SARALA BIRLA UNIVERSITY

Established under the Sarala Birla University Act 2017 Govt. of Jharkhand as per Section 2(f) of UGC Act. 1956

CURRICULUM
FOR

B.Tech
\
in
Electronics & Communication Engineering

(Based on UGC & AICTE- CBCS)

Effective from 2021-22

Breakup of Credits

Sl. No.	Category	Credits
1	Humanities & Social Sciences including Management courses	12
2	Basic Science courses	23
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc	28
4	Professional core courses	57
5	Professional Elective courses relevant to chosen specialization/branch	39
6	Open subjects – Electives from other technical and /or emerging subjects	14
7	Project work, seminar and internship in industry or elsewhere	16
8	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge]	2
Total Credits:		**191**

Definition of Credit

1 Hr. Lecture (L) Per Week	1 Credit
1 Hr. Tutorial (T) Per Week	1 Credit
1 Hr. Practical (P) Per Week	0.5 Credit
2 Hr. Practical (P) Per Week	1 Credit

Course Code Definitions

Course code	Definitions
BSC	Basic Science Course
ESC	Engineering Science Course
HSMC	Humanities and Social Sciences including Management Course
MC	Mandatory Course
PCC-ECE	Professional Core Course
PEC-ECE	Professional Electives Course
OEC	Open Electives Course
MOOC'S	Massive Open Online Courses
PDP	Personality Development Course
ECE-P1	Project Stage-I
ECE-P2	Project Stage-II
ECE-P3	Project Stage-III

CREDITS DISTRIBUTION (SEMESTER-WISE AND COURSE-WISE)									
Semester	**HSMC**	**BSC**	**ESC**	**PCC**	**PEC**	**OEC**	**PROJECT**	**MC**	**Total Credit Semester-wise**
1st	3	9.5	13	0	0	0	0	0	**25.5**
2nd	3	9.5	8	5	0	0	0	2	**27.5**
3rd	2	4	5	14	0	0	0	0	**25**
4th	4	0	0	19	0	0	0	0	**23**
5th	0	0	0	10	5	9	0	0	**24**
6th	0	0	2	9	13	0	2	0	**26**
7th	0	0	0	0	9	5	5	0	**19**
8th	0	0	0	0	12	0	9	0	**21**
Total Credit Course-wise	**12**	**23**	**28**	**57**	**39**	**14**	**16**	**2**	**191**
Total Credit									191

HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT COURSE

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	HSMC-101	English	3	0	0	3	I
2	HSMC-102	Technical Communication	2	0	0	2	II
3	HSMC-103	Technical Communication Lab	0	0	2	1	II
4	HSMC-104	Organisational Behaviour	2	0	0	2	IV
5	HSMC-105	French Through Communicative Approach-I	2	0	0	2	III
6	HSMC-106	French Through Communicative Approach-II	2	0	0	2	IV
				Total Credit:		**12**	

BASIC SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-101	Chemistry	3	1	0	4	I
2	BSC-102	Chemistry Lab	0	0	2	1.5	I
3	BSC-103	Physics	3	1	0	4	II
4	BSC-104	Physics Lab	0	0	2	1.5	II
5	BSC-105	Mathematics-I	3	1	0	4	I
6	BSC-106	Mathematics-II	3	1	0	4	II
7	BSC-107	Mathematics-III	3	1	0	4	III
			Total Credit:			**23**	

ENGINEERING SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	ESC-101	Basic Electrical	3	1	0	4	I
2	ESC-102	Basic Electrical Lab	0	0	2	1	I
3	ESC-103	Introduction to Unix & C Programming	3	1	0	4	I
4	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	I
5	ESC-105	Engineering Graphics & Design	1	0	4	3	I
6	ESC-108	Data Structure	3	1	0	4	II
7	ESC-109	Data Structure Lab	0	0	2	1	II
8	ESC-110	Workshop & Manufacturing Practices	1	0	4	3	II
9	ESC-111	Engineering Mechanics	3	1	0	4	III
10	ESC-112	Programming using MATLAB	0	0	2	1	III
11	ESC-113	Python Programming	1	0	2	2	VI
Total Credit:						**28**	

Professional Core Courses(Sem-II)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ECE-101	Basic Electronics	3:01:00	4	II
2	PCC-ECE-102	Basic Electronics Lab	0:00:02	1	II
			Total Credit:	**5**	

Professional Core Courses(Sem-III & IV)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ECE-201	Digital Electronics	3:01:00	4	III/IV
2	PCC-ECE-202	Digital Electronics Lab	0:00:02	1	III/IV
3	PCC-ECE-203	Signal & System	3:01:00	4	III/IV
4	PCC-ECE-204	Electrical Circuit Analysis	3:01:00	4	III/IV
5	PCC-ECE-205	Electrical Circuit Analysis Lab	0:00:02	1	III/IV
6	PCC-ECE-206	Communication