessors & Microcontrollers	4	0	0	4	50	50	100	3
18HS002	Indian Traditional Knowledge	3	0	0	3	50	50	100	0
18EE506	Professional Ethics and Human values	4	0	0	4	50	50	100	3
18EEL51	Electrical Machines Lab-II	0	0	3	3	50	50	100	1
18EEL52	Microprocessors & Microcontrollers Lab	0	0	3	3	50	50	100	1
18ELL02	Soft Skills Lab	0	0	3	3	50	50	100	1
18EEMO	MOOC								2
	<b>TOTAL</b>	<b>23</b>	<b>3</b>	<b>9</b>	<b>35</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>23</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

### *Electrical and Electronics Engineering*

Effective from the Academic Year 2018-2019 (R18 Regulations)

Third Year B.Tech (SEMESTER – VI)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EE601	AI techniques in Electrical Engineering	4	0	0	4	50	50	100	3
18EE602	Power System Protection	4	1	0	5	50	50	100	4
18EE603	Electrical Drives	4	0	0	4	50	50	100	3
18EE604	IOT's in Electrical Engineering	4	0	0	4	50	50	100	3
18EE605	Power System Operation Control	4	1	0	5	50	50	100	4
18EED1	Program Elective Course -I	4	0	0	4	50	50	100	3
18EEL61	Control System Lab	0	0	3	3	50	50	100	1
18EEL62	Power Electronics lab	0	0	3	3	50	50	100	1
18EEL63	Simulation Lab	0	0	3	3	50	50	100	1
	Internship	4 Weeks during Summer Vacation							
<b>TOTAL</b>		<b>24</b>	<b>2</b>	<b>9</b>	<b>35</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>23</b>

CIE: Continuous Internal Evaluation

L: Lecture,

T: Tutorial,

P: Practical

SEE: Semester End Examination

#### **Department Elective - I**

18EED11: Optimization techniques

18EED12: Electrical Energy Conservation & Auditing

18EED13: Power Distribution System

18EED14: Digital Signal Processing



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

### *Electrical and Electronics Engineering*

Effective from the Academic Year 2018-2019 (R18 Regulations)

Fourth Year B.Tech (SEMESTER – VII)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EE701	High Voltage Engineering	4	0	0	4	50	50	100	3
18EED2_	Program Elective Course -II	4	0	0	4	50	50	100	3
18EED3_	Program Elective Course -III	4	0	0	4	50	50	100	3
18__I__	Open Elective-I	4	0	0	4	50	50	100	3
18ME002	Industrial Management and Entrepreneurship Development	4	0	0	4	50	50	100	3
18EE706	Constitution of India	3	0	0	3	50	50	100	0
18EEP01	Project Stage -I	0	0	6	6	50	50	100	2
18EEL72	Power Systems Lab	0	0	3	3	50	50	100	1
18EEL73	Electronics Design Lab	0	0	6	6	50	50	100	2
18EEL74	Internship					100		100	2
	<b>TOTAL</b>	<b>23</b>	<b>0</b>	<b>15</b>	<b>38</b>	<b>500</b>	<b>400</b>	<b>900</b>	<b>22</b>

CIE: Continuous Internal Evaluation

L: Lecture,

T: Tutorial,

P: Practical

SEE: Semester End Examination

### **Department Elective - II**

18EED21: Electrical Machine Design

18EED22: Control Systems Design

18EED23: Switched Mode Power Supply

18EED24: Digital Protection of Power System

### **Department Elective - III**

18EED31: HVDC & FACTS

18EED32: Electrical and Hybrid Vehicles

18EED33: Line Commutated and Active Rectifiers

18EED34: Computer Aided Power System



# BAPATLA ENGINEERING COLLEGE :: BAPATLA

(Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

### *Electrical and Electronics Engineering*

Effective from the Academic Year 2018-2019 (R18 Regulations)

Fourth Year B.Tech (SEMESTER – VIII)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EED4_	Department Elective -IV	4	0	0	4	50	50	100	3
18_I_	Institutional Elective -II	4	0	0	4	50	50	100	3
18EED5_	Department Elective -V	4	0	0	4	50	50	100	3
18EEP02	Project Stage -II	0	0	20	20	75	75	150	10
	<b>TOTAL</b>	<b>12</b>	<b>0</b>	<b>20</b>	<b>32</b>	<b>225</b>	<b>225</b>	<b>450</b>	<b>19</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

#### **Department Elective -IV**

18EED41: Power Quality

18EED42: Smart Grid Technology and Applications

18EED43: Machine Modeling and Analysis

18EED44: Advanced Electric Drives

#### **Department Elective -V**

18EED51: Energy Storage Systems

18EED52: Industrial Electrical Systems

18EED53: Digital Control Systems

18EED54: Wavelet Transforms



### Institutional Elective-I

- 18CEI01:** Air Pollution & Control
- 18CEI02:** Sustainable Water and Sanitation
- 18CSI01:** Java Programming
- 18CSI02:** Database Management Systems
- 18ECI01:** Consumer Electronics
- 18ECI02:** Embedded Systems
- 18EII01:** Principles & Applications of MEMS
- 18EII02:** Power System Instrumentation
- 18ITI01:** Data Analytics
- 18ITI02:** Cyber Security
- 18MEI01:** Fluid Power and Control Systems
- 18MEI02:** Project Management
- 18MAI01:** Linear Algebra
- 18PHI01:** Nano-Materials and Technology
- 18PHI02:** Fiber Optic Communication
- 18HUI01:** System Thinking
- 18ELI01:** English for Competitive Examinations
- 18ELI02:** Professional Communication

### Institutional Elective-II

- 18CEI03:** Disaster Management
- 18CEI04:** Remote sensing & GIS
- 18CSI03:** Python Programming
- 18CSI04:** Computer Networks
- 18ECI03:** Artificial Neural Network
- 18ECI04:** Internet of Things (IoT)
- 18EII03:** Robotics and Automation
- 18EII04:** Advanced Computer Control Systems
- 18ITI03:** Mobile Application Developments
- 18ITI04:** Web Technology
- 18MEI03:** Non-Conventional Energy Sources
- 18MEI04:** Automobile Engineering
- 18MAI02:** Graph Theory
- 18PHI03:** Advanced Materials
- 18PHI04:** Optical Electronics
- 18HUI02:** Organizational Psychology
- 18HUI03:** Telugu Modern Literature
- 18ELI03:** English through Media

**BAPATLA ENGINEERING COLLEGE: BAPATLA***(Autonomous)***SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For*****Electronics and Instrumentation Engineering*****Effective From the Academic Year 2018-2019 (R18 Regulations)****First Year B. Tech (SEMESTER – I)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA001	Linear Algebra and Ordinary Differential Equations	3	1	0	4	50	50	100	3
18PH001	Physics -1 waves and optics	4	1	0	5	50	50	100	4
18CY001	Engineering Chemistry	4	0	0	4	50	50	100	3
18EL001	Communicative English	3	0	0	3	50	50	100	2
18ME001	Engineering Graphics	2	0	4	6	50	50	100	3
18PHL01	Physics Lab	0	0	3	3	50	50	100	1
18ELL01	English communications and skills laboratory	0	0	3	3	50	50	100	1
18MEL01	Workshop	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	16	2	13	31	400	400	800	18

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA***(Autonomous)***SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For*****Electronics and Instrumentation Engineering*****Effective from the Academic Year 2018-2019 (R18 Regulations)****First Year B. Tech(SEMESTER – II)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA002	Numerical Methods and Advanced Calculus	4	0	0	4	50	50	100	3
18PH003	Semiconductor Physics and Nano Materials	4	0	0	4	50	50	100	3
18EI203	Instrumentation & Nanotechnology	4	0	0	4	50	50	100	3
18EE002	Basic Electrical Engineering	4	0	0	4	50	50	100	3
18CP001	Programming for Problem Solving	4	0	0	4	50	50	100	3
18CE001	Environmental Studies	3	0	0	3	50	50	100	2
18CYL01	Chemistry Lab	0	0	3	3	50	50	100	1
18CPL01	Programming Lab	0	0	3	3	50	50	100	1
18EEL01	Basic Electrical Engineering Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	23	0	9	32	450	450	900	20

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA***(Autonomous)***SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For*****Electronics and Instrumentation Engineering*****Effective From the Academic Year 2018-2019 (R18 Regulations)****Second Year B. Tech(SEMESTER – III)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA003	Probability and Statistics	3	1	0	4	50	50	100	3
18EI302	Electronic Devices Circuits	3	1	0	4	50	50	100	3
18EI303	Digital Electronics	3	1	0	4	50	50	100	3
18EI304	Network Theory	3	1	0	4	50	50	100	3
18EI305	Elements of Mechanical Engineering	4	0	0	4	50	50	100	3
18EI306	Professional Ethics and Human Values	3	0	0	3	50	50	100	2
18EIL31	Electronic Devices Lab	0	0	3	3	50	50	100	1
18EIL32	Digital Electronics Lab	0	0	3	3	50	50	100	1
18EIL 33	Simulation Lab (Net Works)	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	<b>19</b>	<b>4</b>	<b>9</b>	<b>32</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>20</b>

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**

***Electronics and Instrumentation Engineering***

Effective From the Academic Year 2018-2019 (R18 Regulations)

Second Year B. Tech(SEMESTER – IV)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA004	Complex Analysis and Special functions	3	1	0	4	50	50	100	3
18EI402	Electrical & Electronic Measurements	4	1	0	5	50	50	100	4
18EI403	Signals & Systems	4	1	0	5	50	50	100	4
18EI404	Analog Electronic Circuits	4	1	0	5	50	50	100	4
18EL002	Technical English	3	0	0	3	50	50	100	2
18CE002	Biology for Engineers	3	0	0	3	50	50	100	1
18EIL41	Analog Electronic Circuits Lab	0	0	3	3	50	50	100	2
18EIL42	Measurements Lab	0	0	3	3	50	50	100	1
18EIL43	Signals and Systems Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	<b>21</b>	<b>4</b>	<b>9</b>	<b>34</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>22</b>

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

**MOOCS COURSE CREDITS - 2**

**BAPATLA ENGINEERING COLLEGE : BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**

***Electronics and Instrumentation Engineering***

Effective From the Academic Year 2018-2019 (R18 Regulations)

Third Year B. Tech(SEMESTER – V)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EI501	Control Systems	4	1	0	5	50	50	100	4
18EI502	Transducers	3	1	0	4	50	50	100	3
18EI503	Linear Integrated Circuits & Applications	3	1	0	4	50	50	100	3
18EI504	Microcontrollers	3	1	0	4	50	50	100	3
18EID11...4	Program Elective - 1	3	1	0	4	50	50	100	3
18EI506	Python Programming	3	0	2	5	50	50	100	3
18EIL51	Transducers Lab	0	0	3	3	50	50	100	1
18EIL52	Micro Controllers Lab	0	0	3	3	50	50	100	1
18EIL53	Simulation Lab (Control Systems)	0	0	3	3	50	50	100	1
	MOOCS								2
	<b>TOTAL</b>	<b>19</b>	<b>5</b>	<b>11</b>	<b>35</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>24</b>

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

**Program Elective - I**

- 1) Analog and Digital Communications**
- 2) Computer Organization**
- 3) Intelligent sensors and instrumentation**
- 4) Telemetry and SCADA**

**BAPATLA ENGINEERING COLLEGE : BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
For

***Electronics and Instrumentation Engineering***

Effective From the Academic Year 2018-2019 (R18 Regulations)

Third Year B. Tech(SEMESTER – VI)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EI601	Industrial Instrumentation	3	1	0	4	50	50	100	3
18EI602	Process Control	4	1	0	5	50	50	100	4
18EI603	Digital Signal Processing	3	1	0	4	50	50	100	3
18EID21...4	Program Elective - 2	3	1	0	4	50	50	100	3
18EI605	OOPS With JAVA	3	1	0	4	50	50	100	3
18EI606	Constitution of India	3	0	0	3	50	50	100	0
18EIL61	Process Control Lab	0	0	3	3	50	50	100	1
18EIL62	Digital Signal Processing Lab	0	0	3	3	50	50	100	1
18ELL63	Technical English Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	19	5	9	34	450	450	900	19

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

**Program Elective – 2**

- 1) Digital Control Systems**
- 2) Internet of Things**
- 3) Robotics and Automation**
- 4) Optimization in Engineering Design**

**SUMMMER INTURNSHIP – CREDITS - 2**

**BAPATLA ENGINEERING COLLEGE : BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**

***Electronics and Instrumentation Engineering***

Effective From the Academic Year 2018-2019 (R18 Regulations)

Fourth Year B. Tech(SEMESTER – VII)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EI701	Management-1	4	0	0	4	50	50	100	3
18EI702	Biomedical Instrumentation	4	0	0	4	50	50	100	3
18EI703	Analytical Instrumentation	4	0	0	4	50	50	100	3
18EID31...4	Program Elective -3	3	1	0	4	50	50	100	3
18EID41...4	Program Elective – 4	3	1	0	4	50	50	100	3
18...I11..2	Institution Elective – 1	3	1	0	4	50	50	100	3
18EIL71	PROJECT - I	0	0	5	5	50	50	100	2
18EIL72	BMI Lab	0	0	1	3	50	50	100	1
18EIL73	AI Lab	0	0	1	3	50	50	100	1
	INTEURN SHIP								2
	<b>TOTAL</b>	<b>21</b>	<b>3</b>	<b>7</b>	<b>35</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>24</b>

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

**Program Elective – 3**

- 1) Digital Image Processing.
- 2) Embedded Systems
- 3) CMOS and Analog IC design.
- 4) Non Linear and Robust Control

**Program Elective -4**

- 1) Data Communications
- 2) Bio signal processing
- 3) Artificial intelligence
- 4) Wireless Sensor Networks.

**Institution Elective – 1**



**BAPATLA ENGINEERING COLLEGE : BAPATLA**

(Autonomous)

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**

***Electronics and Instrumentation Engineering***

Effective From the Academic Year 2018-2019 (R18 Regulations)

Fourth Year B. Tech(SEMESTER – VIII)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18EID51...4	Program Elective-5	3	1	0	4	50	50	100	3
18EID61...4	Program Elective-6	3	1	0	4	50	50	100	3
18..J21..2	<i>Institution Elective-2</i>	3	1	0	4	50	50	100	3
18EIP81	Project-II	0	0	20	20	75	75	150	10
	<b>TOTAL</b>	<b>9</b>	<b>3</b>	<b>20</b>	<b>32</b>	<b>225</b>	<b>225</b>	<b>450</b>	<b>19</b>

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

**Program Elective - 5**

- 1) virtual instrumentation
- 2) Instrumentation for Aerospace and Navigation
- 3) Programmable logic controllers.
- 4) Nuclear Medicine

***Institution Elective – 2***



**Program Elective - 6**

- 1) Optoelectronics and laser instrumentation
- 2) Medical Imaging
- 3) Advanced Sensors
- 4) Adaptive Control Systems

**Institutional Elective-I**

S.No.	Code	Course Title
1	18CEI01	Air Pollution & Control
2	18CEI02	Sustainable Water and Sanitation
3	18CSI01	Java Programming
4	18CSI02	Database Management Systems
5	18ECI01	Consumer Electronics
6	18ECI02	Embedded Systems
7	18EEI01	Application of Wavelets to Engineering Problems
8	18EEI02	Industrial Electrical Systems
9	18ITI01	Data Analytics
10	18ITI02	Cyber Security
11	18MEI01	Fluid Power and Control Systems
12	18MEI02	Project Management
13	18MAI01	Linear Algebra
14	18PHI01	Nano-Materials and Technology
15	18PHI02	Fiber Optic Communication
16	18HUI01	System Thinking
17	18ELI01	English for Competitive Examinations
18	18ELI02	Professional Communication

**Institutional Elective-2**

S.No.	Code	Course Title
1	18CEI03	Disaster Management
2	18CEI04	Remote sensing & GIS
3	18CSI03	Python Programming
4	18CSI04	Computer Networks
5	18ECI03	Artificial Neural Network
6	18ECI04	Internet of things(IoT)
7	18EEI03	High Voltage Engineering
8	18EEI04	Energy Auditing and Conservation
9	18ITI03	Mobile Application Developments
10	18ITI04	Web Technology
11	18MEI03	Non-Conventional Energy Sources
12	18MEI04	Automobile Engineering
13	18MAI02	Graph Theory
14	18PHI03	Advanced Materials
15	18PHI04	Optical Electronics
16	18HUI02	Organizational Psychology
17	18HUI03	Telugu Modern Literature
18	18ELI03	English Through Media

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
 First Year B.Tech., (SEMESTER – I)  
 For  
*Information Technology*  
 With Effective From **2018-2019** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
18MA001	Linear Algebra and Ordinary Differential Equations	4	0	0	4	50	50	100	3
18CY001	Engineering Chemistry	4	0	0	4	50	50	100	3
18CE001	Environmental Studies	3	0	0	3	50	50	100	2
18EE001	Basic Electrical & Electronics Engineering	4	0	0	4	50	50	100	3
18MEL01	Engineering Graphics	1	0	4	5	50	50	100	3
18CYL01	Chemistry Lab	0	0	3	3	50	50	100	1
18MEL02	Workshop	0	0	3	3	50	50	100	1
18EEL01	Basic Electrical & Electronics Engineering Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	<b>16</b>	<b>0</b>	<b>13</b>	<b>29</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>17</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
 First Year B.Tech., (SEMESTER – II)  
 For  
*Information Technology*  
 With Effective From **2018-2019** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
18MA002	Numerical Methods And Advanced Calculus	4	0	0	4	50	50	100	3
18PH001	Semiconductor Physics	4	1	0	5	50	50	100	4
18IT203	Professional Ethics & Human Values	3	0	0	3	50	50	100	3
18IT204	Digital Logic Design	3	1	0	4	50	50	100	3
18EL001	Communicative English	3	0	0	3	50	50	100	2
18CS001	Problem Solving with Programming	4	0	0	4	50	50	100	3
18PHL01	Semiconductor Physics Lab	0	0	3	3	50	50	100	1
18ELL01	Communicative English Lab	0	0	3	3	50	50	100	1
18CSL01	Problem Solving with Programming Lab	0	0	3	3	50	50	100	1
<b>TOTAL</b>		<b>21</b>	<b>2</b>	<b>9</b>	<b>32</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>21</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
 Second Year B.Tech., (SEMESTER – III)  
 For  
***Information Technology***  
 With Effective From **2018-2019** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
18IT301	Computer Organization & Architecture	3	1	0	4	50	50	100	3
18IT302	Data Structures	3	1	0	4	50	50	100	3
18IT303	Discrete Mathematics	3	1	0	4	50	50	100	3
18IT304	Object Oriented Programming	3	1	0	4	50	50	100	3
18IT305	Operating System	4	0	0	4	50	50	100	3
18EL002	Technical English	3	0	0	3	50	50	100	2
18ITL31	Data Structures Lab	0	0	3	3	50	50	100	1
18ITL32	Object Oriented Programming Lab	0	0	3	3	50	50	100	1
18ITL33	Operating Systems Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	<b>19</b>	<b>4</b>	<b>9</b>	<b>32</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>20</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Second Year B.Tech., (SEMESTER – IV)

For

***Information Technology***With Effective From **2018-2019** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
18MA003	Probability & Statistics	4	0	0	4	50	50	100	3
18IT402	Web Technologies	3	1	0	4	50	50	100	3
18IT403	Database Management Systems	3	1	0	4	50	50	100	3
18IT404	Script Programming	4	0	0	4	50	50	100	3
18IT405	Computer Networks	4	0	0	4	50	50	100	3
18IT406	Design & Analysis of Algorithms	3	0	2	5	50	50	100	3
18ITL41	Web Technologies Lab	0	0	3	3	50	50	100	1
18ITL42	RDBMS Lab	0	0	3	3	50	50	100	1
18ITL43	Script Programming Lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	<b>21</b>	<b>2</b>	<b>11</b>	<b>34</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>21</b>

**CIE:** Continuous Internal Evaluation   **SEE:** Semester End Examination**Lec :** Lecture              **Tut :** Tutorial    **Pra :** Practical

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Third Year B.Tech., (SEMESTER – V)

For

*Information Technology*With Effective From **2018-2019** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
18IT501	Software Engineering	4	0	0	4	50	50	100	3
18IT502	Automata & Compiler Design	3	1	0	4	50	50	100	3
18IT503	Enterprise Programming	4	0	0	4	50	50	100	3
18IT504	Wireless Networks	4	0	0	4	50	50	100	3
18IT505	Machine Learning	4	0	0	4	50	50	100	3
<b>18ITD1</b>	<b>Elective -I</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18ITL51	Enterprise Programming Lab	0	0	3	3	50	50	100	1
18ITL52	Machine Learning Lab	0	0	3	3	50	50	100	1
18ITDL53	Elective -I Lab	0	0	3	3	50	50	100	1
18ITMO1	MOOC								2
	<b>TOTAL</b>	<b>23</b>	<b>1</b>	<b>9</b>	<b>33</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>23</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination**Lec :** Lecture      **Tut :** Tutorial    **Pra :** Practical**Elective-I****18ITD11** Algorithmic Graph Theory**18ITD12** No SQL Databases**18ITD13** Advanced Web Technologies**18ITD14** Introduction to Computer Animation

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Third Year B.Tech., (SEMESTER – VI)

For

***Information Technology***With Effective From **2018-2019** Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		Lec	Tut	Pra	Total	CIE	SEE	Total	
18IT601	Artificial Intelligence	4	0	0	4	50	50	100	3
18IT602	Introduction to Cyber Security	4	1	0	5	50	50	100	4
18IT603	Cloud Computing	4	0	0	4	50	50	100	3
<b>18ITD2</b>	<b>Elective -II</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>5</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
<b>18ITD3</b>	<b>Elective -III</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18HU001	Constitution of India	3	0	0	3	50	50	100	0
18ELL02	Soft Skills Lab	0	0	3	3	50	50	100	1
18ITL62	Artificial Intelligence Lab	0	0	3	3	50	50	100	1
18ITL63	Cloud Computing lab	0	0	3	3	50	50	100	1
	<b>TOTAL</b>	<b>22</b>	<b>1</b>	<b>11</b>	<b>34</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>19</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination**Lec :** Lecture                  **Tut :** Tutorial    **Pra :** Practical**Elective-II****18ITD21** Micro Processors and Microcontrollers**18ITD22** Natural Language Processing**18ITD23** Big Data Analytics**18ITD24** Advanced Computer Animation**Elective-III****18ITD31** Software Testing Methodologies**18ITD32** Deep Learning**18ITD33** Distributed Systems**18ITD34** Adhoc & Sensor Networks

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
 Final Year B.Tech., (SEMESTER – VII)  
 For  
***Information Technology***  
 With Effective From **2018-2019** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>Lec</b>	<b>Tut</b>	<b>Pra</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
18IT701	Internet of Things	4	0	0	4	50	50	100	3
18IT702	Advanced Cyber Security	4	0	0	4	50	50	100	3
18ITD4	Elective -IV	3	0	2	5	50	50	100	3
18ITI01	Institutional Elective -I	4	0	0	4	50	50	100	3
18ITD5	Elective -V	4	0	0	4	50	50	100	3
18HU002	Indian Traditional Knowledge	3	0	0	3	50	50	100	0
18ITL71	Internet of Things Lab	0	0	3	3	50	50	100	1
18ITL72	Advanced Cyber Security Lab	0	0	3	3	50	50	100	1
18ITP01	Project-I	0	0	6	6	50	50	100	2
18ITIT1	Internship					100		100	2
	<b>TOTAL</b>	<b>22</b>	<b>0</b>	<b>14</b>	<b>36</b>	<b>550</b>	<b>450</b>	<b>1000</b>	<b>21</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination

**Lec :** Lecture              **Tut :** Tutorial    **Pra :** Practical

**Elective -IV:**

18ITD41 Object Oriented Analysis & Design

18ITD42 .Net Technologies

18ITD43 Mobile App Development

18ITD44 DevOps

**Elective -V:**

**18ITD51** Digital Image Processing

**18ITD52** Block Chain Technology

**18ITD53** Bio-Informatics

**18ITD54** Introduction to Game Development

\* Refer Page xxx for list of Institutional Elective -I courses

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Final Year B.Tech., (SEMESTER – VIII)

For

***Information Technology***With Effective From **2018-2019** Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		Lec	Tut	Pra	Total	CIE	SEE	Total	
18ME002	Industrial Management & Entrepreneurship Development	4	0	0	4	50	50	100	3
<b>18IT102</b>	<b>Institutional Elective -II</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
<b>18ITD6</b>	<b>Elective -VI</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18ITP02	Project-II	0	0	16	16	50	100	150	10
	<b>TOTAL</b>	<b>12</b>	<b>0</b>	<b>16</b>	<b>28</b>	<b>200</b>	<b>250</b>	<b>450</b>	<b>19</b>

CIE: Continuous Internal Evaluation SEE: Semester End Examination

Lec : Lecture      Tut : Tutorial    Pra : Practical

**Elective- VI****18ITD61** Social Network Analysis**18ITD62** Introduction to Biometrics**18ITD63** Software Design Patterns**18ITD64** Advanced Game Development

\* Refer Page xxxi for list of Institutional Elective -II courses

**List of Institutional Electives offered by IT Department**

Code No	Title	Offered In
18IT101	Data Analytics	VII Sem.
18IT102	Cyber Security	VII Sem.
18IT103	Mobile Application Development	VIII Sem.
18IT104	Web Technologies	VIII Sem.

## Institutional Electives offered to IT students by other departments

Code No	Title	Offered In
18CE101	Air Pollution & Control	VII Sem
18CE102	Sustainable Water and Sanitation	VII Sem
18CS101	Java Programming	VII Sem
18CS102	Database Management Systems	VII Sem
18EC101	Consumer Electronics	VII Sem
18EC102	Embedded Systems	VII Sem
18EE101	Application of Wavelets to Engineering Problems	VII Sem
18EE102	Industrial Electrical Systems	VII Sem
18EI101	Principles & Applications of MEMS	VII Sem
18EI102	Power System Instrumentation	VII Sem
18ME101	Fluid Power and Control Systems	VII Sem
18ME102	Project Management	VII Sem
18MA101	Linear Algebra	VII Sem
18PH101	Nano-Materials and Technology	VII Sem
18PH102	Fiber Optic Communication	VII Sem
18HU101	System Thinking	VII Sem

## Institutional Electives offered to IT students by other departments

<b>Code No</b>	<b>Title</b>	<b>Offered In</b>
18CE103	Disaster Management	VIII Sem
18CE104	Remote sensing & GIS	VIII Sem
18CS103	Python Programming	VIII Sem
18CS104	Computer Networks	VIII Sem
18EC103	Artificial Neural Network	VIII Sem
18EC104	Internet of Things (IoT)	VIII Sem
18EE103	High Voltage Engineering	VIII Sem
18EE104	Energy Auditing and Conservation	VIII Sem
18EI103	Robotics and Automation	VIII Sem
18EI104	Advanced Computer Control Systems	VIII Sem
18ME103	Non-Conventional Energy Sources	VIII Sem
18ME104	Automobile Engineering	VIII Sem
18MA102	Graph Theory	VIII Sem
18PH103	Advanced Materials	VIII Sem
18PH104	Optical Electronics	VIII Sem
18HU102	Organizational Psychology	VIII Sem
18HU103	Telugu Modern Literature	VIII Sem
18EL103	English Through Media	VIII Sem

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

For

***Mechanical Engineering***

**Effective from the Academic Year 2018-2019 (R18 Regulations)**

**First Year B.Tech (SEMESTER – I)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>				<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
18MA001	Linear Algebra and Ordinary Differential Equations	4	0	0	4	50	50	100	3
18PH001	Physics	4	1	0	5	50	50	100	4
18ME103	Engineering Mechanics- I	4	1	0	5	50	50	100	4
18EE001	Basic Electrical and Electronics Engineering	4	0	0	4	50	50	100	3
18CS001	Problem Solving using Programming	4	0	0	4	50	50	100	3
18PHL01	Physics Laboratory	0	0	3	3	50	50	100	1
18EEL01	Basic Electrical and Electronics Engineering Lab	0	0	3	3	50	50	100	1
18CSL01	Problem Solving Using Programming lab	0	0	3	3	50	50	100	1
	NCC/NSS			3	3				0
	<b>TOTAL</b>	<b>20</b>	<b>2</b>	<b>12</b>	<b>34</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>20</b>

CIE: Continuous Internal Evaluation  
 L: Lecture,            T: Tutorial,

P: Practical

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
For  
***Mechanical Engineering***  
Effective from the Academic Year 2018-2019 (R18 Regulations)  
First Year B.Tech (SEMESTER – II)

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA002	Numerical Methods and Advanced Calculus	4	0	0	4	50	50	100	3
18CY001	Engineering Chemistry	4	0	0	4	50	50	100	3
18ME203	Engineering Mechanics- II	4	1	0	5	50	50	100	4
18CE001	Environmental Studies	3	0	0	3	50	50	100	2
18EL001	Communicative English	3	0	0	3	50	50	100	2
18MEL01	Engineering Graphics	1	0	4	5	50	50	100	3
18CYL01	Engineering Chemistry Laboratory	0	0	3	3	50	50	100	1
18ELL01	English Communication Skills Laboratory	0	0	3	3	50	50	100	1
18MEL02	Workshop practice	0	0	3	3	50	50	100	1
	NCC/NSS	0	0	3	3				0
	<b>TOTAL</b>	<b>19</b>	<b>1</b>	<b>16</b>	<b>36</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>20</b>

CIE: Continuous Internal Evaluation

L: Lecture,

T: Tutorial,

P: Practical

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
For  
***Mechanical Engineering***  
Effective from the Academic Year 2018-2019 (R18 Regulations)  
**Second Year B.Tech (SEMESTER – III)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18ME301	Strength of Materials-I	4	1	0	5	50	50	100	4
18ME302	Professional Ethics & Human Values	4	0	0	4	50	50	100	3
18ME303	Thermodynamics	4	1	0	5	50	50	100	4
18ME304	Fluid Mechanics & Hydraulic Machines	4	1	0	5	50	50	100	4
18ME305	Basic manufacturing processes	4	0	0	4	50	50	100	3
18ME306	Constitution of India	2	0	0	2	50	50	100	0
18MEL31	Strength of Materials & Fluid Mechanics lab	0	0	3	3	50	50	100	1
18MEL32	Basic Manufacturing Processes lab	0	0	3	3	50	50	100	1
18MEL33	Computer aided drafting and Modelling lab	0	0	3	3	50	50	100	1
	NCC/NSS			3	3				0
	<b>TOTAL</b>	<b>22</b>	<b>3</b>	<b>12</b>	<b>37</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>21</b>

CIE: Continuous Internal Evaluation

L: Lecture,

T: Tutorial,

P: Practical

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Second Year B.Tech (SEMESTER – IV)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MA003	Probability and Statistics	4	0	0	4	50	50	100	3
18ME401	Strength of Materials- II	4	1	0	5	50	50	100	4
18ME402	Applied Thermodynamics	4	1	0	5	50	50	100	4
18ME403	Materials Engineering	4	0	0	4	50	50	100	3
18ME404	Kinematics of Machines	4	1	0	5	50	50	100	4
18EL002	Technical English	3	0	0	3	50	50	100	2
18ME405	Essence of Indian Traditional Knowledge	2	0	0	2	50	50	100	0
18MAL01	Probability and Statistics lab	0	0	3	3	50	50	100	1
18MEL41	Pneumatic and Hydraulic drives lab	0	0	3	3	50	50	100	1
	NCC/NSS			3	3				0
	<b>TOTAL</b>	<b>25</b>	<b>3</b>	<b>9</b>	<b>37</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>22</b>

CIE: Continuous Internal Evaluation

L: Lecture,

T: Tutorial,

P: Practical

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B.Tech (SEMESTER – V)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18ME501	Machine Dynamics	4	1	0	5	50	50	100	4
18ME502	IC Engines & Gas Turbines	4	0	0	4	50	50	100	3
18ME503	Design of Machine Elements-I	4	1	0	5	50	50	100	4
18ME504	Metal Cutting and Machine Tools	4	0	0	4	50	50	100	3
18ME505	Industrial Engineering & Management	4	0	0	4	50	50	100	3
<b>18MED11/12/13</b>	<b>Elective-I</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18MEL51	CAE lab	0	0	3	3	50	50	100	1
18MEL52	Fuels & IC Engines lab	0	0	3	3	50	50	100	1
	NCC/NSS			3	3				0
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>35</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>22</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture,

T: Tutorial,

P: Practical

**Elective-I:**

1. Operations Research
2. Finite Element Analysis
3. Composite Materials

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Third Year B.Tech (SEMESTER – VI)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18ME601	Engineering Economics & Financial Analysis	4	0	0	4	50	50	100	3
18ME602	Heat transfer	4	1	0	5	50	50	100	4
18ME603	Design of Machine Elements – II	4	1	0	5	50	50	100	4
18ME604	Manufacturing Technology	4	0	0	4	50	50	100	3
<b>18MED21/22/23</b>	<b>Elective –II</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>50</b>	<b>50</b>	<b>100</b>	<b>3</b>
18MEL61	Heat Transfer Lab	0	0	3	3	50	50	100	1
18MEL62	Machine shop practice	0	0	3	3	50	50	100	1
18ELL02	Soft Skills Lab	0	0	3	3	50	50	100	1
	MOOCs			3	3				2
	<b>TOTAL</b>	<b>20</b>	<b>2</b>	<b>12</b>	<b>34</b>	<b>400</b>	<b>400</b>	<b>800</b>	<b>22</b>

CIE: Continuous Internal Evaluation

L: Lecture, T: Tutorial,

SEE: Semester End Examination

P: Practical

**Elective –II**

1. Computational Fluid Dynamics
2. Power Plant Engineering
3. Mechatronics

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Fourth Year B.Tech (SEMESTER – VII)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18ME701	Automation in Manufacturing	4	0	0	4	50	50	100	3
18ME702	Operations Management	4	0	0	4	50	50	100	3
18ME703	Instrumentation and Control Systems	4	0	0	4	50	50	100	3
18—I--	Institutional Elective -I	4	0	0	4	50	50	100	3
18MED31/32/33/34	Elective –III	4	0	0	4	50	50	100	3
18MED41/42/43	Elective-IV	4	0	0	4	50	50	100	3
18MEP01	Project-I	0	0	4	4	50	50	100	2
18MEL71	Design & Metrology lab	0	0	3	3	50	50	100	1
18MEL72	CAM lab	0	0	3	3	50	50	100	1
18MEII1	Internship								2
	<b>TOTAL</b>	<b>24</b>	<b>0</b>	<b>10</b>	<b>34</b>	<b>450</b>	<b>450</b>	<b>900</b>	<b>24</b>

CIE: Continuous Internal Evaluation

L: Lecture, T: Tutorial,

P: Practical

SEE: Semester End Examination

#### **Elective –III**

1. Fluid Power Systems
2. Computer Aided Design
3. Refrigeration and Air conditioning
4. Project Management

#### **Elective – IV**

1. Mechanical Vibrations
2. Robotics
3. Supply Chain Management

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**Effective from the Academic Year 2018-2019 (R18 Regulations)**  
**Second Year B.Tech (SEMESTER – VIII)**

Code No.	Subject	Scheme of Instruction (Periods per week)				Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	Total	CIE	SEE	Total Marks	
18MED51/52/53/54	Elective –V	4	0	0	4	50	50	100	3
18—I--	Institutional Elective –II	4	0	0	4	50	50	100	3
18MEP02	Project-II	0	0	12	12	75	75	150	10
	<b>TOTAL</b>	<b>8</b>	<b>0</b>	<b>12</b>	<b>20</b>	<b>175</b>	<b>175</b>	<b>350</b>	<b>16</b>

CIE: Continuous Internal Evaluation

L: Lecture,

T: Tutorial,

P: Practical

SEE: Semester End Examination

**Elective –V**

1. Advanced Manufacturing
2. Total Quality Management
3. Automobile Engineering
4. Entrepreneurship Development

**Institutional Elective-I (in VII semester – position as 4<sup>th</sup> theory subject)**

- 18CEI01:** Air Pollution & Control  
**18CEI02:** Sustainable Water and Sanitation  
**18CSI01:** Java Programming  
**18CSI02:** Database Management Systems  
**18ECI01:** Consumer Electronics  
**18ECI02:** Embedded Systems  
**18EEI01:** Application of Wavelets to Engineering Problems  
**18EEI02:** Industrial Electrical Systems  
**18EII01:** Introduction to MEMS  
**18EII02:** Power System Instrumentation  
**18ITI01:** Data Analytics  
**18ITI02:** Cyber Security  
**18MAI01:** Linear Algebra  
**18PHI01:** Nano-Materials and Technology  
**18PHI02:** Fibre Optic Communication  
**18HUI01:** System Thinking

**Institutional Elective-II(in VIII semester – position as 2<sup>nd</sup> theory subject)**

- 18CEI03:** Disaster Management  
**18CEI04:** Remote sensing & GIS  
**18CSI03:** Python Programming  
**18CSI04:** Computer Networks  
**18ECI03:** Artificial Neural Network  
**18ECI04:** Internet of Things (IoT)  
**18EEI03:** High Voltage Engineering  
**18EEI04:** Energy Auditing and Conservation  
**18EII03:** Robotics and Automation  
**18EII04:** Advanced Computer Control Systems  
**18ITI03:** Mobile Application Developments  
**18ITI04:** Web Technology  
**18MAI02:** Graph Theory  
**18PHI03:** Advanced Materials  
**18PHI04:** Optical Electronics  
**18HUI02:** Organizational Psychology  
**18HUI03:** Telugu Modern Literature

**Institutional Elective-I (in VII semester – position as 6<sup>th</sup> theory subject)**

18CEI01	Air Pollution & Control
18CEI02	Rural Water Supply and Environment Sanitation
18CSI01	Java Programming
18CSI02	Database Management Systems
18ECI01	Consumer Electronics
18ECI02	Embedded Systems
18EEI01	Application of Wavelets to Engineering Problems
18EEI02	Industrial Electrical Systems
18EII01	Principles & Applications of MEMS
18EII02	Power System Instrumentation
18ITI01	Data Analytics
18ITI02	Cyber Security
18MEI01	Fluid Power and Control Systems
18MEI02	Project Management
18MAI01	Linear Algebra
18PHI01	Nano - Materials and Technology
18PHI02	Fiber Optic Communication
18HUI01	System Thinking
18ELI01	English for Competitive Examinations
18ELI02	Professional Communication

**Institutional Elective-II (in VIII semester – position as 3<sup>rd</sup> theory subject)**

18CEI03	Disaster Management
18CEI04	Remote sensing & GIS
18CSI03	Python Programming
18CSI04	Computer Networks
18ECI03	Artificial Neural Network
18ECI04	Internet of Things (IoT)
18EEI03	High Voltage Engineering
18EEI04	Energy Auditing and Conservation
18EII03	Robotics and Automation
18EII04	Advanced Computer Control Systems
18ITI03	Mobile Application Developments
18ITI04	Web Technology
18MEI03	Non-Conventional Energy Sources
18MEI04	Automobile Engineering
18MAI02	Graph Theory
18PHI03	Advanced Materials
18PHI04	Optical Electronics
18HUI02	Organizational Psychology
18HUI03	Telugu Modern Literature
18ELI03	English Through Media

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**First Year B.Tech., (SEMESTER – I)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA101	Engineering Mathematics – I	4	1	0	0	5	40	60	100	4
14PH102	Engineering Physics – I	4	0	0	0	4	40	60	100	3
14CH103	Engineering Chemistry – I	4	0	0	0	4	40	60	100	3
14EE104	Basic Electrical and Electronics Engineering	4	0	0	0	4	40	60	100	3
14EM105	Engineering Mechanics	4	1	0	0	5	40	60	100	4
14CP106	Computer Programming with C	4	0	0	1	5	40	60	100	3
14PHL101	Physics lab	0	0	3	0	3	40	60	100	2
14HWL102	Hardware Lab	0	0	3	0	3	40	60	100	2
14CPL103	Computer Programming Lab.	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

S: Self Study

T: Tutorial

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**First Year B.Tech., (SEMESTER – II)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA201	Engineering Mathematics – II	4	1	0	0	5	40	60	100	4
14PH202	Engineering Physics – II	4	0	0	0	4	40	60	100	3
14CH203	Engineering Chemistry – II	4	0	0	0	4	40	60	100	3
14EL204	English Language and Communication	4	0	0	0	4	40	60	100	3
14ES205	Environmental Studies	4	0	0	0	4	40	60	100	3
14EG206	Engineering Graphics	4	1	0	1	6	40	60	100	4
14CHL201	Chemistry Lab	0	0	3	0	3	40	60	100	2
14ELL202	English Language Laboratory	0	0	3	0	3	40	60	100	2
14WSL203	Workshop	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

S: Self Study

T: Tutorial

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**Second Year B.Tech., (SEMESTER – III)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA301	Engineering Mathematics - III	4	0	0	0	4	40	60	100	3
14CE302	Building Materials and concrete Technology	4	0	0	0	4	40	60	100	3
14CE303	Surveying-I	4	0	0	1	5	40	60	100	3
14CE304	Solid Mechanics - I	4	1	0	0	5	40	60	100	4
14CE305	Fluid Mechanics	4	1	0	0	5	40	60	100	4
14CE306	Engineering Geology	4	0	0	0	4	40	60	100	3
14CEL301	Engineering Geology Laboratory	0	0	3	0	3	40	60	100	2
14CEL302	Surveying Field Work – I	0	0	3	0	3	40	60	100	2
14CEL303	Building Planning and Drawing Laboratory	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**Second Year B.Tech., (SEMESTER – IV)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA401	Engineering Mathematics - IV	4	0	0	0	4	40	60	100	3
14CE402	Professional Ethics and Human values	4	0	0	0	4	40	60	100	3
14CE403	Surveying-II	4	0	0	1	5	40	60	100	3
14CE404	Solid Mechanics - II	4	1	0	0	5	40	60	100	4
14CE405	Hydraulics & Hydraulic Machines	4	1	0	0	5	40	60	100	4
14CE406	Environmental Engineering - I	4	0	0	0	4	40	60	100	3
14ELL401	Soft Skills Laboratory	0	0	3	0	3	40	60	100	2
14CEL402	Environmental Engineering Laboratory	0	0	3	0	3	40	60	100	2
14CEL403	Materials Testing Laboratory	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**Third Year B.Tech., (SEMESTER – V)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14CE501	Structural Analysis - I	4	1	0	0	5	40	60	100	4
14CE502	Water Resource Engineering-I	4	0	0	0	4	40	60	100	3
14CE503	Design of Concrete Structures-I	4	1	0	0	5	40	60	100	4
14CE504	Environmental Engineering - II	4	0	0	0	4	40	60	100	3
14CE505	Geo-Technical Engineering - I	4	0	0	1	5	40	60	100	3
14CE506	Elective-I	4	0	0	0	4	40	60	100	3
14CEL501	Hydraulics & Hydraulic Machines Laboratory	0	0	3	0	3	40	60	100	2
14CEL502	Geo-Technical Engineering Laboratory	0	0	3	0	3	40	60	100	2
14CEL503	Computer Applications in Civil Engineering Laboratory	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

**Elective-I**

**14CE506/A: Remote Sensing and GIS**

**14CE506/B: Rock Mechanics**

**14CE506/C: Low cost Housing Techniques**

**14CE506/D: Building Technology**

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**Third Year B.Tech., (SEMESTER – VI)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14CE601	Structural Analysis - II	4	1	0	0	5	40	60	100	4
14CE602	Water Resource Engineering-II	4	0	0	0	4	40	60	100	3
14CE603	Design of Concrete Structures-II	4	0	0	1	5	40	60	100	3
14CE604	Design of Steel Structures-I	4	1	0	0	5	40	60	100	4
14CE605	Geotechnical Engineering - II	4	0	0	0	4	40	60	100	3
14CE606	Elective - II	4	0	0	0	4	40	60	100	3
14CEL601	Surveying Field Work - II	0	0	3	0	3	40	60	100	2
14CEL602	Computer Aided Analysis ,Design and Detailing of Structures-I Lab	0	0	3	0	3	40	60	100	2
14CEL603	Computer Aided Design and Detailing of Irrigation Structures Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

**Elective – II**

**14CE606/A: Advanced Surveying**

**14CE606/B: Repair and Rehabilitation of Structures**

**14CE606/C: Environmental Geotechnics**

**14CE606/D: Geosynthetics**

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**Final Year B.Tech., (SEMESTER – VII)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14CE701	Transportation Engineering - I	4	0	0	0	4	40	60	100	3
14CE702	Design of Steel Structures-II	4	1	0	0	5	40	60	100	4
14CE703	Estimation & Quantity Surveying	4	0	0	0	4	40	60	100	3
14CE704	Pre-stressed Concrete	4	0	0	0	4	40	60	100	3
14CE705	Elective - III	4	1	0	0	5	40	60	100	4
14OE706	Open Elective	4	0	0	0	4	40	60	100	3
14ELL701	Business Communication and Presentation Skills Lab	0	0	2	0	2	20	30	50	1
14CEL702	Computer Aided Analysis ,Design and Detailing of Structures-II Lab	0	0	3	0	3	40	60	100	2
14CEL703	Transportation Engineering Laboratory	0	0	3	0	3	40	60	100	2
14CEL704	Term paper	0	0	2	0	2	20	30	50	1
	<b>TOTAL</b>	24	2	10	0	36	360	540	900	26

**Elective – III:**

- 14CE705/A: Advanced Structural Analysis**
- 14CE705/B: Advanced Foundation Engineering**
- 14CE705/C: Environmental Impact Assessment and Management**
- 14CE705/D: Structural Dynamics**

**Open Elective:**

**The students of CE will choose an Inter department Elective offered by other Departments.**

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
**Civil Engineering**  
**With Effective From 2014-2015 Academic Year**  
**Final Year B.Tech., (SEMESTER – VIII)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14CE801	Transportation Engineering - II	4	0	0	0	4	40	60	100	3
14CE802	Construction Management	4	0	0	0	4	40	60	100	3
14CE803	Elective-IV	4	1	0	0	5	40	60	100	4
14CE804	Elective – V	4	0	0	1	5	40	60	100	3
14CEPR801	Project work	0	0	12	0	12	50	100	150	10
14CEL802	Quantity Estimation & Project Management	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	16	1	15	1	33	250	400	650	25

**Elective IV**

**14CE 803/A: Finite Element Analysis**

**14CE 803/B: Bridge Engineering**

**14CE 803/C: Advanced Environmental Engineering**

**14CE 803/D: Ground Improvement Techniques**

**Elective V**

**14CE 804/A: Advanced Design of Concrete Structures**

**14CE 804/B: Pavement Analysis and Design**

**14CE 804/C: Earthquake Resistant Design of Structures**

**14CE 804/D: Ground Water Development and Management**



# Bapatla Engineering College:: Bapatla (Autonomous)

## Scheme of Instruction & Examination (Semester System)

For

CH, CS, EI, IT, ME Branches

With Effective from 2014-2015 Academic Year

First Year B.Tech., (SEMESTER – I)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA101	Engineering Mathematics – I	4	1	0	0	5	40	60	100	4
14PH102	Engineering Physics – I	4	0	0	0	4	40	60	100	3
14CY103	Engineering Chemistry – I	4	0	0	0	4	40	60	100	3
14EE104	Basic Electrical and Electronics Engineering	4	0	0	0	4	40	60	100	3
14ES105	Environmental Studies	4	0	0	0	4	40	60	100	3
14EG106	Engineering Graphics	4	1	0	1	6	40	60	100	4
14CYL101	Chemistry Lab	0	0	3	0	3	40	60	100	2
14HWL102	Hardware Lab	0	0	3	0	3	40	60	100	2
14WSL103	Workshop	0	0	3	0	3	40	60	100	2
	TOTAL	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

S: Self Study

P: Practical



# Bapatla Engineering College:: Bapatla (Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

CH, CS, EI, IT, ME Branches

With Effective from 2014-2015 Academic Year

First Year B.Tech., (SEMESTER – II)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA201	Engineering Mathematics – II	4	1	0	0	5	40	60	100	4
14PH202	Engineering Physics – II	4	0	0	0	4	40	60	100	3
14CY203	Engineering Chemistry – II	4	0	0	0	4	40	60	100	3
14EL204	Communicative English	4	0	0	0	4	40	60	100	3
14EM205	Engineering Mechanics	4	1	0	0	5	40	60	100	4
14CP206	Problem Solving with Programming	4	0	0	1	5	40	60	100	3
14PHL201	Physics lab	0	0	3	0	3	40	60	100	2
14ELL202	English Communication Skills Lab	0	0	3	0	3	40	60	100	2
14CPL203	Problem Solving with Programming Lab	0	0	3	0	3	40	60	100	2
	TOTAL	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

S: Self Study



# Bapatla Engineering College:: Bapatla (Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

Second Year B.Tech., (SEMESTER – III)

For

**CSE Branch**

With Effect From 2014-2015 Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA301	Engineering Mathematics – III	4	0	0	0	4	40	60	100	3
14CS302	Discrete Mathematical Structures	4	1	0	0	5	40	60	100	4
14CS303	Digital Logic Design	4	0	0	0	4	40	60	100	3
14CS304	Operating System	4	0	0	1	5	40	60	100	3
14CS305	Data Structures	4	1	0	0	5	40	60	100	4
14CS306	Object Oriented Programming	4	0	0	0	4	40	60	100	3
14ELL301	Soft Skills Lab	0	0	3	0	3	40	60	100	2
14CSL302	Data Structures Lab	0	0	3	0	3	40	60	100	2
14CSL303	OOPS Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation  
L: Lecture                    T: Tutorial

SEE: Semester End Examination  
P: Practical                    S: Self Study



# Bapatla Engineering College:: Bapatla (Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

### Second Year B.Tech., (SEMESTER – IV)

For

#### CSE Branch

With Effect From 2014-2015 Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA401	Engineering Mathematics - IV	4	0	0	0	4	40	60	100	3
14CS402	Professional Ethics and Human Values	4	0	0	0	4	40	60	100	3
14CS403	Computer Organization	4	1	0	0	5	40	60	100	4
14CS404	Design and Analysis of Algorithms	4	1	0	0	5	40	60	100	4
14CS405	GUI Programming	4	0	0	1	5	40	60	100	3
14CS406	Web Technologies	4	0	0	0	4	40	60	100	3
14CSL401	DAA Lab	0	0	3	0	3	40	60	100	2
14CSL402	GUI Programming Lab	0	0	3	0	3	40	60	100	2
14CSL403	Web Technologies Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

S: Self Study



# Bapatla Engineering College:: Bapatla (Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

Third Year B.Tech., (SEMESTER – V)

For

**CSE Branch**

With Effect From 2014-2015 Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14CS501	Software Engineering	4	0	0	0	4	40	60	100	3
14CS502	Automata Theory & Formal Languages	4	0	0	0	4	40	60	100	3
14CS503	Microprocessors & Microcontrollers	4	0	0	1	5	40	60	100	3
14CS504	Database Management Systems	4	1	0	0	5	40	60	100	4
14CS505	Enterprise Programming-I	4	1	0	0	5	40	60	100	4
14CS506	Elective – I	4	0	0	0	4	40	60	100	3
14CSL501	MPMC Lab	0	0	3	0	3	40	60	100	2
14CSL502	RDBMS Lab	0	0	3	0	3	40	60	100	2
14CSL503	Enterprise Programming-I Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

**Elective I**

14CS506/A Artificial Intelligence

14CS506/B Principles of Programming Languages

14CS506/C Machine Learning

14CS506/D Graph Theory

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

S: Self Study



# Bapatla Engineering College:: Bapatla

(Autonomous)

## **SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

**Third Year B.Tech., (SEMESTER – VI)**

**For**

**CSE Branch**

**With Effect From 2014-2015 Academic Year**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14CS601	Introduction to Data Analytics	4	0	0	0	4	40	60	100	3
14CS602	Compiler Design	4	0	0	0	4	40	60	100	3
14CS603	Computer Networks	4	1	0	0	5	40	60	100	4
14CS604	Enterprise Programming-II	4	1	0	0	5	40	60	100	4
14CS605	Cloud and Mobile Application Development	4	0	0	1	5	40	60	100	3
<b>14CS606</b>	<b>Elective - II</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14CSL601	Introduction to Data Analytics Lab	0	0	3	0	3	40	60	100	2
14CSL602	Enterprise Programming-II Lab	0	0	3	0	3	40	60	100	2
14CSL603	Cloud and Mobile Application Development Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

**Elective II**

**14CS606/A Natural Language Processing**

**14CS606/B Parallel Processing**

**14CS606/C Digital Image Processing**

**14CS606/D Advanced Computer Architecture**

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

S: Self Study



# Bapatla Engineering College:: Bapatla (Autonomous)

## SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

Final Year B.Tech., (SEMESTER – VII)

For

**CSE Branch**

With Effect From 2014-2015 Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14CS701	Introduction to Cyber Security	4	0	0	0	4	40	60	100	3
14CS702	Object Oriented Analysis and Design	4	0	0	0	4	40	60	100	3
14CS703	Advanced Data Analytics	4	1	0	0	5	40	60	100	4
14CS704	Wireless Networks	4	1	0	0	5	40	60	100	4
14CS705	Elective-III	4	0	0	0	4	40	60	100	3
14OE706	Open Elective	4	0	0	0	4	40	60	100	3
14ELL701	Business Communication and Presentation Skills Lab	0	0	2	0	2	20	30	50	1
14CSL702	Introduction to Cyber Security Lab	0	0	3	0	3	40	60	100	2
14CSL703	Advanced Data Analytics Lab	0	0	3	0	3	40	60	100	2
14CSL704	Term Paper	0	0	2	0	2	20	30	50	1
	TOTAL	24	2	10	0	36	360	540	900	26

### Elective III

14CS705/A Software Project Management

14CS705/B Distributed Systems

14CS705/C E Commerce

14CS705/D Software Quality Management



# Bapatla Engineering College:: Bapatla

(Autonomous)

## **SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

**Final Year B.Tech., (SEMESTER – VIII)**

For

**CSE Branch**

**With Effect From 2014-2015 Academic Year**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14ME801	Industrial Management & Enterpreneurship Development	4	0	0	0	4	40	60	100	3
14CS802	Advanced Cyber Security	4	1	0	0	5	40	60	100	4
14CS803	Elective - IV	4	0	0	1	5	40	60	100	3
14CS804	Elective - V	4	0	0	0	4	40	60	100	3
14CSPR801	Project Work	0	0	12	0	12	50	100	150	10
14CSL801	Advanced Cyber Security Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	16	1	15	1	33	<b>250</b>	<b>400</b>	<b>650</b>	<b>25</b>

**Elective IV**

- 14CS803/A Software Testing Methodologies
- 14CS803/B Web Mining
- 14CS803/C ADBMS
- 14CS803/D Bioinformatics

**Elective IV**

- 14CS804/A Real Time Systems
- 14CS804/B Network Management Systems
- 14CS804/C High speed Networks
- 14CS804/D Adhoc Sensor Networks

CIE: Continuous Internal Evaluation

L: Lecture

T: Tutorial

SEE: Semester End Examination

P: Practical

S: Self Study

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**

**(Autonomous)**

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

**For**

***Electronics and Communication Engineering***

**For 2014-15 Batch**

**First Year B.Tech., (SEMESTER – I)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA101	Engineering Mathematics – I	4	1	0	0	5	40	60	100	4
14PH102	Engineering Physics – I	4	0	0	0	4	40	60	100	3
14CY103	Engineering Chemistry – I	4	0	0	0	4	40	60	100	3
14EE104	Basic Electrical and Electronics Engineering	4	0	0	0	4	40	60	100	3
14EM105	Engineering Mechanics	4	1	0	0	5	40	60	100	4
14CP106	Problem Solving with Programming	4	0	0	1	5	40	60	100	3
14PHL101	Physics lab	0	0	3	0	3	40	60	100	2
14HWL102	Hardware Lab	0	0	3	0	3	40	60	100	2
14CPL103	Problem Solving with Programming Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communication Engineering***  
**For 2014-15 Batch**

**First Year B.Tech., (SEMESTER – II)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA201	Engineering Mathematics – II	4	1	0	0	5	40	60	100	4
14PH202	Engineering Physics – II	4	0	0	0	4	40	60	100	3
14CY203	Engineering Chemistry – II	4	0	0	0	4	40	60	100	3
14EL204	Communicative English	4	0	0	0	4	40	60	100	3
14ES205	Environmental Studies	4	0	0	0	4	40	60	100	3
14EG206	Engineering Graphics	4	1	0	1	6	40	60	100	4
14CYL201	Chemistry Lab	0	0	3	0	3	40	60	100	2
14ELL202	English Communication and Skills Lab	0	0	3	0	3	40	60	100	2
14WSL203	Workshop	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communication Engineering***  
**For 2014-15 Batch**

**Second Year B.Tech., (SEMESTER – III)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EC301/ 14MA301	Engineering Mathematics–III	3	1			4	40	60	100	3
14EC302	Data Structures using C	3	1			4	40	60	100	3
14EC303	Electronic Devices	3	1			4	40	60	100	3
14EC304	Signals and Systems	3	2			5	40	60	100	4
14EC305	Digital Electronics	3	2			5	40	60	100	4
14EC306	Circuit Theory	3	1		1	5	40	60	100	3
14ECL301	Data Structures Lab			3		3	40	60	100	2
14ECL302	Electronic Devices Lab			3		3	40	60	100	2
14ECL303	Digital Electronics Lab			3		3	40	60	100	2
	<b>TOTAL</b>	<b>18</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communication Engineering***  
**For 2014-15 Batch**

**Second Year B.Tech., (SEMESTER – IV)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EC401/14 MA401	Engineering Mathematics– IV	3	1			4	40	60	100	3
14EC402	Electronic Circuits – I	3	1		1	5	40	60	100	3
14EC403	Electromagnetic Field Theory	3	1			4	40	60	100	3
14EC404	Analog Communications	3	2			5	40	60	100	4
14EC405	Network analysis and Synthesis	3	2			5	40	60	100	4
14EC406	Basic Instrumentation	3	2			4	40	60	100	3
14ECL401	Electronic Circuits – I Lab			3		3	40	60	100	2
14ECL402	Analog Communication Lab			3		3	40	60	100	2
14ECL403	Signals and Systems lab			3		3	40	60	100	2
	<b>TOTAL</b>	<b>18</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communication Engineering***  
**For 2014-15 Batch**

**Third Year B.Tech., (SEMESTER – V)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EC501	Linear Integrated Circuits	3	2			5	40	60	100	4
14EC502	Linear Control Systems	3	2			5	40	60	100	4
14EC503	Electronic Circuits – II	3	1			4	40	60	100	3
14EC504	EM Waves and transmission lines	3	1			4	40	60	100	3
14EC505	Digital Communications	3	1			4	40	60	100	3
<b>14EC506</b>	<b>Elective-1</b>	<b>3</b>	<b>1</b>			<b>1</b>	<b>5</b>	<b>40</b>	<b>60</b>	<b>100</b>
14ECL501	PSPICE Lab			3		3	40	60	100	2
14ECL502	Integrated Circuits Lab			3		3	40	60	100	2
14ECL503	Digital Communications Lab			3		3	40	60	100	2
	<b>TOTAL</b>	<b>18</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**Elective- I**

**14EC506A Pulse and Switching Circuits**

**14EC506B Probability and Stochastic Process**

**14EC506C Linear Algebra**

**14EC506D Discrete Mathematics**

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communication Engineering***  
**For 2014-15 Batch**

**Third Year B.Tech., (SEMESTER – VI)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EC601	Professional Ethics and Human values	3	1			4	40	60	100	3
14EC602	Microprocessors and Microcontrollers	3	2			5	40	60	100	4
14EC603	Digital Signal Processing	3	2			5	40	60	100	4
14EC604	Antenna and Wave Propagation	3	1			4	40	60	100	3
14EC605	Object Oriented Programming with Java	3	1		1	5	40	60	100	3
<b>14EC606</b>	<b>Elective – II</b>	<b>3</b>	<b>1</b>			<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14ELL601	Soft Skills Lab			3		3	40	60	100	2
14ECL602	Microprocessors & Microcontrollers Lab			3		3	40	60	100	2
14ECL603	Object Oriented Programming using Java Lab			3		3	40	60	100	2
	<b>TOTAL</b>	<b>18</b>	<b>8</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**Elective- II**

**14EC606A Computer Organization and Architecture**

**14EC606B Communication Systems**

**14EC606C Bio-Medical Electronics**

**14EC606D Robotics**

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communication Engineering***  
**For 2014-15 Batch**

**Final Year B.Tech., (SEMESTER – VII)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EC701	Industrial Management and Entrepreneurship Development	3	1			4	40	60	100	3
14EC702	VLSI Design	3	2			5	40	60	100	4
14EC703	Microwave Theory and Techniques	3	1			4	40	60	100	3
14EC704	Digital Image Processing	3	1			4	40	60	100	3
<b>14EC705</b>	<b>Elective - III</b>	<b>3</b>	<b>2</b>			<b>5</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>4</b>
<b>14OE706</b>	<b>Open Elective</b>	<b>3</b>	<b>1</b>			<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14ELL701	Interview Skills Lab			2		2	20	30	50	1
14ECL702	Verilog HDL Lab			3		3	40	60	100	2
14ECL703	Signal and Image Processing Lab using Scilab			3		3	40	60	100	2
14ECL704	Term paper			2		2	20	30	50	1
	<b>TOTAL</b>	<b>18</b>	<b>8</b>	<b>10</b>	<b>0</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**Elective- III**

**14EC705A Computer Networks**

**14EC705B Fuzzy Logic**

**14EC705C Global Positioning System and Applications**

**14EC705D Satellite Communications**

**Open Elective**

## LIST OF OPEN ELECTIVES

<b>DEPARTMENT</b>	<b>SUBJECT NAME</b>	<b>SUBJECT CODE</b>
Chemical Engineering.	Industrial Pollution & Control	ChE 01
	Energy Engineering	ChE 02
Civil Engineering.	Air Pollution & Control	CE 01
	Remote Sensing & GIS	CE 02
Computer Science & Engineering.	Database Management Systems	CS 01
	Java Programming	CS 02
Electrical & Electronics Engineering.	Optimization Techniques	EE 01
	Non-Conventional Energy Sources	EE 02
Electronics & Communication Engineering.	Consumer Electronics	EC 01
	Embedded Systems	EC 02
Electronics & Instrumentation Engineering.	Virtual Instrumentation Using LABVIEW	EI 01
	Sensors & Transducers	EI 02
Information Technology.	Mobile Application Development	IT 01
	Web Technologies	IT 02
Mechanical Engineering.	Automobile Engineering	ME 01
	Refrigeration & Air Conditioning	ME 02
BOSCH REXROTH Centre	Automation Technology	BR 01

**BAPATLA ENGINEERING COLLEGE :: BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Electronics and Communication Engineering***  
**For 2014-15 Batch**

**Final Year B.Tech., (SEMESTER – VIII)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EC801	Radar Engineering	2	2			4	40	60	100	3
14EC802	Fiber Optic Communications	2	2			4	40	60	100	3
14EC803	Elective –IV	3	2			5	40	60	100	4
14EC804	Elective – V	2	2		1	5	40	60	100	3
14ECL801	Microwave & Optical Communication Lab			3		3	40	60	100	2
14ECPR802	Project Work			12		12	50	100	150	10
	<b>TOTAL</b>	<b>9</b>	<b>8</b>	<b>15</b>	<b>1</b>	<b>33</b>	<b>250</b>	<b>400</b>	<b>650</b>	<b>25</b>

L: Lecture

T: Tutorial

P: Practical

S: Self Study

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

**Elective- IV**

- 14EC803A Artificial Intelligence and Machine Learning
- 14EC803B Speech and Audio Processing
- 14EC803C Information Theory and Coding
- 14EC804D Mobile Communications

**Elective- V**

- 14EC804A Neural Networks
- 14EC804B Advanced Microcontrollers
- 14EC804C Software Defined Radio
- 14EC804D Adaptive Signal Processing

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**First Year B.Tech. (SEMESTER – I)**  
For  
*Electrical and Electronics Engineering*  
With Effect From 2014-2015 Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA101	Engineering Mathematics – I	4	1	0	0	5	40	60	100	4
14PH102	Engineering Physics – I	4	0	0	0	4	40	60	100	3
14CY103	Engineering Chemistry – I	4	0	0	0	4	40	60	100	3
14EE104	Basic Electrical and Electronics Engineering	4	0	0	0	4	40	60	100	3
14EM105	Engineering Mechanics	4	1	0	0	5	40	60	100	4
14CP106	Problem Solving with Programming	4	0	0	1	5	40	60	100	3
14PHL101	Physics lab	0	0	3	0	3	40	60	100	2
14HWL102	Hardware Lab	0	0	3	0	3	40	60	100	2
14CPL103	Problem Solving with Programming Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

S: Self Study

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**First Year B.Tech., (SEMESTER – II)**  
**For**  
*Electrical and Electronics Engineering*  
**With Effect From 2014-2015 Academic Year**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA201	Engineering Mathematics – II	4	1	0	0	5	40	60	100	4
14PH202	Engineering Physics – II	4	0	0	0	4	40	60	100	3
14CY203	Engineering Chemistry – II	4	0	0	0	4	40	60	100	3
14EL204	Communicative English	4	0	0	0	4	40	60	100	3
14ES205	Environmental Studies	4	0	0	0	4	40	60	100	3
14EG206	Engineering Graphics	4	1	0	1	6	40	60	100	4
14CYL201	Chemistry Lab	0	0	3	0	3	40	60	100	2
14ELL202	English Communication and Skills Lab	0	0	3	0	3	40	60	100	2
14WSL203	Workshop	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

T: Tutorial

P: Practical

S: Self Study

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Electrical and Electronics Engineering*  
**With Effective From 2014-2015 Academic Year**  
**Second Year B.Tech., (SEMESTER – III)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA301	Engineering Mathematics – III	4	0	0	0	4	40	60	100	3
14EE302	Basic Electronic Devices	4	0	0	0	4	40	60	100	3
14EE303	Circuit Theory	4	1	0	0	5	40	60	100	4
14EE304	Prime Movers and Pumps	4	0	0	0	4	40	60	100	3
14EE305	Switching Theory & Logic Design	4	0	0	1	5	40	60	100	3
14EE306	DC Machines	4	1	0	0	5	40	60	100	4
14EEL301	Networks and Simulation Lab	0	0	3	0	3	40	60	100	2
14EEL302	Electronics Lab-I	0	0	3	0	3	40	60	100	2
14EEL303	DC Machines Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Electrical and Electronics Engineering*  
**With Effective From 2014-2015 Academic Year**  
**Second Year B.Tech., (SEMESTER – IV)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA401	Engineering Mathematics – IV	4	0	0	0	4	40	60	100	3
14EE402	Analog Electronic Circuits	4	0	0	0	4	40	60	100	3
14EE403	Object Oriented Programming and Operating System	4	0	0	0	4	40	60	100	3
14EE404	Network Analysis & synthesis	4	0	0	1	5	40	60	100	3
14EE405	Electromagnetic Field Theory	4	1	0	0	5	40	60	100	4
14EE406	Transformers & Induction Motors	4	1	0	0	5	40	60	100	4
14EEL401	AC Machines Lab-I	0	0	3	0	3	40	60	100	2
14EEL402	Fluid Mechanics & IC Engines Lab	0	0	3	0	3	40	60	100	2
14EEL403	Object Oriented Programming Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Electrical and Electronics Engineering*  
**With Effective From 2014-2015 Academic Year**  
**Third Year B.Tech., (SEMESTER – V)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EE501	Generation of Electrical Power	4	0	0	0	4	40	60	100	3
14EE502	Control Systems	4	0	0	0	4	40	60	100	3
14EE503	Transmission and Distribution	4	1	0	0	5	40	60	100	4
14EE504	Linear IC's & Applications	4	1	0	0	5	40	60	100	4
14EE505	Synchronous & Special Machines	4	0	0	1	5	40	60	100	3
14EE506	<b>Elective-1</b>	4	0	0	0	4	40	60	100	3
14ELL501	Soft Skills Lab	0	0	3	0	3	40	60	100	2
14EEL502	AC Machines Lab-II	0	0	3	0	3	40	60	100	2
14EEL503	Electronics Lab-II	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

**Elective-I**

14EE506 (A): Signals & Systems

14EE506 (B): Data Base Management Systems

14EE506 (C): Data Structures Using C++

14EE506 (D): Computer Networks

**BAPATLA ENGINEERING COLLEGE: BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Electrical and Electronics Engineering*  
**With Effective From 2014-2015 Academic Year**  
**Third Year B.Tech., (SEMESTER – VI)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EE601	Professional Ethics and Human values	4	0	0	0	4	40	60	100	3
14EE602	Microprocessor and Microcontrollers	4	1	0	0	5	40	60	100	4
14EE603	Electrical Measurements& Instrumentation	4	1	0	0	5	40	60	100	4
14EE604	Power Electronics	4	0	0	0	4	40	60	100	3
14EE605	Power System Analysis	4	0	0	1	5	40	60	100	3
14EE606	Elective – II	4	0	0	0	4	40	60	100	3
14EEL601	Electrical Measurements& Work Shop Lab	0	0	3	0	3	40	60	100	2
14EEL602	Microprocessor & Microcontrollers Lab	0	0	3	0	3	40	60	100	2
14EEL603	Control Systems Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**Elective-II**

- 14EE606 (A): Digital Signal Processing.
- 14EE606 (B): Advanced Control Systems
- 14EE606 (C): Energy Conservation and Audit
- 14EE606 (D): Artificial Neural Networks

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Electrical and Electronics Engineering*  
**With Effective From 2014-2015 Academic Year**  
**Final Year B.Tech., (SEMESTER – VII)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EE701	Industrial Management and Entrepreneurship Development	4	0	0	0	4	40	60	100	3
14EE702	Power System Operation Control & Stability	4	1	0	0	5	40	60	100	4
14EE703	Utilization of Electrical Power	4	1	0	0	5	40	60	100	4
14EE704	Switch Gear and Protection	4	0	0	0	4	40	60	100	3
14EE705	Elective - III	4	0	0	0	4	40	60	100	3
14EE706	Open Elective	4	0	0	0	4	40	60	100	3
14ELL701	Business Communication & Presentation Skills Lab	0	0	2	0	2	20	30	50	1
14EEL702	Power Electronics Lab	0	0	3	0	3	40	60	100	2
14EEL703	Computer Simulation of Electrical Systems Lab	0	0	3	0	3	40	60	100	2
14EEL704	Term paper	0	0	2	0	2	20	30	50	1
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>10</b>	<b>0</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

**Elective -III**

14EE705 (A): Electrical Power Distribution Systems Engineering

14EE705 (B): Optimization Techniques

14EE705(C): Process Control & Instrumentation

14EE705 (D): Fuzzy Logic and Applications

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
*Electrical and Electronics Engineering*  
**With Effective From 2014-2015 Academic Year**  
**Final Year B.Tech., (SEMESTER – VIII)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EE801	Industrial Drives	4	0	0	1	5	40	60	100	3
14EE802	Computer Aided Power Systems	4	1	0	0	5	40	60	100	4
14EE803	Elective – IV	4	0	0	0	4	40	60	100	3
14EE804	Elective – V	4	0	0	0	4	40	60	100	3
14EEPR801	Project Work	0	0	3	0	3	40	60	100	2
14EEL802	Power Systems Lab	0	0	12	0	12	50	100	150	10
	<b>TOTAL</b>	16	1	15	1	33	250	400	650	25

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

Elective- IV

14EE803 (A): High Voltage Engineering

14EE803 (B): Electrical Machine Design

14EE803 (C): Embedded Systems and VLSI.

14EE803 (D): Principles of Power Quality

Elective- V

14EE804 (A): FACTS Controllers

14EE804 (B): Computer Organization

14EE804 (C): HVDC Transmission.

14EE804 (D): Renewable Energy Sources

**Open Electives offered by other departments**

DEPARTMENT	SUBJECT NAME	SUBJECT CODE
Chemical Engineering.	Industrial Pollution & Control	ChE01
	Energy Engineering	ChE02
Civil Engineering.	Air Pollution & Control	CE 01
	Remote Sensing & GIS	CE 02
Computer Science & Engineering.	Database Management Systems	CS 01
	Java Programming	CS 02
Electrical & Electronics Engineering.	Optimization Techniques	EE 01
	Non-Conventional Energy Sources	EE 02
Electronics & Communication Engineering.	Consumer Electronics	EC 01
	Embedded Systems	EC 02
Electronics & Instrumentation Engineering.	Virtual Instrumentation Using LABVIEW	EI 01
	Sensors & Transducers	EI 02
Information Technology.	Mobile Application Development	IT 01
	Web Technologies	IT 02
Mechanical Engineering.	Automobile Engineering	ME 01
	Refrigeration & Air Conditioning	ME 02
BOSCH REXROTH Centre	Automation Technology	BR 01



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

The Academic Council of Bapatla Engineering College (Autonomous) reserves the right to revise, amend, change or nullify the Regulations, Schemes of Examinations, and/ or Syllabi or any other matter pertained that meets to the needs of the students, society and industry without any notice and the decision is final.

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
For  
**CH, CS, EI, IT, ME Branches**  
**With Effective from 2014-2015 Academic Year**  
**First Year B.Tech., (SEMESTER – I)**

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA101	Engineering Mathematics – I	4	1	0	0	5	40	60	100	4
14PH102	Engineering Physics – I	4	0	0	0	4	40	60	100	3
14CY103	Engineering Chemistry – I	4	0	0	0	4	40	60	100	3
14EL104	Communicative English	4	0	0	0	4	40	60	100	3
14ES105	Environmental Studies	4	0	0	0	4	40	60	100	3
14EG106	Engineering Graphics	4	1	0	1	6	40	60	100	4
14CYL101	Chemistry Lab	0	0	3	0	3	40	60	100	2
14ELL102	English Communication and Skills Laboratory	0	0	3	0	3	40	60	100	2



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

14WSL103	Workshop	0	0	3	0	3	40	60	100	2
	TOTAL	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation  
L: Lecture                    T: Tutorial

SEE: Semester End Examination  
P: Practical                    S: Self Study

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

CH, CS, EI, IT, ME Branches

With Effective from 2014-2015 Academic Year

First Year B.Tech, (SEMESTER – II)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA201	Engineering Mathematics – II	4	1	0	0	5	40	60	100	4
14PH202	Engineering Physics – II	4	0	0	0	4	40	60	100	3
14CY203	Engineering Chemistry – II	4	0	0	0	4	40	60	100	3
14EE204	Basic Electrical and Electronics Engineering	4	0	0	0	4	40	60	100	3
14EM205	Engineering Mechanics	4	1	0	0	5	40	60	100	4
14CP206	Problem Solving with Programming	4	0	0	1	5	40	60	100	3
14PHL201	Physics lab	0	0	3	0	3	40	60	100	2



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

14HWL202	Hardware Lab	0	0	3	0	3	40	60	100	2
14CPL203	Problem Solving with Programming Lab	0	0	3	0	3	40	60	100	2
	TOTAL	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation  
L: Lecture                    T: Tutorial

SEE: Semester End Examination  
P: Practical                    S: Self Study



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

#### **ELECTRONICS & INSTRUMENTATION ENGINEERING**

With Effective from 2014-2015 Academic Year

Second Year B.Tech, (SEMESTER – III)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum Marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EI/MA301	Engineering Mathematics - III	4	0	0	0	5	40	60	100	3
14EI302	Data Structures using 'C'	4	0	0	0	4	40	60	100	3
14EI303	Electronic Devices	4	0	0	0	4	40	60	100	3
14EI304	Elements of Mechanical Engineering	4	0	0	0	4	40	60	100	3
14EI305	Digital Electronics	4	1	0	0	5	40	60	100	4
14EI306	Circuit Theory	4	1	0	1	5	40	60	100	4
14EIL301	Data structures Lab	0	0	3	0	3	40	60	100	2
14EIL302	Electronic Devices Lab	0	0	3	0	3	40	60	100	2
14EIL303	Digital Electronics Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation  
L: Lecture      S: Self Study

SEE: Semester End Examination  
T: Tutorial      P: Practical



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

***Electronics & Instrumentation Engineering***

With Effective From 2014-2015 Academic Year

Second Year B.Tech., (SEMESTER –IV)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum Marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14MA401	Engineering Mathematics - IV	4	0	0	0	4	40	60	100	3
14EI402	Electronic Circuits – I	4	0	0	0	4	40	60	100	3
14EI403	Electrical Technology	4	0	0	0	4	40	60	100	3
14EI404	Microprocessors and Interfacing	4	0	0	1	5	40	60	100	3
14EI405	Electrical & Electronic Measurements	4	1	0	0	5	40	60	100	4
14EI406	Signals & Systems	4	1	0	0	5	40	60	100	4
14EIL401	Electronic Circuits – I Lab	0	0	3	0	3	40	60	100	2
14EIL402	Measurements Lab	0	0	3	0	3	40	60	100	2
14EIL403	Microprocessors and Interfacing Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For  
**Electronics & Instrumentation Engineering**  
With Effective From 2014-2015 Academic Year  
Third B.Tech., (SEMESTER -V)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum Marks)		No. of Credits	
		L	T	P	S	Total	CIE	SEE		
14EI501	Linear Integrated Circuits	4	1	0	0	5	40	60	100	4
14EI502	Linear Control Systems	4	1	0	0	5	40	60	100	4
14EI503	Electronic Circuits - II	4	0	0	0	4	40	60	100	3
14EI504	Analog and Digital Communications	4	0	0	1	5	40	60	100	3
14EI505	Transducers	4	0	0	0	4	40	60	100	3
14EI506	Elective - I	4	0	0	0	4	40	60	100	3
14EIL501	Transducers Lab	0	0	3	0	3	40	60	100	2
14EIL502	Pulse & Integrated Circuits Lab	0	0	3	0	3	40	60	100	2
14EIL503	PSPICE & Signal Simulation Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

#### Elective - I

14EI506/A Pulse and Switching Circuits

14EI506/B Electromagnetic Fields Theory

14EI506/C Computer Organization

14EI506/D OOPS and Operating Systems



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

**Electronics & Instrumentation Engineering**

With Effective From 2014-2015 Academic Year

Third B.Tech., (SEMESTER -VI)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum Marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EI601	Professional Ethics And Human Values	4	0	0	0	4	40	60	100	3
14EI602	Industrial Instrumentation	4	1	0	0	5	40	60	100	4
14EI603	Digital Signal Processing	4	0	0	1	5	40	60	100	3
14EI604	Process Control	4	1	0	0	5	40	60	100	4
14EI605	Object Oriented Programming with JAVA	4	0	0	0	4	40	60	100	3
14EI606	Elective - II	4	0	0	0	4	40	60	100	3
14ELL601	Soft Skills Lab	0	0	3	0	3	40	60	100	2
14EIL602	Process Control Lab	0	0	3	0	3	40	60	100	2
14EIL603	DSP & OOPS Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

#### Elective - II

14EI606/A. Adaptive Control Systems

14EI606/B. Advanced Computer Architectures

14EI606/C. Programmable Logic Controllers

14EI606/D. Embedded Systems



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

***Electronics and Instrumentation Engineering***

With Effective From 2014-2015 Academic Year

Fourth Year B.Tech., (SEMESTER -VII)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum Marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total Marks	
14EI701	Industrial Management & Entrepreneur Ship Development	4	0	0	0	4	40	60	100	3
14EI702	Biomedical Instrumentation	4	1	0	0	5	40	60	100	4
14EI703	Analytical Instrumentation	4	0	0	0	4	40	60	100	3
14EI704	Optoelectronics and LaserInstrumentation	4	0	0	0	4	40	60	100	3
14EI705	<b>Elective - III</b>	4	1	0	0	5	40	60	100	4
14OE706	<b>Open Elective</b>	4	0	0	0	4	40	60	100	3
14ELL701	Business communications and presentation skills Lab	0	0	2	0	2	20	30	50	1
14EIL702	AI & BMI Lab	0	0	3	0	3	40	60	100	2
14EIL703	VI Lab	0	0	3	0	3	40	60	100	2
14EIL704	Term Paper	0	0	2	0	2	20	30	50	1
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>10</b>	<b>0</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

#### **Elective – III**

- 14EI705/A. Robotics and automation
- 14EI705/B. Advanced Sensors
- 14EI705/C. Computer Networks
- 14EI705/D. Wireless Sensor Networks

#### **Open Elective**

List is provided in the next page



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

### **Open Electives offered by the Departments(14OE706)**

DEPARTMENT	SUBJECT NAME	SUBJECT CODE
Chemical Engineering.	Industrial Pollution & Control	ChE01
	Energy Engineering	ChE02
Civil Engineering.	Air Pollution & Control	CE 01
	Remote Sensing & GIS	CE 02
Computer Science & Engineering.	Database Management Systems	CS 01
	Java Programming	CS 02
Electrical & Electronics Engineering.	Optimization Techniques	EE 01
	Non-Conventional Energy Sources	EE 02
Electronics & Communication Engineering.	Consumer Electronics	EC 01
	Embedded Systems	EC 02
Electronics & Instrumentation Engineering.	Virtual Instrumentation Using LABVIEW	EI 01
	Sensors & Transducers	EI 02
Information Technology.	Mobile Application Development	IT 01
	Web Technologies	IT 02
Mechanical Engineering.	Automobile Engineering	ME 01
	Refrigeration & Air Conditioning	ME 02
BOSCH REXROTH Centre	Automation Technology	BR 01



# Bapatla Engineering College:: Bapatla

(Autonomous)

## Department of Electronics & Instrumentation Engineering

### SCHEME OF INSTRUCTION & EXAMINATION (Semester System)

For

***Electronics and Instrumentation Engineering***

With Effective From 2014-2015 Academic Year

Fourth Year B. Tech., (SEMESTER –VIII)

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum Marks)		No. of Credits	
		L	T	P	S	Total	CIE	SEE		
14EI801	Computer Control of Process	4	0	0	0	4	40	60	100	3
14EI802	VLSI Design	4	0	0	1	5	40	60	100	3
14EI803	Elective - IV	4	1	0	0	5	40	60	100	4
14EI804	Elective - V	4	0	0	0	4	40	60	100	3
14EIL801	Verilog HDL Lab	0	0	3	0	3	40	60	100	2
14EIPR802	Project Viva Voce	0	0	12	0	12	50	100	150	10
<b>TOTAL</b>		<b>16</b>	<b>1</b>	<b>15</b>	<b>1</b>	<b>33</b>	<b>250</b>	<b>400</b>	<b>650</b>	<b>25</b>

CIE: Continuous Internal Evaluation

SEE: Semester End Examination

L: Lecture

S: Self Study

T: Tutorial

P: Practical

#### Elective – IV

- 14EI803/A. PC Based Instrumentation
- 14EI803/B. Telemetry & Tele Control
- 14EI803/C. Power Plant Instrumentation
- 14EI803/D. Instrumentation in Aerospace and Navigation

#### Elective -V

- 14EI804/A. Neural networks
- 14EI804/B. Digital Image Processing
- 14EI804/C. Artificial Intelligence
- 14EI804/D. Instrumentation in Petro Chemical Industries

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

First Year B.Tech., (SEMESTER I)

For

*Information Technology*With Effective From **2014-2015** Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total	
14MA101	Engineering MathematicsI	4	1	0	0	5	40	60	100	4
14PH102	Engineering PhysicsI	4	0	0	0	4	40	60	100	3
14CY103	Engineering ChemistryI	4	0	0	0	4	40	60	100	3
14EE104	Basic Electrical & Electronics Engineering	4	0	0	0	4	40	60	100	3
14ES105	Environmental Studies	4	0	0	0	4	40	60	100	3
14EG106	Engineering Graphics	4	1	0	1	6	40	60	100	4
14CYL101	Chemistry Lab	0	0	3	0	3	40	60	100	2
14HWL102	Hardware Lab	0	0	3	0	3	40	60	100	2
14WSL103	Workshop	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

**CIE:** Continuous Internal Evaluation**SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

First Year B.Tech., (SEMESTER II)

For

*Information Technology*With Effective From **2014-2015** Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. Cred
		L	T	P	S	Total	CIE	SEE	Total	
14MA201	Engineering MathematicsII	4	1	0	0	5	40	60	100	4
14PH202	Engineering PhysicsII	4	0	0	0	4	40	60	100	3
14CY203	Engineering ChemistryII	4	0	0	0	4	40	60	100	3
14EL204	Communicative English	4	0	0	0	4	40	60	100	3
14EM205	Engineering Mechanics	4	1	0	0	5	40	60	100	4
14CP206	Problem Solving with Programming	4	0	0	1	5	40	60	100	3
14PHL201	Physics Lab	0	0	3	0	3	40	60	100	2
14ELL202	English Communication Skills Lab	0	0	3	0	3	40	60	100	2
14CPL203	Problem Solving with Programming Lab	0	0	3	0	3	40	60	100	2
<b>TOTAL</b>		<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	

**CIE:** Continuous Internal Evaluation**SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Second Year B.Tech., (SEMESTER III)

For

*Information Technology*With Effective From **2014-2015** Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total	
14MA301	Engineering Mathematics III	4	0	0	0	4	40	60	100	3
14IT302	Discrete Mathematical Structures	4	1	0	0	5	40	60	100	4
14IT303	Digital Logic Design	4	0	0	0	4	40	60	100	3
14IT304	Operating Systems	4	0	0	0	4	40	60	100	3
14IT305	Data Structures	4	1	0	0	5	40	60	100	4
14IT306	Object Oriented Programming	4	0	0	1	5	40	60	100	3
14ELL301	Soft Skills Lab	0	0	3	0	3	40	60	100	2
14ITL302	Data Structures Lab	0	0	3	0	3	40	60	100	2
14ITL303	OOP Lab	0	0	3	0	3	40	60	100	2
<b>TOTAL</b>		<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

**CIE:** Continuous Internal Evaluation**SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Second Year B.Tech., (SEMESTER IV)

For

*Information Technology*With Effective From **2014-2015** Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total	
14MA401	Engineering Mathematics IV	4	0	0	0	4	40	60	100	3
14IT402	Automata Theory & Formal Languages	4	0	0	1	5	40	60	100	3
14IT403	Computer Organization	4	1	0	0	5	40	60	100	4
14IT404	Design & Analysis of Algorithms	4	1	0	0	5	40	60	100	4
14IT405	GUI Programming	4	0	0	0	4	40	60	100	3
14IT406	Web Technologies	4	0	0	0	4	40	60	100	3
14ITL401	DAA Lab	0	0	3	0	3	40	60	100	2
14ITL402	GUI Programming Lab	0	0	3	0	3	40	60	100	2
14ITL403	Web Technologies Lab	0	0	3	0	3	40	60	100	2
<b>TOTAL</b>		<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

**CIE:** Continuous Internal Evaluation**SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Third Year B.Tech., (SEMESTER V)

For

*Information Technology*With Effective From **2014-2015** Academic Year

Code No.	Subject	Scheme of Instruction (Periods per week)					Scheme of Examination (Maximum marks)			No. of Credits
		L	T	P	S	Total	CIE	SEE	Total	
14IT501	Professional Ethics & Human Values	4	0	0	0	4	40	60	100	3
14IT502	Compiler Design	4	1	0	0	5	40	60	100	4
14IT503	Microprocessor & Microcontrollers	4	0	0	0	4	40	60	100	3
14IT504	Database Management Systems	4	1	0	0	5	40	60	100	4
14IT505	Computer Networks	4	0	0	0	4	40	60	100	3
<b>14IT506</b>	<b>Elective - I</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14ITL501	MPMC Lab	0	0	3	0	3	40	60	100	2
14ITL502	RDBMS Lab	0	0	3	0	3	40	60	100	2
14ITL503	Elective - I Lab	0	0	3	0	3	40	60	100	2
<b>TOTAL</b>		<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

**CIE:** Continuous Internal Evaluation**SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study**Elective-I****14IT506/A:** Computer Graphics and Visualization**14IT506/B:** Digital Image Processing**14IT506/C:** Script Programming**14IT506/D:** UNIX Programming

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Third Year B.Tech., (SEMESTER VI)

For

*Information Technology*With Effective From **2014-2015** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
14IT601	Introduction to Data Analytics	4	0	0	1	5	40	60	100	3
14IT602	Wireless Networks	4	0	0	0	4	40	60	100	3
14IT603	Software Engineering	4	0	0	0	4	40	60	100	3
14IT604	Enterprise Programming-I	4	1	0	0	5	40	60	100	4
14IT605	Introduction to Cyber Security	4	1	0	0	5	40	60	100	4
<b>14IT606</b>	<b>Elective - II</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14ITL601	Introduction to Data Analytics Lab	0	0	3	0	3	40	60	100	2
14ITL602	Enterprise Programming-I Lab	0	0	3	0	3	40	60	100	2
14ITL603	Introduction to Cyber Security Lab	0	0	3	0	3	40	60	100	2
<b>TOTAL</b>		<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study**Elective-II****14IT606/A:** Advanced Database Management Systems**14IT606/B:** Bio-Informatics**14IT606/C:** Computer Animation**14IT606/D:** Parallel Processing

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Final Year B.Tech., (SEMESTER VII)

For

*Information Technology*With Effective From **2014-2015** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>N Cr</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
14IT701	Advanced Cyber Security	4	0	0	0	4	40	60	100	
14IT702	Object Oriented Analysis & Design	4	0	0	0	4	40	60	100	
14IT703	Advanced Data Analytics	4	1	0	0	5	40	60	100	
14IT704	Enterprise Programming-II	4	1	0	0	5	40	60	100	
<b>14IT705</b>	<b>Elective-III</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	
<b>14OE706</b>	<b>Open Elective*</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	
14ELL701	Business Communication & Presentation Skills lab	0	0	2	0	2	20	30	50	
14ITL702	Adv. Data Analytics & Cyber Security Lab	0	0	3	0	3	40	60	100	
14ITL703	Enterprise Programming-II Lab	0	0	3	0	3	40	60	100	
14ITL704	Term Paper	0	0	2	0	2	20	30	50	
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>10</b>	<b>0</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	

**CIE:** Continuous Internal Evaluation      **SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study**Elective -III:****14IT705/A:** Artificial Intelligence**14IT705/B:** Distributed Systems**Elective courses****14IT705/C:** Mobile Application Development**14IT705/D:** Software Testing Methodologies

\* Refer appendix for the list of Open

**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**

Final Year B.Tech., (SEMESTER VIII)

For

***Information Technology***With Effective From **2014-2015** Academic Year

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total</b>	
14ME801	Industrial Management & Entrepreneurship Development	4	0	0	0	4	40	60	100	3
14IT802	Cloud Programming	4	1	0	0	5	40	60	100	4
<b>14IT803</b>	<b>Elective - IV</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
<b>14IT804</b>	<b>Elective - V</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14ITPR801	Project Work	0	0	12	0	12	50	100	150	10
14ITL801	Cloud Programming Lab	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>16</b>	<b>1</b>	<b>15</b>	<b>1</b>	<b>33</b>	<b>250</b>	<b>400</b>	<b>650</b>	<b>25</b>

**CIE:** Continuous Internal Evaluation    **SEE:** Semester End Examination**L:** Lecture**T:** Tutorial**P:** Practical**S:** Self Study**Elective- IV****14IT803/A:** E-Commerce**14IT803/B:** Internet of Things**14IT803/C:** Natural Language Processing**14IT803/D:** Software Project Management**Elective- V****14IT804/A:** Graph Theory**14IT804/B:** Soft Computing**14IT804/C:** Software Design Patterns**14IT804/D:** Storage Area Networks

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**First Year B.Tech., (SEMESTER – I)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14MA101	Engineering Mathematics – I	4	1	0	0	5	40	60	100	4
14PH102	Engineering Physics – I	4	0	0	0	4	40	60	100	3
14CH103	Engineering Chemistry – I	4	0	0	0	4	40	60	100	3
14EL104	English Language and Communication	4	0	0	0	4	40	60	100	3
14ES105	Environmental Studies	4	0	0	0	4	40	60	100	3
14EG106	Engineering Graphics	4	0	2		6	40	60	100	4
14CHL101	Chemistry Lab	0	0	3	0	3	40	60	100	2
14ELL102	English Language Laboratory	0	0	3	0	3	40	60	100	2
14WSL103	Workshop	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>1</b>	<b>11</b>	<b>0</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**First Year B.Tech., (SEMESTER – II)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14MA201	Engineering Mathematics – II	4	1	0	0	5	40	60	100	4
14PH202	Engineering Physics – II	4	0	0	0	4	40	60	100	3
14CH203	Engineering Chemistry – II	4	0	0	0	4	40	60	100	3
14EE204	Basic Electrical and Electronics Engineering	4	0	0	0	4	40	60	100	3
14EM205	Engineering Mechanics	4	1	0	0	5	40	60	100	4
14CP206	Computer Programming with C	4	0	0	1	5	40	60	100	3
14PHL201	Physics lab	0	0	3	0	3	40	60	100	2
14HWL202	Hardware Lab	0	0	3	0	3	40	60	100	2
14CPL203	Computer Programming Lab.	0	0	3	0	3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**Second Year B.Tech., (SEMESTER – III)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14MA301	Engineering Mathematics-III	4				4	40	60	100	3
14ME302	Mechanics of Materials-I	4	1			5	40	60	100	4
14ME303	Basic Thermodynamics	4	1			5	40	60	100	4
14ME304	Fluid Mechanics	4				4	40	60	100	3
14ME305	Kinematics of Machines	4	1			5	40	60	100	4
14ME306	Machine Drawing	1		3		4	40	60	100	2
14MEL301	Fuels & Oils Lab			3		3	40	60	100	2
14MEL302	Basic CAD Lab			3		3	40	60	100	2
14CEL303	Strength of Materials Lab			3		3	40	60	100	2
	<b>TOTAL</b>	21	3	12		36	360	540	900	26

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**Second Year B.Tech., (SEMESTER – IV)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14MA401	Engineering Mathematics-IV	4				4	40	60	100	3
14ME402	Mechanics of Materials-II	4	1			5	40	60	100	4
14ME403	Applied Thermodynamics	4	1			5	40	60	100	4
14ME404	Hydraulic Machines	4			1	5	40	60	100	3
14ME405	Casting, Forming and Welding Technology	4				4	40	60	100	3
14ME406	Material Science & Metallurgy	4				4	40	60	100	3
14CEL401	Fluid Mechanics & Hydraulic Machines Lab			3		3	40	60	100	2
14MEL402	Computer Applications In Mechanical Engineering Lab			3		3	40	60	100	2
14MEL403	Basic Manufacturing Processes Lab			3		3	40	60	100	2
	<b>TOTAL</b>	24	2	9	1	36	360	540	900	26

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**Third Year B.Tech., (SEMESTER – V)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total I</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14ME501	Machine Dynamics	4	1			5	40	60	100	4
14ME502	Design of Machine Elements-I	4	1			5	40	60	100	4
14ME503	I.C.engines & Gas Turbines	4				4	40	60	100	3
14ME504	Metal Cutting and Machine Tools	4				4	40	60	100	3
14ME505	Operations Research	4			1	5	40	60	100	3
<b>14ME506</b>	<b>Elective-I</b>	<b>4</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14MEL501	I.C.Engines lab			3		3	40	60	100	2
14MEL502	Machine shop practice			3		3	40	60	100	2
14ELL503	Soft skills lab			3		3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**Elective-I**

- A. Engineering Economics and Accountancy
- B. Computer Graphics
- C. Mechanics of Composite materials

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**Third Year B.Tech., (SEMESTER – VI)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14ME601	Automation Technology	4				4	40	60	100	3
14ME602	Design of Machine Elements-II	4	1			5	40	60	100	4
14ME603	Heat transfer	4	1			5	40	60	100	4
14ME604	Finite Element Analysis	4			1	5	40	60	100	3
14ME605	Electronics& Micro processors	4				4	40	60	100	3
<b>14ME606</b>	<b>Elective -II</b>	<b>4</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14MEL601	H.T. lab			3		3	40	60	100	2
14MEL602	Automation lab			3		3	40	60	100	2
14ECL603	Electronics lab			3		3	40	60	100	2
	<b>TOTAL</b>	<b>24</b>	<b>2</b>	<b>9</b>	<b>1</b>	<b>36</b>	<b>360</b>	<b>540</b>	<b>900</b>	<b>26</b>

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

**Elective-II**

- A. Manufacturing Engineering
- B. R&AC
- C. Solar energy and Utilization

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
*(Autonomous)*  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**Final Year B.Tech., (SEMESTER – VII)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14ME701	Industrial Engineering and Entrepreneurship Development	4				4	40	60	100	3
14ME702	Design of Machine Elements-III	4	1			5	40	60	100	4
14ME703	Engineering metrology and Mechanical Measurements	4	1			5	40	60	100	4
14ME704	CAD/CAM	4				4	40	60	100	3
<b>14ME705</b>	<b>Elective-III</b>	<b>4</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
<b>14ME706</b>	<b>Open Elective</b>	<b>4</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>3</b>
14ELL701	Business Communication & Presentation Skills Lab			2		2	20	30	50	1
14MEL702	CAD&CAE Lab			3		3	40	60	100	2
14MEL703	Design and Metrology Lab			3		3	40	60	100	2
14MEL704	Term Paper			2		2	20	30	50	1
	<b>TOTAL</b>	24	2	10		36	360	540	900	26

CIE: Continuous Internal Evaluation

L: Lecture

S: Self Study

SEE: Semester End Examination

T: Tutorial

P: Practical

**Elective-III**

- A. Operations Management
- B. Computational Fluid dynamics
- C. Mechatronics

**Open Elective**

**BAPATLA ENGINEERING COLLEGE : BAPATLA**  
**(Autonomous)**  
**SCHEME OF INSTRUCTION & EXAMINATION (Semester System)**  
**For**  
***Mechanical Engineering***  
**With Effective From 2014-2015 Academic Year**  
**Final Year B.Tech., (SEMESTER – VIII)**

<b>Code No.</b>	<b>Subject</b>	<b>Scheme of Instruction (Periods per week)</b>					<b>Scheme of Examination (Maximum marks)</b>			<b>No. of Credits</b>
		<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>Total</b>	<b>CIE</b>	<b>SEE</b>	<b>Total Marks</b>	
14ME801	Professional Ethics & Human values	4				4	40	60	100	3
14ME802	Automobile Engineering	4	1			5	40	60	100	4
14ME803	Elective-IV	4				4	40	60	100	3
14ME804	Elective-V	4				4	40	60	100	3
14MEPR801	Project Work			12		12	50	100	150	10
14MEL802	CAM Lab			3		3	40	60	100	2
	<b>TOTAL</b>	16	1	15		32	250	400	650	25

CIE: Continuous Internal Evaluation  
L: Lecture                    S: Self Study

SEE: Semester End Examination  
T: Tutorial                    P: Practical

**Elective-IV**

- A. Power plant Engineering
- B. Optimization Techniques
- C. Computer Integrated Manufacturing

**Elective-V**

- A. Robotics
- B. Computer aided Process Planning
- C. Enterprise Resource Planning

Annexure-1

**LIST OF OPEN ELECTIVES**

<b>DEPARTMENT</b>	<b>SUBJECT NAME</b>	<b>SUBJECT CODE</b>
Chemical Engineering.	Industrial Pollution & Control	CH 01
	Energy Engineering	CH 02
Civil Engineering.	Air Pollution & Control	CE 01
	Remote Sensing & GIS	CE 02
Computer Science & Engineering.	Database Management Systems	CS 01
	Java Programming	CS 02
Electrical & Electronics Engineering.	Optimization Techniques	EE 01
	Non-Conventional Energy Sources	EE 02
Electronics & Communication Engineering.	Consumer Electronics	EC 01
	Embedded Systems	EC 02
Electronics & Instrumentation Engineering.	Virtual Instrumentation Using LABVIEW	EI 01
	Sensors & Transducers	EI 02
Information Technology.	Mobile Application Development	IT 01
	Web Technologies	IT 02
Mechanical Engineering.	Automobile Engineering	ME 01
	Refrigeration & Air Conditioning	ME 02
BOSCH REXROTH Centre	Automation Technology	BR 01

## LIST OF OPEN ELECTIVES

DEPARTMENT	SUBJECT NAME	SUBJECT CODE
Chemical Engineering.	Industrial Pollution & Control	ChE 01
	Energy Engineering	ChE 02
Civil Engineering.	Air Pollution & Control	CE 01
	Remote Sensing & GIS	CE 02
Computer Science & Engineering.	Database Management Systems	CS 01
	Java Programming	CS 02
Electrical & Electronics Engineering.	Optimization Techniques	EE 01
	Non-Conventional Energy Sources	EE 02
Electronics & Communication Engineering.	Consumer Electronics	EC 01
	Embedded Systems	EC 02
Electronics & Instrumentation Engineering.	Virtual Instrumentation Using LABVIEW	EI 01
	Sensors & Transducers	EI 02
Information Technology.	Mobile Application Development	IT 01
	Web Technologies	IT 02
Mechanical Engineering.	Automobile Engineering	ME 01
	Refrigeration & Air Conditioning	ME 02
BOSCH REXROTH Centre	Automation Technology	BR 01

**COURSE STRUCTURE AND SCHEME OF EVALUATION**  
**M.Tech. (Structural Engineering)**

**I Semester**

S. No	Subject Code & Title	Periods per week		Maximum Marks			Credits
		L	P	Int.	Ext.	Total	
1.	MCE /SE/511 Theory of Elasticity and Plasticity	4		40	60	100	4
2.	MCE/SE/512 Dynamics of structures	4		40	60	100	4
3.	MCE/SE/513 Matrix methods of structural analysis	4		40	60	100	4
4.	Elective - I	4		40	60	100	4
5.	Elective - II	4		40	60	100	4
6.	Elective - III	4		40	60	100	4
7.	MCE/SE/551 Structural Engineering Laboratory		3	40	60	100	2
8.	MCE/SE/552 Seminar		1	100	-	100	2
		24	3	380	420	800	28

L: Lecture, P: Practical

Duration of Internal Examination : 2 Hours

Duration of External Examination : 3 Hours

**II Semester**

S. No	Subject Title	Periods per week		Maximum Marks			Credits
		L	P	Int.	Ext.	Total	
1.	MCE/SE/514 Finite Element Analysis of Structures	4		40	60	100	4
2.	MCE/SE/515 Stability of Structures	4		40	60	100	4
3.	MCE/SE/516 Theory of Plates and Shells	4		40	60	100	4
4.	Elective - IV	4		40	60	100	4
5.	Elective - V	4		40	60	100	4
6.	Elective - VI	4		40	60	100	4
7.	MCE/SE/553 Computer Aided Design Laboratory		3	40	60	100	2
8.	MCE/SE/554 Seminar		1	100	-	100	2
		24	4	380	420	800	28

L: Lecture, P: Practical

Duration of Internal Examination : 2 Hours

Duration of External Examination : 3 Hours

### **III Semester**

S.No.	Subject Code & Title	Maximum Marks (Internal)	Credits
1	MCE/SE/711 Internship	100	2
2	MCE/SE/712 Project (Phase-I)	100	6

### **IV Semester**

S.No.	Subject Code & Title	Maximum Marks Int. Ext (Viva-voce)	Credits
1	MCE/SE/713 Project (Phase-II)	50 150	16

### **ELECTIVE SUBJECTS**

**MCE/SE/611 Advanced Theory and Design of RCC Structures**

**MCE/SE/612 Design of reinforced concrete foundations**

**MCE/SE/613 Structural optimization**

**MCE/SE/614 Fracture Mechanics of concrete**

**MCE/SE/615 Fibre Reinforced Plastic Composites**

**MCE/SE/616 Experimental stress analysis and Motion measurement**

**MCE/SE/617 Health monitoring of structures**

**MCE/SE/618 Design of Tall Buildings**

**MCE/SE/619 Advanced Foundation Engineering**

**MCE/SE/620 Earthquake Resistant Design of Structures**

**MCE/SE/621 Disaster Management**

**MCE/SE/622 Ground Improvement Techniques**

**MCE/SE/623 Advanced Design of Steel Structures**

**MCE/SE/624 Composite Construction**

**MCE/SE/625 Design of Prestressed Concrete Structures**

**MCE/SE/626 Repair and Rehabilitation of Structures**

**MCE/SE/627 Advanced Bridge Engineering**

**MCE/SE/628 Fibre reinforced concrete**

**ACHARYA NAGARJUNA UNIVERSITY: NAGARJUNA NAGAR**

**SCHEME FOR COMPUTER SCIENCE & ENGINEERING  
w.e.f 2015-2016 (Semester System)**

	<b>First Semester</b>					
Code	Subject	T	P	C	SM	UEM
CSE 511	Advanced Data Structures	4	-	4	40	60
CSE 512	Data Base Management Systems	4	-	4	40	60
CSE 513	Computer Networks	4	-	4	40	60
	<b>ELECTIVE -I</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>
	<b>ELECTIVE-II</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>
	<b>ELECTIVE-III</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>
CSE 551	Data Structures Lab	-	3	2	40	60
CSE 552	DBMS Lab	-	3	2	40	60
	Total	24	6	28	320	480

**ACHARYA NAGARJUNA UNIVERSITY: NAGARJUNA NAGAR**

**SCHEME FOR COMPUTER SCIENCE & ENGINEERING  
w.e.f 2015-2016 (Semester System)**

	<b>Second Semester</b>					
Code	Subject	T	P	C	SM	USM
CSE 514	Data Engineering	4	-	4	40	60
CSE 515	Design Analysis of Algorithms	4	-	4	40	60
CSE 516	LINUX Programming	4	-	4	40	60
	<b>ELECTIVE -IV</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>
	<b>ELECTIVE-V</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>
	<b>ELECTIVE-VI</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>40</b>	<b>60</b>
CSE 553	Data Engineering Lab	-	3	2	40	60
CSE 554	LINUX Programming Lab	-	3	2	40	60
	Total	24	6	28	320	480

**ACHARYA NAGARJUNA UNIVERSITY: NAGARJUNA NAGAR**

**SCHEME FOR COMPUTER SCIENCE & ENGINEERING  
w.e.f 2015-2016 (Semester System)**

		Third Semester				
Code	Subject		T	P	C	SM
CSE 711	Internship		--	--	2	100
CSE 712	Seminar		--	--	6	100
Total			--	--	8	200

**ACHARYA NAGARJUNA UNIVERSITY: NAGARJUNA NAGAR**

**SCHEME FOR COMPUTER SCIENCE & ENGINEERING  
w.e.f 2015-2016 (Semester System)**

**Fourth Semester**

Code	Subject	T	P	C	SM	UEM
CSE 713	Project Viva voce	--	--	16	50	150
Total		--	--	16	50	150

## **Electives List**

CSE 611E	Object Oriented Software Engineering	CSE 620E	Real Time Systems
CSE 612E	Artificial Intelligence	CSE 621E	Wireless Networks
CSE 613E	BIG Data	CSE 622E	Compiler Design
CSE 614E	Embedded Systems	CSE 623E	Mobile Application Development
CSE 615E	Network & Internet Security	CSE 624E	Digital Image Processing
CSE 616E	Software Project Management	CSE 625E	Distributed Systems
CSE 617E	Natural Language Processing	CSE 626E	Advanced Computer Architecture
CSE 618E	Network Programming	CSE 627E	Bio informatics
CSE 619E	Cloud Computing	CSE 628E	Multimedia Systems

**ACHARYA NAGARJUNA UNIVERSITY, NAGARJUNA NAGAR**  
**SCHEME OF EXAMINATION AND INSTRUCITON FOR**  
**M.TECH (COMMUNICATION ENGINEERING & SIGNAL PROCESSING)**  
**FIRST SEMESTER**

S.No.	Code No. & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1	CESP-511: Advanced Digital Communication	4	--	4	40	60	100
2	CESP-512: Coding Theory And Techniques	4	--	4	40	60	100
3	CESP-513: Speech Signal Processing	4	--	4	40	60	100
4	Elective Subject – 1	4	--	4	40	60	100
5	Elective Subject – 2	4	--	4	40	60	100
6	Elective Subject – 3	4	--	4	40	60	100
7	CESP-551: Communication Lab	--	3	2	40	60	100
8	CESP-552: Seminar	--	3	2	100	--	100
<b>TOTAL</b>		<b>24</b>	<b>6</b>	<b>28</b>	<b>380</b>	<b>420</b>	<b>800</b>

**SECOND SEMESTER**

S.No.	Code No. & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1	CESP-514: Real Time Signal Processing	4	--	4	40	60	100
2	CESP-515: Multirate Systems and Filter Banks	4	--	4	40	60	100
3	CESP-516: Wireless Communication	4	--	4	40	60	100
4	Elective Subject – 4	4	--	4	40	60	100
5	Elective Subject – 5	4	--	4	40	60	100
6	Elective Subject – 6	4	--	4	40	60	100
7	CESP-553: Signal Processing Lab	--	3	2	40	60	100
8	CESP-554: Mini Project / Term paper	--	3	2	100	--	100
<b>TOTAL</b>		<b>24</b>	<b>6</b>	<b>28</b>	<b>380</b>	<b>420</b>	<b>800</b>

## LIST OF SUBJECTS

### ELECTIVE SUBJECTS:

<b>Subject Code</b>	<b>Subject Title</b>	<b>Subject Code</b>	<b>Subject Title</b>
CESP-611	Video Processing	CESP-620	Embedded Systems
CESP-612	Wavelet Signal Processing	CESP-621	Pattern Recognition
CESP-613	Radar Signal Processing	CESP-622	Random Processing & Information Theory
CESP-614	Spread Spectrum Communication	CESP-623	Satellite Communication Systems
CESP-615	Advanced signal processing	CESP-624	Global Positioning Systems
CESP-616	Fiber Optic Communication	CESP-625	Telecommunication Switching Systems
CESP-617	Artificial Neural Networks	CESP-626	Fuzzy Techniques
CESP-618	Adaptive Signal Processing	CESP-627	Optimization Techniques
CESP-619	Microwave Measurements	CESP-628	Orthogonal Frequency Division Multiplexing

### THIRD SEMESTER

S.No.	Code No. & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1	CESP-711: Internship	--	--	2	100	--	100
2	CESP-712: Project Seminar	--	--	6	100	--	100
<b>TOTAL</b>		--	--	6	200	--	200

### FOURTH SEMESTER

S.No.	Code No. & Subject	Hours / Week		Credits	Evaluation of Marks		Total
		L	P		INT	EXT	
1	CESP-713 Project	--	--	16	50	150	150

**ACHARYANAGARJUNAUNIVERSITY**  
**NAGARJUNA NAGAR**  
**FOUR SEMESTER M.TECH DEGREE COURSE**  
**IN**  
**POWER SYSTEMS ENGINEERING**  
**CURRICULUM & DETAILED SYLLABI**

S.No	Course Number	Subject	Periods/week		Internal marks	End Semester Examination		Credits
			L+T	P		Duration	Marks	
<b>First Semester</b>								
1.	MT/PSE 511	Modern Control Theory	4	--	40	3	60	4
2.	MT/PSE 512	Advanced Power System Protection	4	--	40	3	60	4
3.	MT/PSE 513	Computer Methods in Power Systems	4	--	40	3	60	4
4.	--	Elective Subject – 1	4	--	40	3	60	4
5.	--	Elective Subject – 2	4	--	40	3	60	4
6.	--	Elective Subject – 3	4	--	40	3	60	4
7.	MT/PSE 551	Power Systems Lab	--	3	40	3	60	2
8.	MT/PSE 552	Simulation Lab – I	--	3	100	--	--	2
		TOTAL	24	6	380	--	420	28
<b>Second Semester</b>								
1.	MT/PSE 514	Flexible AC Transmission Systems	4	--	40	3	60	4
2.	MT/PSE 515	Power System Stability	4	--	40	3	60	4
3.	MT/PSE 516	Real time control of Power Systems	4	--	40	3	60	4
4.	--	Elective Subject – 4	4	--	40	3	60	4
5.	--	Elective Subject – 5	4	--	40	3	60	4
6.	--	Elective Subject – 6	4	--	40	3	60	4
7.	MT/PSE 553	Simulation Lab – II	--	3	40	3	60	2
8.	MT/PSE 554	Seminar	--	3	100	--	--	2
		TOTAL	24	6	380	--	420	28
<b>Third Semester</b>								
1.	MT/PSE 711	Summer Internship	--	--	100	-	--	2
2.	MT/PSE 712	Project Seminar	--	--	100	--	--	6
		TOTAL	--	--	200	--	--	8
<b>Fourth Semester</b>								
1.	MT/PSE 713	Project Viva	--	--	50	--	150	16
		TOTAL	--	--	50	--	150	16

**List of electives:**

Subject Code	Subject Title	Prerequisite
PSE 611	Operations Research	
PSE 612	Power System Reliability	--
PSE 613	Advanced Microprocessors & Micro controllers	--
PSE 614	Solid State Power Converters	--
PSE 615	Demand side Energy Management	--
PSE 616	Computer Networks	--
PSE 617	EHV AC Transmission Systems	High Voltage Engineering & Insulation
PSE 618	High Voltage Engineering & Insulation	--
PSE 619	Power Plant Instrumentation	--
PSE 620	HVDC Transmission Systems	Solid State Power Converters
PSE 621	Power Quality	--
PSE 622	Digital Control Systems	Modem Control Theory
PSE 623	Electrical Distribution Systems	--
PSE 624	Voltage Stability	--
PSE 625	Electrical Smart Grids	--
PSE 626	AI Techniques	--
PSE 627	Power System Deregulation	--
PSE 628	Energy Conservation & Audit	--

- ❖ 24 credits have to be achieved from Core Subjects.
- ❖ 24 credits have to be achieved from Elective Subjects.
- ❖ 8 credits have to be achieved from Labs.
- ❖ 2 Credits have to be achieved from Internship.
- ❖ 22 credits have to be achieved from Project.
- ❖ Total 80 credits are required for Awarding the M.Tech Degree.

**ACHARYA NAGARJUNA UNIVERSITY: NAGARJUNA NAGAR**

**SCHEME OF EXAMINATION AND INSTRUCTION FOR**

**M.TECH (CAD/CAM) :: FIRST SEMESTER**

S. No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks			Total		
		Lecture	Practical		Internal	External				
						Theory	Practical			
1	MT/ME/CC/MD -511 Computer Aided Design	4	--	4	40	60	--	100		
2	MT/ME/CC/MD-512 Finite Element Analysis	4	--	4	40	60	--	100		
3	MT/ME/CC -513 CNC & PP	4	--	4	40	60	--	100		
4	Elective Subject-1	4	--	4	40	60	--	100		
5	Elective Subject-2	4	--	4	40	60	--	100		
6	Elective Subject-3	4	--	4	40	60	--	100		
7	MT/ME/CC-551– CAD LAB	--	3	2	40	--	60	100		
8	MT/ME/CC-552– CAM LAB	--	3	2	40	--	60	100		
<b>TOTAL</b>		24	6	28				800		

**SCHEME OF EXAMINATION AND INSTRUCTION FOR**  
**M.TECH (CAD/CAM) :: SECOND SEMESTER**

S. No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks			Total		
		Lecture	Practical		Internal	External				
						Theory	Practical			
1	MT/ME/CC -514 : Computer Integrated Manufacturing	4	--	4	40	60	--	100		
2	MT/ME/CC -515: Robotics	4	--	4	40	60	--	100		
3	MT/ME/CC/MD -516: Optimization Techniques	4	--	4	40	60	--	100		
4	Elective Subject-4	4	--	4	40	60	--	100		
5	Elective Subject-5	4	--	4	40	60	--	100		
6	Elective Subject-6	4	--	4	40	60	--	100		
7	MT/ME/MD-561 Automation Lab	--	3	2	40	--	60	100		
8	MT/ME/CC -562 Mini Project/ Seminar	--	3	2	100	--	--	100		
<b>TOTAL</b>		24	6	28				800		

**ACHARYA NAGARJUNA UNIVERSITY: NAGARJUNA NAGAR****SCHEME OF EXAMINATION AND INSTRUCTION FOR****M.TECH (CAD/CAM) :: THIRD SEMESTER**

Si No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks		
		Lecture	Practical		Internal	External	Total
1	MT/ME/CC -711 Internship / Seminar	---	---	2	100	--	100
2	MT/ME/CC -712 Project Seminar	--	---	6	100	--	100

**SCHEME OF EXAMINATION AND INSTRUCTION FOR****M.TECH (CAD/CAM) :: FOURTH SEMESTER**

Si No	Code No & Subject	Hours/Week		Credits	Evaluation of Marks		
		Lecture	Practical		Internal	External	Total
1	MT/ME/MD -713 Project Viva	--	---	16	50	150	200

## LIST OF SUBJECTS

### ELECTIVE SUBJECTS:

Subject Code	Subject Title
MT/ME/CC/MD -611	Computational Methods
MT/ME/CC/MD -612	Advanced Mechanisms Design
MT/ME/CC -613	Design of Mechanisms & Manipulators
MT/ME/CC/MD -614	Design for Manufacturing
MT/ME/CC -615	Mechanical Vibrations
MT/ME/CC -616	Advances in Manufacturing Technology
MT/ME/CC -617	Computer Aided Process Planning
MT/ME/CC -618	Mechatronics
MT/ME/CC -619	Computer Graphics
MT/ME/CC -620	Concurrent Engineering
MT/ME/CC/MD -621	Mechanics of Composite Materials
MT/ME/CC/MD -622	Computational Fluid Dynamics
MT/ME/CC -623	Artificial Intelligence & Expert Systems
MT/ME/CC -624	Design of Material Handling Equipment
MT/ME/CC/MD -625	Reliability Engineering
MT/ME/CC/MD -626	Quality Engineering
MT/ME/CC/MD -627	Fluidics & Control Systems
MT/ME/CC/MD -628	Nanotechnology

**LAB COURSES:**

MT/ME/CC -551	:	Computer Aided Design Lab
MT/ME/CC -552	:	Computer Aided Manufacturing Lab
MT/ME/CC -561	:	Automation Lab
MT/ME/CC -562	:	Mini Project / Seminar

- ❖ 24 credits have to be achieved from Core Subjects.
- ❖ 24 credits have to be achieved from Elective Subjects.
- ❖ 8 credits have to be achieved from Labs.
- ❖ 2 credits have to be achieved from internship.
- ❖ 22 credits have to be achieved from Project.
- ❖ Total 80 credits required for Awarding the M.Tech Degree.

**ACHARYA NAGARJUNA UNIVERSITY**  
**MCA COURSE STRUCTURE**

**For the batch of students admitted during 2020-2021**

Master of Computer Applications (MCA)											
SEMESTER I											
S.No	Course Code	Title of the Course	Instructions Hours per Week			Credits	Evaluation			Total Marks	
			L	T	P		CIA Marks	SEE			
							Marks	Duration			
1	101	Data Structures with C++	2	1	1	5	30	70	3 Hours	100	
2	102	Database Management Systems	2	1	1	5	30	70	3 Hours	100	
3	103	Probability and Statistics	3	1	0	4	30	70	3 Hours	100	
4	104	Operating Systems	3	1	0	4	30	70	3 Hours	100	
5	105	Computer Organization	3	1	0	4	30	70	3 Hours	100	
6	106	Data Structures LAB			6	3	30	70	3 Hours	100	
7	107	Database Management Systems LAB			6	3	30	70	3 Hours	100	
8	108	Communication Skills		3		2	50	-		50	
		Total			35	30	260	490		750	
CIA – Continuous Internal Assessment					SEE – Semester End Examinations						

Master of Computer Applications (MCA)											
SEMESTER II											
S.No	Course Code	Title of the Course	Instructions Hours per Week			Credits	Evaluation			Total Marks	
			L	T	P		CIA Marks	SEE			
							Marks	Duration			
1	201	Software Engineering	3	1	0	4	30	70	3 Hours	100	
2	202	Programming and Problem Solving using Python	2	1	1	5	30	70	3 Hours	100	
3	203	Computer Networks	3	1	0	4	30	70	3 Hours	100	
4	204	Web Technologies	2	1	1	5	30	70	3 Hours	100	
5	205	Artificial Intelligence	3	1	0	4	30	70	3 Hours	100	
6	206	Python Programming LAB			6	3	30	70	3 Hours	100	
7	207	Web Technologies LAB			6	3	30	70	3 Hours	100	
8	208	Seminar		3		2	50	-		50	
9		MOOCS			-	2	-	-	-	-	
		Total			35	32	260	490		750	
CIA – Continuous Internal Assessment					SEE – Semester End Examinations						

Master of Computer Applications (MCA)											
SEMESTER III											
S.No	Course Code	Title of the Course	Instructions Hours per Week			Credits	Evaluation			Total Marks	
			L	T	P		CIA Marks	SEE			
							Marks	Duration			
1	301	Data Mining and Big Data	3	1	0	5	30	70	3 Hours	100	
2	302	Cryptography & Network Security	2	1	1	5	30	70	3 Hours	100	
3	303	Cloud Computing	3	1	0	4	30	70	3 Hours	100	
4	304	Machine Learning	2	1	1	4	30	70	3 Hours	100	
5	305.1 305.2 305.3	Mobile Computing with Android Open Source Technologies Block Chain Technology	3	1	0	4	30	70	3 Hours	100	
6	306	Data Mining and Big Data LAB			6	3	30	70	3 Hours	100	
7	307	Cryptography & Network Security LAB			6	3	30	70	3 Hours	100	
8	308	Technical Report Writing		3		2	50	-		50	
9		MOOCS		-		2	-	-	-	-	
		Total		35		32	260	490		750	
CIA – Continuous Internal Assessment					SEE – Semester End Examinations						

Master of Computer Applications (MCA)											
SEMESTER IV											
S.No	Course Code	Title of the Course	Instructions Hours per Week			Credits	Evaluation			Total Marks	
			L	T	P		CIA Marks	SEE			
							Marks	Duration			
1	401	Project Work			4	16	---	150	3 Hours	150	

## **MCA Syllabus w.e.f 2019-2020**

**MASTER OF COMPUTER APPLICATIONS - MCA**  
**Course Structure and Scheme of Examination w.e.f 2019-20**

**Objectives:**

1. To produce software professionals enriched with knowledge and skill who can be employed in IT
2. Induct knowledge needed for designing and implementing Application Software Systems along with offering support to automated systems.
3. To develop entrepreneurs who can develop customized solutions for small to large Enterprises.
4. To develop academically competent and professionally motivated personnel, equipped with objective, critical thinking, right moral and ethical values that compassionately foster the scientific temper with a sense of social responsibility.
5. To develop students to become globally competent.
6. To inculcate entrepreneurial skills among students

**Outcomes:**

- (a) Ability to implement their knowledge of Mathematical Foundations in computing problems.
- (b) Ability to conceptualize the programming languages and their applications.
- (c) Ability to practice and develop software for interpretation and analysis of data.
- (d) Ability to utilize the techniques, skills, and software tools required for software development.
- (e) Ability to recognize and analyze problems in multiple aspects including coding, testing and implementation of software applications.
- (f) Ability to build operational software for organizations satisfying various constraints like economic, social and ethical.
- (g) Ability to use the knowledge of enterprise level application software for design of engineering product or process.
- (h) Ability to function as consultant for the development of sustainable software solutions.
- (i) Perceiving professional and ethical values.
- (j) Ability to convey efficiently in different groups and manifest leadership skills.
- (k) To develop an interpretation of global environment and its security.

**FIRST YEAR – FIRST SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA 1.1	Programming with C	30	70	100	5	4
MCA1.2	Computer Organization	30	70	100	5	4
MCA1.3	Language Processors	30	70	100	4	4
MCA1.4	Discrete Mathematical Structures	30	70	100	5	4
MCA 1.5	Accountancy and Financial Management	30	70	100	4	4
MCA 1.6	C Programming Lab	30	70	100	3	6
MCA 1.7	Computer Organization Lab	30	70	100	3	6
MCA 1.8	Seminar	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>

**FIRST YEAR – SECOND SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA2.1	Data Structures Using Python	30	70	100	5	4
MCA 2.2	Operating System Principles	30	70	100	5	4
MCA2.3	Data Base Management Systems	30	70	100	5	4
MCA2.4	Computer Networks	30	70	100	4	4
MCA 2.5	Probability & Statistics	30	70	100	4	4
MCA2.6	Data Structures using Python Lab	30	70	100	3	6
MCA2.7	DBMS Lab	30	70	100	3	6
MCA2.8	Communication Skills	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>

**SECOND YEAR – THIRD SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours / Week</b>
MCA3.1	JAVA Programming	30	70	100	5	4
MCA3.2	Object Oriented Modeling and Design using UML	30	70	100	5	4
MCA3.3	Operations Research	30	70	100	4	4
MCA3.4	Computer Graphics	30	70	100	5	4
MCA3.5	Artificial Intelligence	30	70	100	4	4
MCA3.6	UML Lab	30	70	100	3	6
MCA3.7	Java Programming Lab	30	70	100	3	6
MCA3.8	Seminar	50	---	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>
MOOCS		---	---	---	4	---

**SECOND YEAR – FOURTH SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA4.1	Data Mining Techniques	30	70	100	4	4
MCA4.2	Machine Learning	30	70	100	5	4
MCA4.3	Web Technologies	30	70	100	4	4
MCA4.4	Software Engineering	30	70	100	4	4
<b>MCA4.5.1</b> <b>MCA 4.5.2</b> <b>MCA 4.5.3</b>	<b>Grid and Cluster Computing</b> <b>Cryptography and Network Security</b> <b>Simulation Modeling and Analysis</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>	<b>4</b>
MCA4.6	Web Technologies Lab	30	70	100	3	6
MCA4.7	Mini Project	30	70	100	5	6
MCA4.8	Soft skills	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>
MOOCS		---	---	---	4	---

**THIRD YEAR – FIFTH SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA5.1	Essentials of Big Data Analytics	30	70	100	5	4
MCA5.2	.Net Programming	30	70	100	5	4
MCA5.3	Design and Analysis of Algorithms	30	70	100	5	4
MCA5.4.1	Internet of Things	30	70	100	4	4
MCA5.4.2	Mobile Computing with Android					
MCA5.4.3	Cloud Computing					
MCA5.5.1	Image Processing	30	70	100	4	4
MCA 5.5.2	Open Source Technologies					
MCA5.5.3	Block chain technology					
MCA 5.6	.Net Programming Lab	30	70	100	3	6
MCA 5.7	Big Data Analytics Lab	30	70	100	3	6
MCA 5.8	Seminar	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>

### THIRD YEAR - SIXTH SEMESTER

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA601	Project Work	--	150	150	10	Five Months Duration

### PROJECT WORK

The Master of Computer Applications (MCA) programme prepares the students to take up positions as Systems Analysts, Systems Designers, Software Engineers, Programmers and Project Managers in any field related to information technology. The MCA students are encouraged to spend at least five months working on a project preferably in a software industry or any research organization.

**The following suggested guidelines must be followed in preparing the Final Project Report:**

Good quality white executive bond paper A4 size should be used for typing and duplication.

Page Specification :(Written paper and source code)

Left margin - 2.5 cms

Right margin- 1.5 cms

Top margin - 2.5 cms

Bottom margin - 2.5 cms

Page numbers - All text pages as well as Program source code listing should be numbered at the bottom center of the pages.

Normal Body Text: Font Size : 12, Times New Roman, Double Spacing, Justified. 6 point above and below para spacing

Paragraph Heading Font Size: 14, Times New Roman, Underlined, Left Aligned. 12 point above & below spacing.

Chapter Heading Font Size: 20, Times New Roman, Centre Aligned, 30 point above and below spacing.

Coding Font size : 10, Courier New, Normal

Submission of Project Report to the University : The student will submit his/her project report in the prescribed format.

The project documentation may be about 100 to 125 pages (excluding coding). The project documentation details should not be too generic in nature. Appropriate project report documentation should be done, like, how you have done the analysis, design, coding, use of testing techniques/strategies, etc., *in respect of your project*. To be more specific, whatever the theory in respect of these topics is available in the reference books should be avoided as far as possible. The project documentation should be in respect of your project only. The project documentation should include the topics given below. Each and every component shown below carries certain weightage in the project report evaluation.

- Table of Contents/Index with page numbering
- Introduction/Objectives
- System Analysis
  - ◆ Identification of Need
  - ◆ Preliminary Investigation
  - ◆ Feasibility Study
  - ◆ Project Planning
  - ◆ Project Scheduling (PERT Chart and Gantt Chart both)
  - ◆ Software requirement specifications (SRS)
  - ◆ Software Engineering Paradigm applied
  - ◆ Data models (like DFD), Control Flow diagrams, State Diagrams/Sequence diagrams, Entity Relationship Model, Class Diagrams/CRC Models/Collaboration Diagrams/Use-case Diagrams/Activity Diagrams depending upon your project requirements
- System Design
  - ◆ Modularisation details
  - ◆ Data integrity and constraints
  - ◆ Database design, Procedural Design/Object Oriented Design
  - ◆ User Interface Design
  - ◆ Test Cases (Unit Test Cases and System Test Cases)
- Coding
  - ◆ Complete Project Coding
  - ◆ Comments and Description of Coding segments
  - ◆ Standardization of the coding
- Testing
  - ◆ Code Efficiency
  - ◆ Error handling
  - ◆ Parameters calling/passing
  - ◆ Validation checks
- Testing
  - ◆ Testing techniques and Testing strategies used
  - ◆ Testing Plan used
  - ◆ Test reports for Unit Test Cases and System Test Cases
  - ◆ Debugging and Code improvement
- System Security measures (Implementation of security for the project developed)

- ◆ Database/data security
- ◆ Creation of User profiles and access rights
- Cost Estimation of the Project along with Cost Estimation Model
- Reports (sample layouts should be placed)
- Future scope and further enhancement of the Project
- Bibliography
- Appendices (if any)
- Glossary.
- Should attach a copy of the CD containing the executable file(s) of the complete project.

**TOTAL MARKS FOR THE MCA COURSE : 3900**

**TOTAL CREDITS FOR THE MCA COURSE : 160**

**MASTER OF COMPUTER APPLICATIONS - MCA**  
**Course Structure and Scheme of Examination w.e.f 2016-17**

**FIRST YEAR – FIRST SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA101	Fundamentals of Computers	30	70	100	4	4
MCA102	Programming with C	30	70	100	5	4
MCA103	Computer Organization	30	70	100	5	4
MCA104	Discrete Mathematical Structures	30	70	100	5	4
MCA105	Accountancy and Financial Management	30	70	100	4	4
MCA106	PC Software Lab	30	70	100	3	6
MCA107	C Programming Lab	30	70	100	3	6
MCA108	Seminar	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>

**FIRST YEAR – SECOND SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Mark s</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA201	Language Processors	30	70	100	4	4
MCA202	Data Base Management Systems	30	70	100	5	4
MCA203	Data Structures using C++	30	70	100	5	4
MCA204	Operating System Principles	30	70	100	5	4
MCA205	Probability & Statistics	30	70	100	4	4
MCA206	Data Structures using C++ LAB	30	70	100	3	6
MCA207	DBMS LAB	30	70	100	3	6
MCA208	Communication Skills	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>

**SECOND YEAR – THIRD SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA301	Object Oriented Programming through JAVA	30	70	100	5	4
MCA302	Computer Networks	30	70	100	5	4
MCA303	Operations Research	30	70	100	4	4
MCA304	Computer Graphics	30	70	100	5	4
MCA305	Artificial Intelligence	30	70	100	4	4
MCA306	Java Programming Lab	30	70	100	3	6
MCA307	Unix Shell Programming LAB	30	70	100	3	6
MCA308	Seminar	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>

**SECOND YEAR – FOURTH SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA401	Principles of Programming Languages	30	70	100	4	4
MCA402	Object Oriented Modeling and Design Using UML	30	70	100	5	4
MCA403	Web Technologies	30	70	100	5	4
MCA404	Software Engineering	30	70	100	5	4
MCA405.1 405.2 405.3	Grid and Cluster Computing Cryptography and Networks Security Simulation Modeling and Analysis	30	70	100	4	4
MCA406	Web Technologies Lab	30	70	100	3	6
MCA407	Visual Programming Lab	30	70	100	3	6
MCA408	Soft skills	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>
Non - Core		30	70	100	4	4

**THIRD YEAR – FIFTH SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA501	Data Mining and Big Data	30	70	100	5	4
MCA502	.Net Programming	30	70	100	5	4
MCA503	Design and Analysis of Algorithms	30	70	100	5	4
MCA504.1 504.2 504.3	Embedded Systems Mobile Computing Cloud Computing	30	70	100	4	4
MCA505.1 505.2 505.3	Image Processing Microprocessors and Interfacing Web Engineering	30	70	100	4	4
MCA 506	.Net Programming Lab	30	70	100	3	6
MCA 507	Data Mining And Hadoop Lab	30	70	100	3	6
MCA 508	Seminar	50	--	50	1	3
<b>TOTAL</b>		<b>260</b>	<b>490</b>	<b>750</b>	<b>30</b>	<b>35</b>
Non - Core		30	70	100	4	4

**THIRD YEAR – SIXTH SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>No of Credits</b>	<b>Hours/ Week</b>
MCA601	Project Work	--	150	150	10	Five Months Duration

**TOTAL MARKS FOR THE MCA COURSE : 3900**

**TOTAL CREDITS FOR THE MCA COURSE : 160**

## **FIRST YEAR – FIRST SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>No. of Credits</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>Hours/ Week</b>
MCS 101	Data Structures in C	5	30	70	100	4
MCS 102	Object Oriented Programming with JAVA	4	30	70	100	4
MCS 103	Computer Organization	5	30	70	100	4
MCS 104	Discrete Mathematical Structures	4	30	70	100	4
MCS 105	Software Engineering	5	30	70	100	4
MCS 106	Data Structures Lab using C	3	30	70	100	6
MCS 107	Java Programming Lab	3	30	70	100	6
MCS 108	Seminar	1	50	--	50	3
<b>TOTAL</b>		<b>30</b>	<b>260</b>	<b>490</b>	<b>750</b>	<b>35</b>

## **FIRST YEAR – SECOND SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>No. of Credit s</b>	<b>Int. Mar ks</b>	<b>Ext. Mar ks</b>	<b>Tot al Mar ks</b>	<b>Hour s/ Week</b>
<b>MCS 301</b>	Web Technologies	4	30	70	100	4
<b>MCS 202</b>	Database Management Systems	5	30	70	100	4
<b>MCS 203</b>	Operating Systems	5	30	70	100	4
<b>MCS 204</b>	Computer Networks	4	30	70	100	4
<b>MCS 205</b>	Design & Analysis of Algorithms	5	30	70	100	4
<b>MCS 206</b>	Web Technologies Lab	3	30	70	100	6
<b>MCS 207</b>	DBMS Lab	3	30	70	100	6
<b>MCS 208</b>	Communication Skills	1	50	--	50	3
	<b>TOTAL</b>	30	260	490	750	35
	MOOCS	<b>4</b>	--	--	--	--

## SECOND YEAR – THIRD SEMESTER

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>No. of Credits</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>Hours/ Week</b>
MCS 301	Python Programming	5	30	70	100	4
MCS 302	.Net Programming	5	30	70	100	4
MCS 303	Object Oriented Modeling & Design using UML	5	30	70	100	4
<b>MCS 304.1 /304.2</b>	<b>Artificial Intelligence /Microprocessors &amp; Interfacing</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>MCS 305.1 /305.2</b>	<b>Cryptography &amp; Network Security /Blockchain Technology</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
MCS 306	Python Programming Lab	3	30	70	100	6
MCS 307	.Net Programming Lab	3	30	70	100	6
MCS 308	Seminar	1	50	--	50	3
	<b>TOTAL</b>	30	260	490	750	35
	MOOCS	4	--	--	--	--

## SECOND YEAR – FOURTH SEMESTER

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>No. of Credits</b>	<b>Int. Marks</b>	<b>Ext. Marks</b>	<b>Total Marks</b>	<b>Hours / Week</b>
MCS 401	Data Mining And Big Data	5	30	70	100	4
<b>MCS 402.1 /402.2</b>	<b>Internet of Things / Cloud Computing</b>	<b>5</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>MCS 403.1 /403.2</b>	<b>Machine Learning /Mobile Computing with Android</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
MCS 404	Soft Skills	1	50	--	50	3
MCS 405	Project	10	20	80	100	20
<b>TOTAL</b>		<b>25</b>	<b>160</b>	<b>290</b>	<b>450</b>	<b>35</b>

## M.Sc. (Computer Science)

### SEMESTER SYSTEM FORM & COURSES

#### FIRST SEMESTER OF MSc(CS)

Sub Code	Name of the Subject	No. of Credits	Int. Marks	Ext. Marks	Total Marks	Hours/ Week
MCS 101	Data Structures in C	5	30	70	100	4
MCS 102	Object Oriented Programming with JAVA	4	30	70	100	4
MCS 103	Computer Organization	5	30	70	100	4
MCS 104	Discrete Mathematical Structures	4	30	70	100	4
MCS 105	Software Engineering	5	30	70	100	4
MCS 106	Data Structures Lab using C	3	30	70	100	6
MCS 107	Java Programming Lab	3	30	70	100	6
MCS 108	Seminar	1	50	--	50	3
<b>TOTAL</b>		<b>30</b>	<b>260</b>	<b>490</b>	<b>750</b>	<b>35</b>

#### SECOND SEMESTER OF MSc(CS)

Sub Code	Name of the Subject	No. of Credits	Int. Marks	Ext. Marks	Total Marks	Hours/ Week
MCS 201	Web Technologies	4	30	70	100	4
MCS 202	Database Management Systems	5	30	70	100	4
MCS 203	Operating Systems	5	30	70	100	4
MCS 204	Computer Networks	4	30	70	100	4
MCS 205	Design & Analysis of Algorithms	5	30	70	100	4
MCS 206	Web Technologies Lab	3	30	70	100	6
MCS 207	DBMS Lab	3	30	70	100	6
MCS 208	Communication Skills	1	50	--	50	3
<b>TOTAL</b>		<b>30</b>	<b>260</b>	<b>490</b>	<b>750</b>	<b>35</b>
<b>Non-Core</b>		<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>

#### THIRD SEMESTER MSc(CS)

Sub Code	Name of the Subject	No. of Credits	Int. Marks	Ext. Marks	Total Marks	Hours/ Week
MCS 301	Python Programming	5	30	70	100	4
MCS 302	.Net Programming	5	30	70	100	4
MCS 303	Object Oriented Modeling & Design using UML	5	30	70	100	4
<b>MCS 304.1 /304.2</b>	<b>Distributed Systems /Microprocessors &amp; Interfacing</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
<b>MCS 305.1 /305.2</b>	<b>Cryptography &amp; Network Security / Computer Graphics</b>	<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>
MCS 306	Python Programming Lab	3	30	70	100	6
MCS 307	.Net Programming Lab	3	30	70	100	6
MCS 308	Seminar	1	50	--	50	3
<b>TOTAL</b>		<b>30</b>	<b>260</b>	<b>490</b>	<b>750</b>	<b>35</b>
<b>Non-Core</b>		<b>4</b>	<b>30</b>	<b>70</b>	<b>100</b>	<b>4</b>

**FOURTH SEMESTER OF MSc(CS)**

Sub Code	Name of the Subject	No. of Credits	Int. Marks	Ext. Marks	Total Marks	Hours/ Week
MCS 401	Data Mining And Big Data	5	30	70	100	4
MCS 402.1 /402.2	Embedded systems / Cloud Computing	5	30	70	100	4
MCS 403.1 / 403.2	Artificial Intelligence /Mobile Computing	4	30	70	100	4
MCS 404	Soft Skills	1	50	--	50	3
MCS 405	Project	10	20	80	100	20
	TOTAL	25	160	290	450	35

**ACHARYA NAGARJUNA UNIVERSITY::NAGARJUNA NAGAR-522 510**  
**DEPARTMENT OF MATHEMATICS**  
**M.Sc. Mathematics Program**  
**Curriculum and Syllabus**  
**(with effect from 2021 – 22 admitted batch)**

**PROGRAM STRUCTURE**

**Credits at a glance**

S.No.	Nature of the Course (S)	Credits
1.	Core Courses	64
2	Electives	16
3	Moocs Courses	08
4	Project	04
5	Comprehensive viva voce	04
	Total number of credits	96

6

**M.Sc. Mathematics Semester- I**

S.No.	Subject Code	Name of the Subject	Number of periods per week (Lectures/Seminar/Tutorials)	credits	Assessment	
					Internal	End Semester
1	M101	ALGEBRA	06L+01S/T	4	30%	70%
2	M102	ANALYSIS-I	06L+01S/T	4	30%	70%
3	M103	DIFFERENTIAL EQUATIONS	06L+01S/T	4	30%	70%
4	M104	TOPOLOGY	06L+01S/T	4	30%	70%
5	M105	ADVANCED DISCRETE MATHEMATICS	06L+01S/T	4	30%	70%
Total Credits for Semester-I				20		

1. B. Saini  
29/9/2021

P.V. Saradhi

DEPARTMENT OF MATHEMATICS  
BAPATLA ENGINEERING COLLEGE  
BAPATLA - 522 101

2. R. Srinivas  
29/09/2021

3. G. Gangadhar  
29/9/21

4. G. Shwetha  
29/9/21

5. T.S. Shetty  
29/9/21

7. P. Padma  
29/9/21

B. Saini

6. M. Latha  
29/9/21

CHAIRMAN  
P.G. Board of Studies in Mathematics  
Acharya Nagarjuna University

### M.Sc. Mathematics Semester-II

S.No.	Subject Code	Name of the Subject	Number of periods per week (Lectures/Seminar/ Tutorials)	credits	Assesment	
					Internal	End Semester
1	M201	GALOIS THEORY	06L+01S/T	4	30%	70%
2	M202	ANALYSIS-II	06L+01S/T	4	30%	70%
3	M203	MEASURE AND INTEGRATION	06L+01S/T	4	30%	70%
4	M204	NUMERICAL METHORS	06L+01S/T	4	30%	70%
5	M205	GRAPH THEORY	06L+01S/T	4	30%	70%
	M2CV	MOOCS COURSE		4		
Total Credits for Semester-II				24		

### M.Sc. Mathematics Semester-III

S.No.	Subject Code	Name of the Subject	Number of periods per week (Lectures/Semi nar/ Tutorials)	credi ts	Assesment	
					Internal	End Semester
1	M301	RINGS AND MODULES	06L+01S/T	4	30%	70%
2	M302	COMPLEX ANALYSIS	06L+01S/T	4	30%	70%
3	M303	FUCNTIONAL ANALYSIS	06L+01S/T	4	30%	70%
4 Elective -I	M304(A)	FUZZY SETS AND THEIR APPLICATIONS	06L+01S/T	4	30%	70%
	M304(B)	SEMI GROUPS				
	M304(C)	NUMBER THEORY ✓				
5 Elective -II	M305(A)	MATHEMATICAL BIOLOGY	06L+01S/T	4	30%	70%
	M305(B)	LINEAR PROGRAMMING ✓				
	M305(C)	MATHEMATICAL MATHEDS				
6		MOOCS COURSE		4		
Total Credits for Semester-III				24	<i>P.V.Saradhi</i> DEPARTMENT OF MATHEMATICS BAPATLA ENGINEERING COLLEGE BAPATLA - 522101	

1. B. Sathu 29/9/2021

2. R. Srinivas 29/9/2021

3. G. Gayandhar 29/9/21

4. G. Shiva 29/9/21

5. T. Shashikiran 29/9/21

7. P. Sudheer 29/9/21

6. M. M. 29/9/21

### M.Sc. Mathematics Semester-IV

S.No.	Subject Code	Name of the Subject	Number of periods per week (Lectures/Seminar/ Tutorials)	credits	Assesment	
					Internal	End Semester
1	M401	NON-COMMUTATIVE RINGS	06L+01S/T	4	30%	70%
2	M402	PARTIAL DIFFERENTIAL EQUATIONS	06L+01S/T	4	30%	70%
3	M403	NEAR RINGS	06L+01S/T	4	30%	70%
4 Elective -III	M404(A)	ALGEBRAIC CODING THEORY	06L+01S/T	4	30%	70%
	M404(B)	LATTICE THEORY				
	M404(C)	OPERATOR THEORY				
5 Elective -IV	M405(A)	COMMUTATIVE ALGEBRA	06L+01S/T	4	30%	70%
	M405(B)	BANACH ALGEBRA				
	M405(C)	OPERATIONS RESEARCH				
6	M4PRO	PROJECT		4		
7	M4PRV	Project VIVA VOCE		4		
Total Credits for Semester-IV				28		

#### Project:

The student will be given Project topics at the beginning of the IV semester by the faculty in-charge and the student has to present the topics, submit the hard copy of seminar to take report at the end of the IV semester. Out of a total of 100 marks, for the seminar evaluation, 50 marks for seminar report and record and 50 marks for the end semester examination (viva-voce). The Viva-Voce shall be conducted by a committee consisting of HOD, faculty in charge and a external examiner nominated by the university.

#### Instructions for evaluation

1. Each theory subject is evaluated for 100 Marks out of which 70 marks through end examination and internal assessment would be for 30 marks.

2. End Examination Question paper pattern is as follows:

1. B. Saini 29/9/2021

P.V. Samanthi  
DEPARTMENT OF MATHEMATICS  
BAPATLA ENGINEERING COLLEGE  
BAPATLA - 522 101

2. R. Saini 29/09/2021

3. G. Gangadev 29/9/2021

4. G. Shoaib 29/9/2021

5. T. Shashikala 29/9/2021

7. P. Reddy 29/9/2021

B. Saini

6. M. D. I. 29/9/2021

**DEPARTMENT OF MATHEMATICS: ACHARYA NAGARJUNA UNIVERSITY**

*Titles of the papers for M.Sc., mathematics, from the batch admitted during 2011-12*  
**I SEMESTER**

- M 101 – ALGEBRA (New)**  
**M 102 - ANALYSIS - 1**  
**M 103 - DIFFERENTIAL EQUATIONS**  
**M 104 - TOPOLOGY**  
**M 105 – ADVANCED DISCRETE MATHEMATICS**

**II SEMESTER**

- M 201 - GALOIS THEORY**  
**M 202 - ANALYSIS - II**  
**M 203 - MEASURE AND INTEGRATION**  
**M 204 - COMPUTER ORIENTED AND NUMERICAL METHODS**  
**M 205 - GRAPH THEORY**  
**M 206 – DISCRETE MATHEMATICS (Non-Core)**

**III SEMESTER**

- M 301 - RINGS AND MODULES**  
**M 302 - COMPLEX ANALYSIS**  
**M 303 - FUNCTIONAL ANALYSIS**  
**M-304 (A) - FUZZYSETS AND THEIR APPLICATIONS**  
**M 304 (B) - SEMI GROUPS**  
**M 304 (C) – NUMBER THEORY**  
**M 305 - LINEAR PROGRAMMING**  
**M306 - MATHEMATICAL METHODS (Non-Core)**

**IV SEMESTER**

- M 401 - NON-COMMUTATIVE RINGS**  
**M 402 – PARTIAL DIFFERENTIAL EQUATIONS**  
**M 403 - NEAR-RINGS**  
**M 404(A) – ALGEBRAIC CODING THEORY**  
**M-404 (B)-LATTICE THEORY**  
**M 404 C - OPERATOR THEORY**  
**M 405 (B) - OPERATIONS REASEARCH**

**Course Curriculum for PG Programme  
2 - Year M.Sc. in Chemistry and 2 - Year M.Sc. Forensic Science**

<b>Name Program</b>	M.Sc.
<b>Department offering the Programs</b>	1. Analytical Chemistry 2. Inorganic Chemistry 3. Organic Chemistry 4. Forensic Science

<b>Distribution of Total Credits</b>			
<b>Course</b>	<b>Departmental Core (DC)</b>	<b>Electives (CE/OE)</b>	<b>Total Credits</b>
Analytical Chemistry	92	16	108
Inorganic Chemistry	92	16	108
Organic Chemistry	92	16	108
Forensic Science	92	16	108

<b>Distribution of Credits: Semester-Wise (Excluding other electives)</b>					
<b>Course</b>	<b>Semester I</b>	<b>Semester II</b>	<b>Semester III</b>	<b>Semester IV</b>	<b>Total</b>
Analytical Chemistry	25	25	24	26	100
Inorganic Chemistry	25	25	24	26	100
Organic Chemistry	25	25	24	26	100
Forensic Science	25	25	24	26	100

\* CE-Core Elective;  
\* OE – Other Elective

**M.Sc. CHEMISTRY**  
 [with effect from the academic year 2021-22 Under CBCS system]

**Semester -I (Analytical, Inorganic and Organic Chemistry)**

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Foundation for Chemistry	4	4	30	70	3 hours
2	Inorganic Chemistry	4	4	30	70	3 hours
3	Organic Chemistry	4	4	30	70	3 hours
4	Physical Chemistry	4	4	30	70	3 hours
5	Practical-I - Inorganic Chemistry	3	6	22	53	3 hours
6	Practical-II - Organic Chemistry	3	6	22	53	3 hours
7	Practical-III - Physical Chemistry	3	6	22	53	3 hours
<b>Total</b>		<b>25</b>	<b>34</b>	<b>186</b>	<b>439</b>	

**Semester -II (Analytical, Inorganic and Organic Chemistry)**

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Essential Lab Techniques for Industry	4	4	30	70	3 hours
2	Inorganic Chemistry	4	4	30	70	3 hours
3	Organic Chemistry	4	4	30	70	3 hours
4	Physical Chemistry	4	4	30	70	3 hours
5	Practical-I - Inorganic Chemistry	3	6	22	53	3 hours
6	Practical-II - Organic Chemistry	3	6	22	53	3 hours
7	Practical-III - Physical Chemistry	3	6	22	53	3 hours
<b>Total</b>		<b>25</b>	<b>34</b>	<b>186</b>	<b>439</b>	

**Semester -III (Analytical Chemistry)**

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Principles and Techniques in Classical Analysis	4	4	30	70	3 hours
2	Applied Inorganic Analysis	4	4	30	70	3 hours
3	Analysis of Applied Industrial Products	4	4	30	70	3 hours
4	Optical, Thermal and Radiochemical Methods of Analysis (CE-I)	4	4	30	70	3 hours
5	Applications of Synthetic Products (OE-I)	4	4	30	70	3 hours
6	Practical-I - Classical Methods of Analysis	4	9	30	70	9 hours
7	Practical-II - Instrumental Methods of Analysis	4	9	30	70	9 hours
<b>Total</b>		<b>24</b>	<b>34</b>	<b>180</b>	<b>420</b>	

**Semester -IV (Analytical Chemistry)**

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Advanced Methods of Analysis	4	4	30	70	3 hours
2	Analysis of Drugs, Foods, Dairy Products & Biochemical Analysis	4	4	30	70	3 hours
3	Practical-I - Classical & Instrumental Analysis	4	4	30	70	3 hours
4	Separation Techniques and Electro Analytical Techniques (CE-II)	4	4	30	70	3 hours
5	Forensic Science - In Solving Crime (OE-II)	4	4	30	70	3 hours
6	Practical-I - Classical & Instrumental Methods of Analysis	4	2	30	70	9 hours
7	Practical-II - Project Work/Review of Literature/Spectral Problems	4	--	--	100	9 hours
8	Comprehensive Viva-voce	2	--	--	50	---
<b>Total</b>		<b>26</b>	<b>25</b>	<b>150</b>	<b>500</b>	
<b>All Semester Total Marks (Excluding other Core subjects)</b>				<b>702</b>	<b>1798</b>	<b>2500</b>

*\*CE - core elective*  
*OE - other elective*

*Mr  
2/11/21*

*Dr. B. HARI BABU, M.Sc., Ph.D.*  
**CHAIRMAN, BOS IN CHEMISTRY (PG)**  
**Acharya Nagarjuna University**  
**Nagarijuna Nagar-522 510, A.P., India**

Semester –III (Inorganic Chemistry)

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Advances in Inorganic Chemistry	4	4	30	70	3 hours
2	Physical Inorganic Chemistry	4	4	30	70	3 hours
3	Instrumental Methods in Inorganic Analysis	4	4	30	70	3 hours
4	Bio-Inorganic Chemistry (CE-I)	4	4	30	70	3 hours
5	<i>Applications of Synthetic Products (OE-I)</i>	4	4	30	70	3 hours
6	Practical-I - Classical Methods of Analysis	4	9	30	70	9 hours
7	Practical-II - Instrumental Methods of Analysis	4	9	30	70	9 hours
<b>Total</b>		<b>24</b>	<b>34</b>	<b>180</b>	<b>420</b>	

Semester –IV (Inorganic Chemistry)

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Photo Inorganic Chemistry	4	4	30	70	3 hours
2	Physical Methods in Structural Studies	4	4	30	70	3 hours
3	Instrumental Methods in Inorganic Analysis and Separation Methods	4	4	30	70	3 hours
4	Environmental Chemistry (CE-II)	4	4	30	70	3 hours
5	<i>Forensic Science - In Solving Crime (OE-II)</i>	4	4	30	70	3 hours
6	Practical-I - Classical Methods of Analysis	4	9	30	70	9 hours
7	Practical-II - Project Work/Review of Literature/Spectral Problems	4	--	--	100	9 hours
8	Comprehensive Viva-voce	2	--	--	50	---
<b>Total</b>		<b>26</b>	<b>25</b>	<b>150</b>	<b>500</b>	
						<b>2500</b>

Semester –III (Organic Chemistry)

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Organic Spectroscopy-I	4	4	30	70	3 hours
2	Organic Synthesis & Reaction Mechanisms-I	4	4	30	70	3 hours
3	Alkaloids, Terpenoids, Quinones and Phenothiazines	4	4	30	70	3 hours
4	Chemistry of Natural Products-I (CE-I)	4	4	30	70	3 hours
5	<i>Applications of Synthetic Products (OE-I)</i>	4	4	30	70	3 hours
6	Practical-I - Multistage Organic Synthesis	4	9	30	70	9 hours
7	Practical-II - Organic Estimations	4	9	30	70	9 hours
<b>Total</b>		<b>24</b>	<b>34</b>	<b>180</b>	<b>420</b>	

Semester –IV (Organic Chemistry)

S. No.	Title of the Paper	No. of Credits	Hours per week	Max. Marks: 100		Exam Time (Hours)
				Internal	External	
1	Organic Spectroscopy-II	4	4	30	70	3 hours
2	Organic Synthesis & Reaction Mechanisms-II	4	4	30	70	3 hours
3	Chemistry of Antibiotics and Drugs	4	4	30	70	3 hours
4	Advanced Organic Chemistry (CE-II)	4	4	30	70	3 hours
5	<i>Forensic Science - In Solving Crime (OE-II)</i>	4	4	30	70	3 hours
6	Practical-I - Analysis of Binary Organic Mixture	4	9	30	70	9 hours
7	Practical-II - Project Work/Review of Literature/Spectral Problems	4	--	--	100	9 hours
8	Comprehensive Viva-voce	2	--	--	50	---
<b>Total</b>		<b>26</b>	<b>25</b>	<b>150</b>	<b>500</b>	
						<b>2500</b>

*Dr. B. HARI BABU, M.Sc., Ph.D.*  
 CHAIRMAN, BOS IN CHEMISTRY (PG)  
 Acharya Nagarjuna University  
 Nagarjuna Nagar-522 510, A.P., India

**ACHARYA NAGARJUNA UNIVERSITY  
M.Sc., PHYSICS (SEMESTER SYSTEM)**

**COURSE STRUCTURE**

**(w.e.f. 2021-22 under CBCS)**

**M.Sc., Physics, First Semester**

Paper	Title of the Paper	No. of Credits	Internal Assessment Marks	Semester end Examinations Marks	Total Marks	No. of hours/ week
PHY 1.1	Mathematical Physics	4	30	70	100	4
PHY 1.2	Classical Mechanics	4	30	70	100	4
PHY 1.3	Introductory Quantum Mechanics	4	30	70	100	4
PHY 1.4	Analog and Digital Electronics	4	30	70	100	4
Practical -I	General Physics (Electricity & Optics)	4	30	70	100	12
Practical -II	Electronics	4	30	70	100	12
Total		24	180	420	600	40

**M.Sc., Physics, Second Semester**

Paper	Title of the Paper	No. of Credits	Internal Assessment Marks	Semester end Examinations Marks	Total Marks	No. of hours/ week
PHY 2.1	Quantum dynamics and Scattering theory	4	30	70	100	4
PHY 2.2	Statistical Mechanics	4	30	70	100	4
PHY 2.3	Computational methods and Programming	4	30	70	100	4
PHY 2.4	Solid State Physics	4	30	70	100	4
Practical -I	General Physics (Spectroscopy)	4	30	70	100	12
Practical -II	Electronics	4	30	70	100	12
Total		24	180	420	600	40

*Renuka*

Chairman  
**P.G. Board of Studies in Physics**  
**Acharya Nagarjuna University**  
**Nagarjuna Nagar-522 510**

**M.Sc., Physics, Third Semester**

Paper	Title of the Paper	No. of Credits	Internal Assessment Marks	Semester end Examinations Marks	Total Marks	No. of hours/ week
PHY 3.1	Nuclear and particle Physics	4	30	70	100	4
PHY 3.2	Advanced Quantum Mechanics	4	30	70	100	4
PHY 3.3	Condensed Matter Physics-I	4	30	70	100	4
PHY 3.4	Condensed Matter Physics-II	4	30	70	100	4
Practical -I	Microprocessor & C Programming	4	30	70	100	12
Practical -II	Condensed Matter Physics	4	30	70	100	12
Total		24	180	420	600	40

**M.Sc., Physics, Fourth Semester**

Paper	Title of the Paper	No. of Credits	Internal Assessment Marks	Semester end Examinations Marks	Total Marks	No. of hours/ week
PHY 4.1	Electromagnetic theory, Lasers and Modern Optics	4	30	70	100	4
PHY 4.2	Atomic, Molecular and Resonance Spectroscopy	4	30	70	100	4
PHY 4.3	Advances in Materials Science	4	30	70	100	4
PHY 4.4	Advanced Condensed Matter Physics	4	30	70	100	4
Practical-I	Advanced Electronics	4	30	70	100	12
Practical -II	Advanced Condensed Matter Physics	4	30	70	100	12
Project	Project	4	----	100	100	8
Total		28	180	520	700	48
	<b>Total Semesters I+II+III+IV</b>				<b>2500</b>	

  
**Chairman**  
**P.G. Board of Studies in Physics**  
**Acharya Nagarjuna University**  
**Nagarjuna Nagar-522 510**

Course curriculum and scheme of examination for the students who admitted into  
M.Sc. (Physics) from 2014-15 Batch onwards

**I SEMESTER**

Sl. No.	Paper Title	No. of credits	Hours per week	Max. marks:100		
				Internal	External	Exam time(hrs)
1.	Mathematical Physics	4	5	30	70	3hrs
2.	Classical Mechanics	4	5	30	70	3hrs
3.	Quantum Mechanics-I	4	5	30	70	3hrs
4.	Electronics(General)	4	5	30	70	3hrs
5.	Practical-I	4	8	30	70	3hrs
6.	Practical-II	4	8	30	70	3hrs

**II SEMESTER**

Sl. No.	Paper Title	No. of credits	Hours per week	Max. marks:100		
				Internal	External	Exam time(hrs)
1.	Quantum Mechanics-II	4	5	30	70	3hrs
2.	Statistical Mechanics	4	5	30	70	3hrs
3.	Computational Methods and Programming	4	5	30	70	3hrs
4.	Solid State Physics (General)	4	5	30	70	3hrs
5.	Practical-III	4	8	30	70	3hrs
6.	Practical-IV	4	8	30	70	3hrs
7.	Non-Core: Paper – I History of Physics	4	4	30	70	3hrs

**III SEMESTER**

Sl. No.	Paper Title	No. of credits	Hours per week	Max. marks:100		
				Internal	External	Exam time(hrs)
1.	Nuclear and Particle Physics	4	5	30	70	3hrs
2.	Advanced Quantum Mechanics	4	5	30	70	3hrs
3.	Condensed Matter Physics-I	4	5	30	70	3hrs
4.	Condensed Matter Physics-II	4	5	30	70	3hrs
5.	Practical-V	4	8	30	70	3hrs
6.	Practical-VI	4	8	30	70	3hrs
7.	Non-Core: Paper- II Modern concepts of Physics	4	4	30	70	3hrs

**IV SEMESTER**

Sl. No.	Paper Title	No. of credits	Hours per week	Max. marks:100		
				Internal	External	Exam time(hrs)
1.	Electromagnetic Theory and Modern Optics	4	5	30	70	3hrs
2.	Molecular and Solid State Spectroscopy	4	5	30	70	3hrs
3.	Condensed Matter Physics-III	4	5	30	70	3hrs
4.	Condensed Matter Physics-IV	4	5	30	70	3hrs
5.	Project	8	16	--	200	6hrs
Total for Core Papers		96	144	660	1740	
Total for Non-Core Papers		8	8	60	140	
Grand Total:		104	152	720	1880	

**Acharya Nagarjuna University, Nagarjuna Nagar  
M.Sc. (ELECTRONICS)-Revised Syllabus  
(W.e.f 2015 – 2016 academic year onwards)**

**First Year**

<b>I SEMESTER</b>	<b>(External)</b>	<b>(Internal)</b>	<b>Total</b>
101 Analog and Digital Circuits	70	30	100
102 Microwaves, Radars and Satellite Communications	70	30	100
103 Linear and Digital IC Applications	70	30	100
104 C Programming and data structures	70	30	100
105 Mathematical methods of Signals and System Analysis.	70	30	100
<b>Laboratories:</b> Lab1.1-Computer Simulation (with P-Spice or Mat lab)	70	30	100 Experiments
Lab 1.2 Linear and digital IC 1.1	70	30	100

H. SEMESTER

Second Year

III SEMESTER

IV SEMESTER

401 VLSI Design (Verilog HDL)	70	30	100
402 Networking Technology	70	30	100
<b>Lab:</b> Lab 4.1-VLSI Lab	70	30	100

**Project work:** - External / Internal Projects (**Minimum -3 months or more.**) 400 Marks  
(300 Marks for Dissertation and 100 Marks for viva-voce by both external and Internals)

**Total Marks: 2800 Marks**

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTION AND MODEL BLUE PRINT FOR EVALUATION**  
**CURRICULUM-2020**  
**FIRST YEAR**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Instruction Periods/Week</b>		<b>Total Period s Per Year</b>	<b>Scheme Of Examination</b>			
		<b>Theor y</b>	<b>Practi cal</b>		<b>Dur atio n (hrs)</b>	<b>Session al Marks</b>	<b>End Exam Marks</b>	<b>Total Mark s</b>
<b>THEORY</b>								
<b>C-101</b>	English	3		90	3	20	80	100
<b>C-102</b>	Engineering Mathematics – I	5		150	3	20	80	100
<b>C-103</b>	Engineering Physics	4		120	3	20	80	100
<b>C-104</b>	Engineering Chemistry and Environmental studies	4		120	3	20	80	100
<b>C-105</b>	Engineering Mechanics	5		150	3	20	80	100
<b>C-106</b>	Surveying-I	3		90	3	20	80	100
<b>PRACTICAL</b>								
<b>C-107</b>	Engineering Drawing	-	6	180	3	40	60	100
<b>C-108</b>	Surveying - I Practice & Plotting	-	4+2	180	3	40	60	100
<b>C-109</b>	CE-109(A) : Physics Laboratory	-	3	45+45	1½	20	30	50
	CE-109(B): Chemistry Laboratory	-			1½	20	30	50
<b>C-110</b>	Computer Fundamentals Practice	-	3	90	3	40	60	100
	<b>Total</b>	<b>24</b>	<b>18</b>	<b>1260</b>		<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTION AND MODEL BLUE PRINT FOR EVALUATION**  
**CURRICULUM-2020**

**THIRD SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Instruction Periods/Week</b>		<b>Total Periods Per Year</b>	<b>Scheme Of Examination</b>			
		<b>Theory</b>	<b>Practical</b>		<b>Duration (hrs)</b>	<b>Sessional Marks</b>	<b>End Exam Marks</b>	<b>Total Marks</b>
<b>THEORY</b>								
<b>C-301</b>	Engineering Mathematics –II	4		60	3	20	80	100
<b>C-302</b>	Mechanics of Solids & Theory of Structures	5		75	3	20	80	100
<b>C-303</b>	Hydraulics	5		75	3	20	80	100
<b>C-304</b>	Surveying-II	4		60	3	20	80	100
<b>C-305</b>	Construction Materials	4		60	3	20	80	100
<b>C-306</b>	Construction Practice	4		60	3	20	80	100
<b>PRACTICAL</b>								
<b>C-307</b>	Civil Engineering Drawing-I	-	6	90	3	40	60	100
<b>C-308</b>	Surveying - II Practice & Plotting	-	4	60	3	40	60	100
<b>C-309</b>	Material Testing Practice	-	3	45	3	40	60	100
<b>C-310</b>	Hydraulics Practice	-	3	45	3	40	60	100
	<b>Total</b>	<b>26</b>	<b>16</b>	<b>630</b>		<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTION AND MODEL BLUE PRINT FOR EVALUATION**  
**CURRICULUM-2020**

**FOURTH SEMESTER**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Instruction Periods/Week</b>		<b>Total Periods Per Year</b>	<b>Scheme Of Examination</b>			
		<b>Theory</b>	<b>Practical</b>		<b>Duration (hrs)</b>	<b>Sessional Marks</b>	<b>End Exam Marks</b>	<b>Total Marks</b>
<b>THEORY</b>								
<b>C-401</b>	Engineering Mathematics-III	3		45	3	20	80	100
<b>C-402</b>	Design and Detailing of R.C.Structures	5		75	3	20	80	100
<b>C-403</b>	Quantity Surveying-I	5		75	3	20	80	100
<b>C-404</b>	Transportation Engineering	5		75	3	20	80	100
<b>C-405</b>	Irrigation Engineering	4		60	3	20	80	100
<b>PRACTICAL</b>								
<b>C-406</b>	Civil Engineering Drawing-II		6	90	3	40	60	100
<b>C-407</b>	Concrete & Soil Testing Practice		4	60	3	40	60	100
<b>C-408</b>	Communication Skills		3	45	3	40	60	100
<b>C-409</b>	Surveying-III Practice		3	45	3	40	60	100
<b>C-410</b>	CAD Practice-I		4	60	3	40	60	100
	<b>Total</b>	<b>22</b>	<b>20</b>	<b>630</b>		<b>300</b>	<b>700</b>	<b>1000</b>

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTION AND MODEL BLUE PRINT FOR EVALUATION**  
**CURRICULUM-2020**

**FIFTH SEMESTER**

Sub Code	Name of the Subject	Instruction Periods/Week		Total Periods Per Year	Scheme Of Examination			
		Theory	Practical		Duration (hrs)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
C-501	Steel Structures	4		60	3	20	80	100
C-502	Environmental Engineering	5		75	3	20	80	100
C-503	Quantity Surveying-II	4		60	3	20	80	100
C-504	Construction Failures, Repairs & Maintenance	3		45	3	20	80	100
C-505	Quality Control and Safety in Construction	4		60	3	20	80	100
C-506	Construction Management & Entrepreneurship	3		45	3	20	80	100
<b>PRACTICAL</b>								
C-507	Structural Engineering Drawing		3	45	3	40	60	100
C-508	Life Skills		3	45	3	40	60	100
C-509	Field Practices		7	105	3	40	60	100
C-510	CAD Practice-II		6	90	3	40	60	100
	<b>Total</b>	<b>23</b>	<b>19</b>	<b>630</b>		<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTION AND MODEL BLUE PRINT FOR EVALUATION**  
**CURRICULUM-2020**

**SIXTH SEMESTER**

Sl. No.	Subject	Duration	Scheme of evaluation		
			Item	Nature	Max. Marks
1	Industrial Training	6 months	1. First Assessment at Industry  (After 12 Weeks)	Assessment of Learning outcomes by both the faculty and training Mentor of the industry	120
			2. Second Assessment at the Industry  (After 22 weeks)	Assessment of Learning outcomes by both the faculty and training Mentor of the industry	120
			Final Summative assessment at institution I  (After 24 weeks)	Training Report	20
				Demonstration of any one of the skills listed in learning outcomes	30
<b>TOTAL MARKS</b>					<b>300</b>

- The Industrial Training shall carry 300 marks and pass mark is 50% in assessment at industry (first and second assessment put together) and in final summative assessment at institution put together
- If the student fails to secure 50% marks in final summative assessment at institution level, the student shall reappear for final summative assessment, in the subsequent board examination.
- During Industrial Training the candidate shall put in a minimum of 90% attendance. If the student fails to secure 90% attendance during industrial training, the student should reappear for 6 months industrial training.

3. Wisdom of social and environmental awareness along with ethical responsibility to have a successful career in the field of Electronics and Communication Engineering and to sustain passion and zeal for real-world applications in the field of Electronics using optimal resources as an Entrepreneur.

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**FIRST YEAR**

Subject Code	Name of the Subject	Instruction period / week		Total Period /year	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EC-101	English	3	-	90	3	20	80	100
EC-102	Engineering Mathematics - I	5	-	150	3	20	80	100
EC-103	Engineering Physics	4	-	120	3	20	80	100
EC-104	Engineering Chemistry & Environmental Studies	4	-	120	3	20	80	100
EC-105	Electronic components and Power Supplies	5	-	150	3	20	80	100
EC-106	Elements of Electrical Engineering	3	-	90	3	20	80	100
<b>PRACTICAL</b>								
EC-107	Engineering Drawing	-	6	180	3	40	60	100
EC-108	Electrical Wiring and Electronic components Lab	-	6	180	3	40	60	100

EC-109	109-A Physics Lab	-	1.5	45	3 (1.5+1.5)	20	30	100 (50+50)
	109-B Chemistry Lab		1.5	45		20	30	
EC-110	Computer Fundamentals Lab	-	3	90	3	40	60	100
	<b>TOTAL</b>	<b>24</b>	<b>18</b>	<b>1260</b>		<b>280</b>	<b>720</b>	<b>1000</b>

### **DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**

### **SCHEME OF INSTRUCTIONS AND EXAMINATIONS**

### **III SEMESTER**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical /Tutoria l		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EC- 301	Engineering Mathematics - II	4	-	60	3	20	80	100
EC -302	Electronic Circuits -I	4	-	60	3	20	80	100
EC -303	Digital Electronics	4	-	60	3	20	80	100
EC-304	Analog and Digital Communication Systems	4	-	60	3	20	80	100
EC-305	Network Analysis	5	-	75	3	20	80	100
EC - 306	Electronic Measurements & consumer gadgets	4	-	60	3	20	80	100
<b>PRACTICAL</b>								
EC-307	Electronic Circuits-I lab	-	6	90	3	40	60	100
EC-308	Digital Electronics lab	-	3	45	3	40	60	100
EC-309	Analog and Digital Communication systems Lab	-	4	60	3	40	60	100
EC-310	Measurements & Network Analysis Lab	-	4	60	3	40	60	100
<b>TOTAL</b>		<b>25</b>	<b>17</b>	<b>630</b>	-	<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**IV SEMESTER**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical /Tutoria l		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EC-401	Engineering Mathematics-III	3		45	3	20	80	100
EC- 402	Electronic Circuits-II	6	-	90	3	20	80	100
EC - 403	Microprocessors	6	-	90	3	20	80	100
EC-404	Microwave & Satellite Communication systems	5	-	75	3	20	80	100
EC-405	Programming in C & MATLAB	5	-	75	3	20	80	100
<b>PRACTICAL</b>								

EC - 406	Electronic Circuits-II Lab	-	4	60	3	40	60	100
EC - 407	Microprocessors lab	-	3	45	3	40	60	100
EC - 408	Communication skills	-	3	45	3	40	60	100
EC - 409	C & MATLAB practice laboratory	-	3	45	3	40	60	100
EC-410	Advanced Communications Lab	-	4	60	3	40	60	100
<b>TOTAL</b>		<b>30</b>	<b>12</b>	<b>630</b>	-	<b>300</b>	<b>700</b>	<b>1000</b>

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**V SEMESTER**

Subject Code	Name of the Subject	Instruction period / week		Total Periods / Sem	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EC -501	Industrial Management & Smart Technologies	5		75	3	20	80	100
EC-502	Microcontrollers And Applications	5	-	75	3	20	80	100
EC-503	Optical & Mobile Communications	5	-	75	3	20	80	100

EC-504	Industrial Electronics	5	-	75	3	20	80	100
EC-505	Computer Hardware &Networking	5	-	75	3	20	80	100
<b>PRACTICAL</b>								
EC-506	Microcontrollers lab	-	4	60	3	40	60	100
EC-507	Industrial Electronics Lab	-	4	60	3	40	60	100
EC-508	Life Skills	-	3	45	3	40	60	100
EC-509	Computer Hardware &Networking lab	-	3	45	3	40	60	100
EC-510	Project Work	-	3	45	3	40	60	100
<b>TOTAL</b>		<b>25</b>	<b>16</b>	<b>630</b>	-	<b>300</b>	<b>700</b>	<b>1000</b>

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**C-20-VI Semester**

**EC-601 INDUSTRIAL TRAINING**

SI.No.	Subject	Duration	Scheme of evaluation		
			Item	Nature	Max. Marks
1	Industrial Training	6 months	1.First Assessment at Industry (After 12 Weeks)	Assessment of learning outcomes by both the faculty and training mentor of the industry	120
			2.Second Assessment at the Industry (After 20 weeks))	Assessment of learning outcomes by both the faculty and training mentor of the industry	120
			Final Summative	Training Report	20

			<b>assessment at institution level</b>	<b>Demonstration of any one of the skills listed in learning outcomes</b>	<b>30</b>
				<b>Viva Voce</b>	<b>10</b>
<b>TOTAL MARKS</b>					<b>300</b>

The Industrial Training shall carry maximum 300 marks. Students can be trained in either in In-house/Industry/Cisco CCNA Training. Pass mark is 50% in first and second assessment put together and also 50% in final summative assessment at the institution level.

# FIRST YEAR

**DIPLOMA IN ELECTRICAL& ELECTRONICS ENGINEERING SCHEME OF INSTRUCTIONS  
AND EXAMINATIONS (FIRST YEAR)**

Subject Code	Name of the Subject	Instruction period /week		Total Period /year	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EE-101	English	3	-	90	3	20	80	100
EE-102	Engineering Mathematics - I	5	-	150	3	20	80	100
EE-103	Engineering Physics	4	-	120	3	20	80	100
EE-104	Engineering chemistry & Environmental studies	4	-	120	3	20	80	100
EE-105	Electrical Engineering Materials	3	-	90	3	20	80	100
EE-106	Basic Electrical Engineering	5	-	150	3	20	80	100
<b>PRACTICAL</b>								
EE-107	Engineering Drawing	-	6	180	3	40	60	100
EE-108	Electrical Workshop & Wiring Practice	-	6	180	3	40	60	100
EE-109	109-A Physics Laboratory Practice	-	3	90	1½	20	30	50
	109-B Chemistry Laboratory Practice		3	90	1½	20	30	50
EE-110	Comp. Fundamentals Laboratory	-	3	90	3	40	60	100
	<b>TOTAL</b>	<b>24</b>	<b>18</b>	<b>1260</b>		<b>280</b>	<b>720</b>	<b>1000</b>

DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING SCHEME OF INSTRUCTIONS AND EXAMINATIONS

**III SEMESTER**

Subject Code	Name of the Subject	Instruction period / week		Total Period /Sem	Scheme of Examination			
		Theory	Practical/Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EE- 301	Engineering Mathematics - II	4	-	60	3	20	80	100
EE -302	Electrical Machines- I (DC Machines)	4	-	60	3	20	80	100
EE -303	Power System –I ( Generation)	4	-	60	3	20	80	100
EE-304	Electrical & Electronic Measuring Instruments	4	-	60	3	20	80	100
EE-305	Electrical circuits	4	-	60	3	20	80	100
EE-306	PROGRAMMING IN "C"	4	-	60	3	20	80	100
<b>PRACTICAL</b>								
EE-307	Electrical Engineering Drawing – I	-	6	90	3	40	60	100
EE-308	Electrical Machines – I Laboratory	-	3	45	3	40	60	100
EE-309	(a) Programming in CLaboratory (b) Electrical CADLaboratory	-	3	45	$1\frac{1}{2}$	20	30	50
			3	45		20	30	50
EE-310	Electrical Circuits & Measuring Instruments Laboratory	-	3	45	3	40	60	100
	<b>TOTAL</b>	<b>24</b>	<b>18</b>	<b>630</b>		<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN ELECTRICAL& ELECTRONICS ENGINEERING SCHEME OF INSTRUCTIONS  
AND EXAMINATIONS**  
**IV Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical/Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EE - 401	Engineering Mathematics- III	3	-	45	3	20	80	100
EE - 402	Electrical Machines- II (Transformers & Alternators)	5	-	75	3	20	80	100
EE - 403	Power Systems – II (Transmission & Distribution)	4	-	60	3	20	80	100
EE - 404	Electrical Installation and Estimation	4	-	60	3	20	80	100
EE-405	Electronics Engineering	4	-	60	3	20	80	100
EE -406	GENERAL MECHANICAL ENGINEERING	4	-	60	3	20	80	100
<b>PRACTICAL</b>								
EE -407	Electrical Engineering Drawing -II	-	6	90	3	40	60	100
EE - 408	Communication Skills Laboratory	-	3	45	3	40	60	100
EE - 409	(A) Electrical Machines – II Laboratory	-	3	45	1 <sub>1/2</sub>	20	30	50
	(B) Field Practice in Electrical Engineering		3	45	1 <sub>1/2</sub>	20	30	50
EE - 410	Electronics Engineering Laboratory		3	45	3	40	60	100
<b>TOTAL</b>		<b>24</b>	<b>18</b>	<b>630</b>	<b>30</b>	<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN ELECTRICAL& ELECTRONICS ENGINEERING SCHEME OF INSTRUCTIONS  
AND EXAMINATIONS**  
**V Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period/Sem	Scheme of Examination			
		Theo ry	Practical/T utorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EE- 501	Industrial Management &Smart Technologies	4	-	60	3	20	80	100
EE- 502	Electrical Machines- III (A.C Motors and Drives )	4	-	60	3	20	80	100
EE- 503	Power Systems – III ( Switch Gear & Protection )	4	-	60	3	20	80	100
EE- 504	Power Electronics, PLC & SCADA	4	-	60	3	20	80	100
EE- 505	Digital Electronics & Micro Controllers	4	-	60	3	20	80	100
EE- 506	Electrical Utilization and Traction	4	-	60	3	20	80	100
<b>PRACTICAL</b>								
EE-507	Electrical Machines – III Laboratory	-	3	45	3	40	60	100
EE-508	Life skills	-	3	45	3	40	60	100
EE-509	(a) PLC &SCADA	-	3	45	1 $\frac{1}{2}$	20	30	50
	(b) Power Electronics & MAT Lab Practice	-	3	45	1 $\frac{1}{2}$	20	30	50
EE-510	Digital Electronics & Micro Controllers Lab	-	3	45	3	40	60	100
EE-511	Project Work	-	3	45	3	40	60	100
	<b>TOTAL</b>	<b>24</b>	<b>18</b>	<b>630</b>		<b>320</b>	<b>780</b>	<b>1100</b>

**DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**VI SEMESTER**  
**INDUSTRIAL TRAINING**

Sl. N o.	Cours e Title	Durati on	Scheme of evaluation			Remarks
			Item	Nature	Ma x. Ma rks	
1	Industr ial Trainin g	6 Months	1. First Assessment at training place/ Industry (After 12 Weeks)	Assessmen t of Learning outcomes by both the faculty and training Mentor of the industry	120	Pass marks is 50% in assessment at training place/industry (first and second assessment put together)
			2. Second Assessment at training place/Industry (After 20 weeks)	Assessmen t of Learning outcomes by both the faculty and training Mentor of the industry	120	
			Final Summative assessment at institution level after completion of training.	Training Report	20	Pass marks is 50% in final summative assessment
				Demonstra tion of any one of the skills listed in learning outcomes	30	
<b>TOTAL MARKS</b>				<b>300</b>		

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**I YEAR**

Course Code	Course Title	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
M-101	English	3	-	90	3	20	80	100
M-102	Engineering Mathematics-I	5	-	150	3	20	80	100
M-103	Engineering Physics	4	-	120	3	20	80	100
M-104	Engineering Chemistry & Environmental Studies	4	-	120	3	20	80	100
M-105	Engineering Mechanics	4	-	120	3	20	80	100
M-106	Workshop Technology	4	-	120	3	20	80	100
<b>PRACTICAL</b>								
M-107	Engineering Drawing	-	6	180	3	40	60	100
M-108	Basic Workshop Practice	-	6	180	3	40	60	100
M-109	109-A Physics Lab 109-B Chemistry Lab	-	3	90	3	40	60	100
M-110	Computer Fundamentals Lab Practice	-	3	90	3	40	60	100
<b>TOTAL</b>		<b>24</b>	<b>18</b>	<b>1260</b>		<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**III Semester**

Course Code	Course Title	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
M- 301	Engineering Mathematics - II	4	-	60	3	20	80	100
M -302	Engineering Materials	4	-	60	3	20	80	100
M -303	Basic Electrical& Electronics Engineering	4	-	60	3	20	80	100
M-304	Basic Thermodynamics	4	-	60	3	20	80	100
M-305	Strength of Materials	4	-	60	3	20	80	100
M-306	Production Technology-I	4	-	60	3	20	80	100
<b>PRACTICAL</b>								
M-307	Machine Drawing	-	6	90	3	40	60	100
M-308	Material Testing and Metallography Lab Practice	-	3	45	3	40	60	100
M-309	Fuels Laboratory Practice		3	45	3	40	60	100
M-310	Electrical Engineering Lab Practice	-	3	45	3	40	60	100
M-311	Workshop Practice -I	-	3	45	3	40	60	100
<b>TOTAL</b>		<b>24</b>	<b>18</b>	<b>630</b>		<b>320</b>	<b>780</b>	<b>1100</b>

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**

**IV Semester**

Course Code	Course Title	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
M – 401	Engineering Mathematics - III	3	-	45	3	20	80	100
M – 402	Design of Machine Members	5	-	75	3	20	80	100
M – 403	Hydraulics & Fluid Power Systems	5	-	75	3	20	80	100
M – 404	Heat Power Engineering-I	5	-	75	3	20	80	100
M – 405	Energy Sources and power plant Engineering	4	-	60	3	20	80	100
M – 406	Production Technology -II	5	-	75	3	20	80	100
<b>PRACTICAL</b>								
M – 407	Production Drawing	-	3	45	3	40	60	100
M – 408	Communication Skills Lab Practice	-	3	45	3	40	60	100
M – 409	Thermal Engineering Lab Practice	-	3	45	3	40	60	100
M – 410	Hydraulics & Fluid Power Systems Lab Practice	-	3	45	3	40	60	100
M-411	Workshop Practice- II	-	3	45	3	40	60	100
<b>TOTAL</b>		<b>27</b>	<b>15</b>	<b>630</b>		<b>320</b>	<b>780</b>	<b>1100</b>

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**

V Semester

Course Code	Course Title	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
M-501	Industrial Management and Entrepreneurship	5	-	75	3	20	80	100
M-502	Industrial Engineering and Estimation & Costing	5	-	75	3	20	80	100
M-503	Theory of Machines	4	-	60	3	20	80	100
M-504	Heat Power Engineering-II	4	-	60	3	20	80	100
M-505	Refrigeration and Air Conditioning	5	-	75	3	20	80	100
M-506	Computer Aided Manufacturing Systems	4	-	60	3	20	80	100
<b>PRACTICAL</b>								
M-507	507-A CAD Lab Practice 507-B CAM Lab Practice	-	3+3	45+45	3	20 20	30 30	100
M-508	Life skills Lab Practice	-	3	45	3	40	60	100
M-509	R&AC Lab Practice	-	3	45	3	40	60	100
M-510	Project Work	-	3	45	3	40	60	
<b>TOTAL</b>		<b>27</b>	<b>15</b>	<b>630</b>		<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**VI Semester**

**INDUSTRIAL TRAINING**

S.I.N o.	Course	Duration	Scheme of Evaluation		
			Assessment	Nature	Max. Marks
1	<i>Industrial Training</i>	<i>6 months</i>	<i>1. First Assessment at Industry (After 12 Weeks)</i>	<i>Assessment of Learning outcomes by both the faculty and training Mentor of the industry</i>	<i>120</i>
			<i>2. Second Assessment at the Industry (After 22 weeks)</i>	<i>Assessment of Learning outcomes by both the faculty and training Mentor of the industry</i>	<i>120</i>
			<i>Final Summative assessment at institution level</i>	<i>Training Report</i>	<i>20</i>
				<i>Demonstration of any one of the skills listed in learning outcomes</i>	<i>30</i>

				<i>Viva Voce</i>	<b>10</b>
<b>TOTAL MARKS</b>				<b>300</b>	

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATION**

**CURRICULUM-2016**

**FIRST YEAR**

Sub Code	Name of the Subject	Instruction Periods/Week		Total Periods Per Year	Scheme Of Examination			
		Theor	Practical		Duration (hrs)	Sessional Marks	End Exam Marks	Total Marks

**THEORY SUBJECTS**

C-101	English-I	3	-	90	3	20	80	100
C-102	Engineering Mathematics – I	5	-	150	3	20	80	100
C-103	Engineering Physics	4	-	120	3	20	80	100
C-104	Engineering Chemistry and Environmental studies	4	-	120	3	20	80	100
C-105	Surveying – 1	5	-	150	3	20	80	100
C-106	Engineering Mechanics	5	-	150	3	20	80	100

**PRACTICAL SUBJECTS**

C-107	Engineering Drawing	-	6	180	3	40	60	100
C-108	Surveying - I Practice & Plotting	-	4	120	3	40	60	100
C-109	Physics Laboratory	-	3	90	3	20	30	50
C-110	Chemistry Laboratory	-			3	20	30	50
C-111	Computer Fundamentals laboratory	-	3	90	3	40	60	100
	<b>Total</b>	<b>26</b>	<b>16</b>	<b>1260</b>	<b>-</b>	<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATION**  
**CURRICULUM-2016**  
**III SEMESTER**

Sub Code	Name of the Subject	Instruction Periods/Week		Total Periods Per Semester	Scheme Of Examinations			
		Theor y	Practicals		Duration (hrs)	Sessional Marks	End Exa m Mark s	Total Mark s
<b>THEORY SUBJECTS</b>								
C-301	Engineering Mathematics-II	5	-	75	3	20	80	100
C-302	Strength of Materials & Theory of Structures	6	-	90	3	20	80	100
C-303	Hydraulics	6	-	90	3	20	80	100
C-304	Surveying-II	5	-	75	3	20	80	100
C-305	Construction Materials	4	-	60	3	20	80	100
<b>PRACTICAL SUBJECTS</b>								
C-306	Civil Engineering Drawing-I	-	6	90	3	40	60	100
C-307	Material Testing Laboratory	-	3	45	3	40	60	100
C-308	Surveying - II Practice & Plotting	-	4	60	3	40	60	100
C-309	Hydraulics Laboratory	-	3	45	3	40	60	100
	<b>Total</b>	<b>26</b>	<b>16</b>	<b>630</b>	-	<b>260</b>	<b>640</b>	<b>900</b>

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATION**

**CURRICULUM-2016**

**IV SEMESTER**

Sub Code	Name of the Subject	Instruction Periods/Week		Total Periods Per Semester	Scheme Of Examinations			
		Theor y	Prac ticals		Duration (hrs)	Sessiona l Marks	End Exam Marks	Total Marks
<b>THEORY SUBJECTS</b>								
C-401	Reinforced Concrete Structures	6	-	90	3	20	80	100
C-402	Irrigation Engineering	4	-	60	3	20	80	100
C-403	Quantity Surveying	6	-	90	3	20	80	100
C-404	Transportation Engineering	5	-	75	3	20	80	100
C-405	Construction Practice	4	-	60	3	20	80	100
<b>PRACTICAL SUBJECTS</b>								
C-406	Civil Engineering Drawing-II	-	4	60	3	40	60	100
C-407	CAD Practice - I	-	6	90	3	40	60	100
C-408	Communication skills	-	3	45	3	40	60	100
C-409	Building Construction Practices	-	4	60	3	40	60	100
	<b>Total</b>	<b>25</b>	<b>17</b>	<b>630</b>	<b>-</b>	<b>260</b>	<b>640</b>	<b>900</b>

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATION**

**CURRICULUM-2016**

**V Semester**

<b>Sub Code</b>	<b>Name of the Subject</b>	<b>Instruction Periods/Week</b>		<b>Total Periods Per Semester</b>	<b>Scheme Of Examinations</b>			
		<b>Theor y</b>	<b>Practi cals</b>		<b>Duration (hrs)</b>	<b>Sessional Marks</b>	<b>End Exam Mark s</b>	<b>Total Marks</b>
<b>THEORY SUBJECTS</b>								
<b>C-501</b>	Steel Structures	5	-	75	3	20	80	100
<b>C-502</b>	Construction Technology and Project Management	5	-	75	3	20	80	100
<b>C-503</b>	Environmental Engineering	6	-	90	3	20	80	100
<b>C-504</b>	Geotechnical Engineering	4	-	60	3	20	80	100
<b>C-505</b>	Advanced Civil Engineering Technologies	6	-	90	3	20	80	100
<b>PRACTICAL SUBJECTS</b>								
<b>C-506</b>	Civil Engineering Drawing-III	-	4	60	3	40	60	100
<b>C-507</b>	CAD Practice - II	-	6	90	3	40	60	100
<b>C-508</b>	Life skills	-	3	45	3	40	60	100
<b>C-509</b>	Civil Engineering Workshop	-	3	45	3	40	60	100
	<b>Total</b>	<b>26</b>	<b>16</b>	<b>630</b>	-	<b>260</b>	<b>640</b>	<b>900</b>

**C-601 INDUSTRIAL TRAINING  
(Practical Training)**

**VI SEMESTER**

**Scheme of evaluation:**

<b>S.No</b>	<b>Subject</b>	<b>Duration</b>	<b>Items</b>	<b>Max Marks</b>	<b>Remarks</b>
1	Practical Training in the Industry	6 Months	1. First Assessment (at the end of 3rd month)	100	
			2. Second Assessment (at the end of 6th month)	100	
			3. Training report i) Log Book	30	
			ii) Report	30	
			4. Seminar	40	
<b>Total :</b> <b>300</b>					

The industrial training shall carry 300 marks and pass marks are 50%. A candidate failing to secure the minimum marks should complete it at his own expenses.

During Industrial training the candidate shall put in a minimum of 90% attendance.

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**

**(FIRST YEAR)**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EC-101	English	3	-	90	3	20	80	100
EC-102	Engineering Mathematics - I	5	-	150	3	20	80	100
EC-103	Engineering Physics	4	-	120	3	20	80	100
EC-104	Engineering Chemistry & Environmental Studies	4	-	120	3	20	80	100
EC-105	Electronic Devices & Power Supplies	5	-	150	3	20	80	100
EC-106	Elements of Electrical Engineering	4	-	120	3	20	80	100
<b>PRACTICAL:</b>								
EC-107	Engineering Drawing	-	6	180	3	40	60	100
EC-108	Basic Electronics Laboratory& wiring fundamentals	-	5	150	3	40	60	100
EC-109	Physics Laboratory	-	3	90	3	20	30	50
EC-110	Chemistry Laboratory	-			3	20	30	50
EC-111	Computer Fundamentals Laboratory	-	3	90	3	40	60	100
<b>TOTAL</b>		24	18	1260	-	280	720	1000

EC-101, 102, 103,104, 107, 109, 110, 111 common with all branches

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**DECE III Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
THEORY:								
EC- 301	Engineering Mathematics - II	5	-	75	3	20	80	100
EC -302	Electronic Circuits	6	-	90	3	20	80	100
EC -303	Digital Electronics	6	-	90	3	20	80	100
EC-304	Analog and Digital Communication Systems	6	-	90	3	20	80	100
EC-305	Network Analysis	6	-	90	3	20	80	100
PRACTICAL:								
EC-306	Electronic Circuits lab	-	3	45	3	40	60	100
EC-307	Digital Electronics lab	-	4	60	3	40	60	100
EC-308	Analog and Digital Communication systems Lab	-	3	45	3	40	60	100
EC-309	Communication Skills Practice	-	3	45	3	40	60	100
TOTAL		29	13	630	-	260	640	900

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING (DECE)**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**IV Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EC - 401	Linear ICs and Applications	6	-	90	3	20	80	100
EC - 402	Programming in C and MATLAB	6	-	90	3	20	80	100
EC - 403	Microprocessors	6	-	90	3	20	80	100
EC - 404	Electronic Measurements & consumer gadgets	6	-	90	3	20	80	100
EC-405	Microwave & Satellite Communication systems	6	-	90	3	20	80	100
<b>PRACTICAL:</b>								
EC - 406	Linear ICs Lab	-	3	45	3	40	60	100
EC - 407	Microprocessors lab	-	3	45	3	40	60	100
EC - 408	C & MATLAB practice laboratory	-	3	45	3	40	60	100
EC - 409	Consumer Electronics & Measurements Lab	-	3	45	3	40	60	100
<b>TOTAL</b>		30	12	630	-	260	640	900

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**V Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
THEORY:								
EC -501	Industrial Management & Smart Technologies	5		75	3	20	80	100
EC-502	Microcontrollers	6	-	90	3	20	80	100
EC-503	Computer Hardware & Networking	6	-	90	3	20	80	100
EC-504	Optical & Mobile Communications	6	-	90	3	20	80	100
EC-505	Industrial Electronics	6	-	90	3	20	80	100
PRACTICAL:								
EC-506	Advanced Communications & Networking Lab	-	4	60	3	40	60	100
EC-507	Microcontrollers lab	-	3	45	3	40	60	100
EC-508	Life Skills	-	3	45	3	40	60	100
EC-509	Industrial Electronics Lab	-	3	45	3	40	60	100
TOTAL		29	13	630	-	260	640	900

**DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**

**C-16-VI SEMESTER**  
**EC - 601 INDUSTRIAL TRAINING**

S.NO	Subject	Duration	Items	Max Marks	Remarks
1	<b>Practical Training in the Industry</b>	<b>6 Months</b>	<b>1. First Assessment (at the end of 3<sup>rd</sup> month)</b>	<b>100</b>	
			<b>2. Second Assessment (at the end of 6<sup>th</sup> month)</b>	<b>100</b>	
			<b>3. Training Report</b> a) Log Book	<b>30</b>	
			b) Record	<b>30</b>	
			<b>4. Seminar</b>	<b>40</b>	
<b>TOTAL</b>				<b>300</b>	

The industrial training shall carry **300** marks and pass marks are **50%**.A candidate failing to secure the minimum marks should complete it at his own expenses. No apprenticeship training stipend is payable in such case

During Industrial training the candidate shall put in a minimum of **90%** attendance.

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**(FIRST YEAR)**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EE-101	English	3	-	90	3	20	80	100
EE-102	Engineering Mathematics - I	5	-	150	3	20	80	100
EE-103	Engineering Physics	4	-	120	3	20	80	100
EE-104	Engineering Chemistry and Environmental Studies	4	-	120	3	20	80	100
EE-105	Electrical Engineering Materials	3	-	90	3	20	80	100
EE-106	Basic Electrical Engineering	5	-	150	3	20	80	100
<b>PRACTICAL:</b>								
EE-107	Engineering Drawing	-	6	180	3	40	60	100
EE-108	Basic Electrical and Electronics Laboratory	-	6	180	3	40	60	100
EE-109	Physics Laboratory	-	3	90	3	20	30	50
EE-110	Chemistry Laboratory				3	20	30	50
EE-111	Computer Fundamentals Laboratory	-	3	90	3	40	60	100
<b>TOTAL</b>		24	18	1260	-	290	710	1000

01,102,103,104,107,109,110 &111 Common with all branches

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**C-16 - ( THIRD SEMESTER )**

Subject Code	Name of the Subject	Instruction Period/Week		Total Period/Sem	Scheme of Examination			
		Theory	Practical/Tutorial		Duration ( Hours )	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EE-301	Engg mathematics -II	5		75	3	20	80	100
EE-302	D.C. machines & measuring instruments	5		75	3	20	80	100
EE-303	Electrical circuits	5		75	3	20	80	100
EE-304	General mechanical engg	5		75	3	20	80	100
EE-305	Electronics engg - I	4		60	3	20	80	100
<b>Practical</b>								
EE-306	Dc machines & Measurements lab		6	90	3	40	60	100
EE-307	Electrical wiring & Maintenance lab		6	90	3	40	60	100
EE-308	C-language lab		3	45	3	40	60	100
EE-309	Electronics Engg lab – i		3	45	3	40	60	100
<b>Total</b>		24	18	630	27	260	640	900

**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**( FOURTH SEMESTER )**

Subject Code	Name of the Subject	Instruction Period/Week		Total Period/Sem	Scheme of Examination			
		Theory	Practical/Tutorial		Duration ( Hours )	Sessional Marks	End Exam Marks	Total Marks
<b>Theory</b>								
EE-401	A.C. machines -I	5		75	3	20	80	100
EE-402	Power systems -I( G& P)	5		75	3	20	80	100
EE-403	Electrical utilization & traction	5		90	3	20	80	100
EE-404	Electrical installation & estimation	4		60	3	20	80	100
EE-405	Electronics Engg - II	5		75	3	20	80	100
<b>Practical</b>								
EE-406	Electrical engg drawing		7	90	3	40	60	100
EE-407	A.C. machines -I laboratory		4	60	3	40	60	100
EE-408	Communication skills lab		3	45	3	40	60	100
EE-409	Electronics lab - ii		4	60	3	40	60	100
<b>Total</b>		24	18	630	27	260	640	900

NOTE: EE-403 : INCLUDES INDUSTRIAL DRIVES

**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**( FIFTH SEMESTER )**

Subject Code	Name of the Subject	Instruction Period/Week		Total Period/Sem	Scheme of Examination			
		Theory	Practical/Tutorial		Duration ( Hours )	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
EE-501	Industrial management & smart technologies	5		75	3	20	80	100
EE-502	A.C. machines-II	5		75	3	20	80	100
EE-503	Power systems -II (T,D & P)	5		75	3	20	80	100
EE-504	Power electronics & PLC	5		75	3	20	80	100
EE-505	Digital electronics & Micro controllers	5		75	3	20	80	100
<b>Practical</b>								
EE-506	A.C. machines laboratory-II		4	60	3	40	60	100
EE-507	Power electronics & PLC lab		6	90	3	40	60	100
EE-508	Life skills		3	45	3	40	60	100
EE-509	Digital electronics & Micro controllers Lab		4	60	3	40	60	100
<b>Total</b>		25	17	630	27	260	640	900

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**

**C-16-VI SEMESTER**  
**EE - 601 INDUSTRIAL TRAINING**

S.NO	Subject	Duration	Items	Max Marks	Remarks	
1	<b>Practical Training in the Industry</b>	<b>6 Months</b>	<b>1. First Assessment (at the end of 3<sup>rd</sup> month)</b>	<b>100</b>		
			<b>2. Second Assessment (at the end of 6<sup>th</sup> month)</b>	<b>100</b>		
			<b>3. Training Report</b>			
			a) Log Book	30		
			b) Record	30		
		<b>4. Seminar</b>		<b>40</b>		
<b>TOTAL</b>		<b>300</b>				

The industrial training shall carry **300** marks and pass marks are **50%**. A candidate failing to secure the minimum marks should complete it at his own expenses. No apprenticeship training stipend is payable in such case.

During Industrial training the candidate shall put in a minimum of **90%** attendance.

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTION AND EXAMINATION**  
**CURRICULUM-16**

**First Year**

Sub code	C16-Subjects	No of Periods per week		Total periods per year	Scheme of Examination			
		Theory	Practical		Duration (Hrs)	Sessional Marks	End Exam Marks	Total Marks
THEORY								
M-101	English	3		90	3	20	80	100
M-102	Engineering Mathematics-I	5		150	3	20	80	100
M-103	Engineering Physics	4		120	3	20	80	100
M-104	Engineering Chemistry & Environmental Studies	4		120	3	20	80	100
M-105	Engineering Mechanics	4		120	3	20	80	100
M-106	Workshop Technology	4		120	3	20	80	100
PRACTICAL								
M-107	Engineering Drawing		6	180	3	40	60	100
M-108	Basic Workshop Practice		6	180	3	40	60	100
M-109	Physics laboratory		1½	45	1½	20	30	50
M-110	Chemistry Laboratory		1½	45	1½	20	30	50
M-111	Computer Fundamentals Laboratory		3	90	3	40	60	100
<b>T O T A L</b>		<b>24</b>	<b>18</b>	<b>1260</b>		<b>280</b>	<b>720</b>	<b>1000</b>

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTION AND EXAMINATION**  
**CURRICULUM-16**

**III Semester**

Sub code	C16-Subjects	No of Periods per week		Total periods per semester	Scheme of Examination			
		Theory	Practice		Duration (Hrs)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
M-301	Engineering Mathematics-II	5		75	3	20	80	100
M-302	Strength of Materials	6		90	3	20	80	100
M-303	Thermal Engineering-I	6		90	3	20	80	100
M-304	Production Technology-I	5		75	3	20	80	100
M-305	Basic Electrical Engineering & Electronics	5		75	3	20	80	100
<b>PRACTICAL</b>								
M-306	Machine Drawing		6	90	3	40	60	100
M-307	Fuels lab and Electrical Engineering Lab		3	45	3	20+20	30+30	100
M-308	Materials testing lab		3	45	3	40	60	100
M-309	Workshop Practice-II		3	45	3	40	60	100
	<b>T O T A L</b>	<b>27</b>	<b>15</b>	<b>630</b>		<b>260</b>	<b>640</b>	<b>900</b>

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTION AND EXAMINATION**  
**CURRICULUM-16**

**IV Semester**

Sub code	C16-Subjects	No of Periods per week		Total periods per semester	Scheme of Examination			
		Theory	Practice		Duration (Hrs)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
M-401	Engineering Materials	6		90	3	20	80	100
M-402	Hydraulics and Fluid Power Control Systems	6		90	3	20	80	100
M-403	Thermal Engineering II	6		90	3	20	80	100
M-404	Production technology-II	6		90	3	20	80	100
M-405	Design of Machine Elements	6		90	3	20	80	100
<b>PRACTICAL</b>								
M-406	Production Drawing			3	45	3	40	60
M-407	Hydraulics & Fluid Power Control Systems Lab			3	45	3	40	60
M-408	Communication Skills			3	45	3	40	60
M-409	Thermal Engineering Lab			3	45	3	40	60
	<b>T O T A L</b>	<b>30</b>	<b>12</b>	<b>630</b>		<b>240</b>	<b>560</b>	<b>800</b>

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTION AND EXAMINATION**  
**CURRICULUM-16**

**V Semester**

Sub code	C16-Subjects	No of Periods per week		Total periods per semester	Scheme of Examination			
		Theory	Practice		Duration (Hrs)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY</b>								
M-501	Industrial Management & Smart Technologies	5		75	3	20	80	100
M-502	Industrial Engineering - Estimating and Costing	6		90	3	20	80	100
M-503	Refrigeration & Air-conditioning	5		75	3	20	80	100
M-504	Energy sources & Power Plant Engineering	5		75	3	20	80	100
M-505	Computer Aided Manufacturing systems	5		75	3	20	80	100
<b>PRACTICAL</b>								
M-506	Computer Aided Drafting & CNC lab		6	90	3	40	60	100
M-507	Non-Conventional Energy sources and R&AC lab		3	45	3	40	60	100
M-508	Life Skills		3	45	3	40	60	100
M-509	Workshop Practice - III		4	60	3	40	60	100
	<b>T O T A L</b>	<b>26</b>	<b>16</b>	<b>630</b>		<b>260</b>	<b>640</b>	<b>900</b>

**M-601 INDUSTRIAL TRAINING**  
**(Practical Training)**

**VI SEMESTER**

**Scheme of evaluation:**

S.No	Subject	Duration	Items	Max Marks	Remarks
1	M-601 Practical Training in the Industry	6 Months	1. First Assessment (at the end of 3rd month)	100	
			2. Second Assessment (at the end of 6th month)	100	
			3. Training report i) Log Book	30	
			ii) Report	30	
			4. Seminar	40	
<b>Total :</b>				<b>300</b>	

The industrial training shall carry 300 marks and pass marks are 50%. A candidate failing to secure the minimum marks should complete it at his own expenses.

During Industrial training the candidate shall put in a minimum of 90% attendance.

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**FIRST YEAR**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
CE- 101	English	3	-	90	3			100
CE-102	Mathematics - I	5	-	150	3			100
CE-103	Engineering Physics	4	-	120	3			100
CE-104	Engineering Chemistry & Environmental Studies	4	-	120	3			100
CE-105	Engineering Mechanics	5	-	150	3			100
CE-106	Surveying-I	3	-	90	3			100
<b>PRACTICAL:</b>								
CE- 107	Engineering Drawing	-	6	180	3			100
CE-108	Surveying - I Practice & Plotting	-	6 (4+2)	180	3			100
CE-109	109-A Physics Lab 109-B Chemistry Lab	-	3	90	3 (1.5+1.5)			100 (50+50)
CE- 110	Computer Fundamentals Practice	-	3	90	3			100
<b>TOTAL</b>		24	18	1260				1000

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**III Semester (SECOND YEAR)**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
CE-301	Mathematics - II	4	-	60	3			100
CE-302	Mechanics of Solids	4	-	60	3			100
CE-303	Hydraulics	5	-	75	3			100
CE-304	Surveying - II	3	-	45	3			100
CE-305	Construction Materials	4	-	60	3			100
CE-306	Construction Practice	4	-	60	3			100
<b>PRACTICAL:</b>								
CE-307	Civil Engineering Drawing - I	-	6	90	3			100
CE-308	Surveying - II Practice & Plotting	-	6 (4+2)	90	3			100
CE-309	Material Testing Practice	-	3	45	3			100
CE-310	Hydraulics Practice	-	3	45	3			100
<b>TOTAL</b>		24	18	630	-			900

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**IV Semester**

**TIME SCHEDULE**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practic al		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
CE - 401	Mathematics - III	4	-	60	3			100
CE - 402	Theory of Structures	5	-	75	3			100
CE - 403	Quantity Surveying - I	5	-	75	3			100
CE - 404	Surveying – III	4	-	60	3			100
CE - 405	Transportation Engineering	5	-	75	3			100
<b>PRACTICAL:</b>								
CE - 406	CAD Practice		6	90	3			100
CE - 407	Building Services Drawing	-	3	45	3			100
CE - 408	Communication skills Lab Practice	-	3	45	3			100
CE - 409	Surveying - III Practice Communication Skills Practice	-	7	105	3			100
<b>TOTAL</b>		23	19	630				900

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**V Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
CE-501	Design & Detailing of R.C. Elements	5	-	75	3			100
CE-502	Environmental Engineering - I	4		60	3			100
CE-503	Quantity Surveying - II	5	-	75	3			100
CE-504	Irrigation Engineering	5	-	75	3			100
CE-505	Project Management for Construction	4	-	60	3			100
<b>PRACTICAL:</b>								
CE-506	Computer Applications for Project Management		3	45	3			100
CE-507	Civil Engineering Drawing - II	-	6	90	3			100
CE-508	Life skills	-	3	45	3			100
CE-509	Field practices	-	7	105	3			100
<b>TOTAL</b>		23	19	630				900

**DIPLOMA IN CIVIL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**VI Semester**

**TIME SCHEDULE**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
CE- 601	Steel Structures	5	-	75	3			100
CE -602	Environmental Engineering - II	4	-	60	3			100
CE -603	Construction Technology & Valuation	5	-	75	3			100
CE -604	Construction Failures & Repairs	5	-	75	3			100
CE -605	Quality Control & Safety in Construction	4	-	60	3			100
<b>PRACTICAL:</b>								
CE- 606	Civil Engineering Workshop	-	3	45	3			100
CE -607	S.E. Drawing	-	6	90	3			100
CE -608	Construction Technology Practice	-	3	45	3			100
CE -609	Project Work	-	7	105	3			100
<b>TOTAL</b>		23	19	630				900

**DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING**

**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**

**(FIRST YEAR)**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EC-101	English	3	-	90	3			100
EC-102	Engineering Mathematics - I	5	-	150	3			100
EC-103	Engineering Physics	4	-	120	3			100
EC-104	Engineering Chemistry &Environmental Studies	4	-	120	3			100
EC-105	Basic Electrical & Electronics Engineering	4	-	120	3			100
EC-106	Engineering Materials & Practices	4	-	120	3			100
<b>PRACTICAL:</b>								
EC-107	Engineering Drawing Practice	-	6	180	3			100
EC-108	Basic Electronic Workshop Practice	-	6	180	3			100
EC-109	109-A Engineering Physics Lab practice 109-B Engineering Chemistry Lab practice	-	3	90	3 (1.5+1.5)			100 (50+50)
EC-110	Computer fundamentals Lab practice	-	3	90	3			100
<b>TOTAL</b>		24	18	1260				1000

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERINGSCHEME OF  
INSTRUCTIONS AND EXAMINATIONS**  
**III Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EC- 301	Mathematics - II	4	-	60	3	20	80	100
EC -302	Electronic Devices & Circuits	4	-	60	3	20	80	100
EC -303	Electronic Measuring Instruments	4	-	60	3	20	80	100
EC-304	Analogue communication	4	-	60	3	20	80	100
EC-305	Digital Electronics	4	-	60	3	20	80	100
EC-306	Electrical Technology	4	-	60	3	20	80	100
<b>PRACTICAL:</b>								
EC-307	EDC lab	-	6	90	3	40	60	100
EC-308	Analogue Communication Lab	-	3	45	3	40	60	100
EC-309	Digital Electronics & CAD tools lab	-	6	90	3	40	60	100
EC-310	Electrical Technolgy Lab	-	3	45	3	40	60	100
<b>TOTAL</b>		24	18	630		280	720	1000

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERINGSCHEME OF  
INSTRUCTIONS AND EXAMINATIONS  
IV Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EC - 401	Mathematics - III	4		60	3	20	80	100
EC - 402	Linear Integrated Circuits	5		75	3	20	80	100
EC - 403	Network Analysis	5		75	3	20	80	100
EC - 404	Digital Communications	4		60	3	20	80	100
EC - 405	Microprocessor & Microcontroller Programming	4		60	3	20	80	100
EC - 406	Programming in C	4		60	3	20	80	100
<b>PRACTICAL:</b>								
EC - 407	Linear Integrated Circuits Lab	-	4	60	3	40	60	100
EC - 408	Communication Skills	-	3	45	3	40	60	100
EC - 409	Digital Communication Lab	-	6	90	3	40	60	100
EC - 410	C and Matlab		3	45	3	40	60	100
<b>TOTAL</b>		26	16	630		280	720	1000

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERINGSCHEME OF  
INSTRUCTIONS AND EXAMINATIONS**  
**V Semester**

Subject Code	Name of the Subject	Instruction		Total Period / Sem	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam	Total
<b>THEORY:</b>								
EC-501	Advanced Communications	4	-	60	3	20	80	100
EC-502	Consumer Electronics	4	-	60	3	20	80	100
EC-503	Computer Hardware	4	-	60	3	20	80	100
EC-504	Optical Fibre Communication	4	-	60	3	20	80	100
EC-505	Microcontroller Applications	4	-	60	3	20	80	100
EC-506	Data communication & Computer Networking	4	-	60	3	20	80	100
<b>PRACTICAL:</b>								
EC-507	Computer HW & Networking Lab	-	6	90	3	40	60	100
EC-508	<b>Life Skills</b>	-	3	45	3	40	60	100
EC-509	Microcontroller applications lab	-	3	45	3	40	60	100
EC-510	Field Practices	-	6	90	3	40	60	100
<b>TOTAL</b>		24	18	630		280	720	1000

**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**VI Semester**

Subject Code	Name of the Subject	Instruction		Total Period / Sem	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam	Total
<b>THEORY:</b>								
EC- 601	Industrial Management Entrepreneurship	4	-	60	3	20	80	100
EC-602	Industrial Electronics	4	-	60	3	20	80	100
EC - 603	Electronic Circuit Design &Quality	4	-	60	3	20	80	100
EC - 604	Mobile Communications	4	-	60	3	20	80	100
EC - 605	Advanced Microcontrollers &	4	-	60	3	20	80	100
EC - 606	Digital Circuit Design through Verilog HDL	4	-	60	3	20	80	100
<b>PRACTICAL:</b>								
EC- 607	Industrial Electronics Lab	-	6	90	3	40	60	100
EC -608	VHDL Programming Lab	-	3	45	3	40	60	100
EC -609	Advanced Microcontroller Lab	-	3	45	3	40	60	100
EC -610	Project work	-	6	90	3	40	60	100
<b>TOTAL</b>		24	18	630		280	720	1000

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**(FIRST YEAR)**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/Tutorial		DURATION (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EE-101	English	3	-	90	3	20	80	100
EE-102	Engineering Mathematics - I	5	-	150	3	20	80	100
EE-103	Engineering Physics	4	-	120	3	20	80	100
EE-104	Engineering Chemistry & Environmental Studies	4	-	120	3	20	80	100
EE-105	Electrical Engineering Materials	3	-	90	3	20	80	100
EE-106	Basic Electrical Engineering	5	-	150	3	20	80	100
<b>PRACTICAL:</b>								
EE-107	Engineering Drawing	-	6	180	3	40	60	100
EE-108	108-Basic Electrical & Electronics Laboratory Practice	-	6	180	3	40	60	100
EE-109	109-A Physics Laboratory Practice 109-B Chemistry Laboratory Practice	-	3	90	1½	20	30	50
					1½	20	30	50
EE-110	Comp. Fundamentals Laboratory Practice	-	3	90	3	40	60	100
TOTAL		24	18	1260		280	720	1000

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**

**III Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical/Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EE- 301	Engineering Mathematics - II	4	-	60	3	20	80	100
EE -302	DC Machines	4	-	60	3	20	80	100
EE -303	Electric circuits	4	-	60	3	20	80	100
EE-304	Electrical & Electronic Measuring Instruments	4	-	60	3	20	80	100
EE-305	Electronics-I	4	-	60	3	20	80	100
EE-306	General Mechanical Engineering	4	-	60	3	20	80	100
<b>PRACTICAL:</b>								
EE-307	Circuits and Measurements Laboratory Practice	-	6	90	3	40	60	100
EE-308	Electrical Workshop Practice	-	3	45	3	40	60	100
EE-309	DC Machines Laboratory Practice	-	6	90	3	40	60	100
EE-310	Electronics-I Laboratory Practice	-	3	45	3	40	60	100
<b>TOTAL</b>		24	18	630		280	720	1000

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**IV Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical/Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EE - 401	Engineering Mathematics - III	4		60	3	20	80	100
EE - 402	A.C. Machines - I	5		75	3	20	80	100
EE - 403	Power Systems – I (Generation)	5		75	3	20	80	100
EE - 404	Electrical Installation and Estimation	4		60	3	20	80	100
EE - 405	Electronics -II	4		60	3	20	80	100
EE - 406	Programming in C	4		60	3	20	80	100
<b>PRACTICAL:</b>								
EE - 407	Electrical Engineering Drawing	-	7	105	3	40	60	100
EE - 408	Communication Skills Practice	-	3	45	3	40	60	100
EE - 409	A.C. Machines-I Laboratory Practice	-	3	45	3	40	60	100
EE - 410	Electronics-II Laboratory Practice		3	45	3	40	60	100
<b>TOTAL</b>		26	16	630		280	720	1000

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**V Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EE-501	Electrical Utilisation	4	-	60	3	20	80	100
EE-502	A.C.Machines - II	4	-	60	3	20	80	100
EE-503	Power Systems – II (T&D)	5	-	75	3	20	80	100
EE-504	Industrial Drives	3	-	45	3	20	80	100
EE-505	Digital Electronics	4	-	60	3	20	80	100
EE-506	Maintenance of Electrical Systems	4	-	60	3	20	80	100
<b>PRACTICAL:</b>								
EE-507	Matlab Practice	-	6	90	3	40	60	100
EE-508	Life skills	-	3	45	3	40	60	100
EE-509	A.C.Machines – II Laboratory Practice	-	3	45	3	40	60	100
EE-510	Field Practices	-	6	90	3	40	60	100
<b>TOTAL</b>		24	18	630		280	720	1000

**DIPLOMA IN ELECTRICAL & ELECTRONICS ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**VI Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / Sem	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
EE- 601	Industrial Management	4	-	60	3	20	80	100
EE-602	Electric Traction	4	-	60	3	20	80	100
EE - 603	Power Systems – III (Switch Gear and Protection)	4	-	60	3	20	80	100
EE - 604	Power Electronics	4	-	60	3	20	80	100
EE - 605	Micro Controllers and Applications	4	-	60	3	20	80	100
EE - 606	Industrial Automation	4	-	60	3	20	80	100
<b>PRACTICAL:</b>								
EE- 607	Electrical CAD & Project Management Practice	-	6	90	3	40	60	100
EE -608	Digital Electronics & Micro Controller Laboratory Practice	-	3	45	3	40	60	100
EE -609	Power Electronics & PLC Laboratory Practice	-	3	45	3	40	60	100
EE -610	Project work	-	6	90	3	40	60	100
<b>TOTAL</b>		24	18	630		280	720	1000

**DIPLOMA IN MECHANICAL ENGINEERING**

**SCHEME OF INSTRUCTIONS AND EXAMINATIONS  
(FIRST YEAR)**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
ME-101	English	3	-	90	3			100
ME-102	Engineering Mathematics - I	5	-	150	3			100
ME-103	Engineering Physics	4	-	120	3			100
ME-104	Engineering Chemistry &Environmental Studies	4	-	120	3			100
ME-105	Engineering Mechanics	4	-	120	3			100
ME-106	Workshop Technology	4	-	120	3			100
<b>PRACTICAL:</b>								
ME-107	Engineering Drawing practice	-	6	180	3			100
ME-108	Basic Work shop practice	-	6	180	3			100
ME-109	109-A Engineering Physics Lab practice 109-B Engineering Chemistry Lab practice	-	3	90	3 (1.5+1.5)			100 (50+50)
ME-110	Computer fundamentals Lab practice	-	3	90	3			100
<b>TOTAL</b>		24	18	1260				1000

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**III Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical /Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
ME- 301	Engineering Mathematics - II	4	-	60	3			100
ME -302	Engineering Materials	5	-	75	3			100
ME -303	Basic Electrical& Electronics Engineering	4	-	60	3			100
ME-304	Basic Thermodynamics	4	-	60	3			100
ME-305	Strength of Materials	5	-	75	3			100
ME-306	Production Technology-I	4	-	60	3			100
<b>PRACTICAL:</b>								
ME-307	Machine Drawing Practice	-	7	105	3			100
ME-308	Fuels Lab Practice	-	3	45	3			100
ME-309	Electrical Engineering Lab Practice	-	3	45	3			100
ME-310	Manufacturing & Fabrication Engg.Lab Practice -I	-	3	45	3			100
TOTAL		26	16	630				1000

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**IV Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
ME - 401	Mathematics - III	4		60	3			100
ME - 402	Design of Machine Elements-I	4		60	3			100
ME - 403	Industrial Engineering	4		60	3			100
ME - 404	Heat Power Engineering-I	5		75	3			100
ME - 405	Fluid Mechanics & Hydraulic Machinery	5		75	3			100
ME - 406	Production Technology -I	4	-	60	3			100
<b>PRACTICAL:</b>								
ME - 407	Production Drawing Practice	-	7	105	3			100
ME - 408	Communication Skills Practice	-	3	45	3			100
ME - 409	Material Testing Lab Practice	-	3	45	3			100
ME - 410	Manufacturing & Fabrication Engg. Lab Practice -II	-	3	45	3			100
TOTAL		26	16	630				1000

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**V Semester**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
ME-501	Industrial Management	4	-	60	3			100
ME-502	Design of Machine Elements -II	4	-	60	3			100
ME-503	Estimating & Costing	4	-	60	3			100
ME-504	Heat Power Engineering-II	4	-	60	3			100
ME-505	Fluid Power System	4	-	60	3			100
ME-506	Machine Tool Engineering	4	-	60	3			100
<b>PRACTICAL:</b>								
ME-507	CAD Lab Practice	-	6	90	3			100
ME-508	Life skills	-	3	45	3			100
ME-509	Hydraulics & Pneumatics Lab Practice	-	3	45	3			100
ME-510	Field practices	-	6	90	3			100
<b>TOTAL</b>		24	18	630				1000

**DIPLOMA IN MECHANICAL ENGINEERING**  
**SCHEME OF INSTRUCTIONS AND EXAMINATIONS**  
**VI Semester/(THIRD YEAR)**

Subject Code	Name of the Subject	Instruction period / week		Total Period / year	Scheme of Examination			
		Theory	Practical/ Tutorial		Duration (hours)	Sessional Marks	End Exam Marks	Total Marks
<b>THEORY:</b>								
ME-601	Entrepreneurship and Project Management	4	-	60	3			100
ME-602	Refrigeration & Air Conditioning	5	-	75	3			100
ME-603	Energy Sources & Power Plant Engineering	4	-	60	3			100
ME-604	CAM	3	-	45	3			100
ME-605	Measurement & Control Systems	5	-	75	3			100
ME-606	Automobile Engineering	4	-	60	3			100
<b>PRACTICAL:</b>								
ME-607	CAM Lab	-	4	60	3			100
ME-608	T.E and R & AC Lab Practice	-	3	45	3			100
ME-609	Manufacturing & Servicing and Maintenance Lab Practice	-	3	45	3			100
ME-610	Project work	-	7	105	3			100
<b>TOTAL</b>		<b>25</b>	<b>17</b>	<b>630</b>				<b>1000</b>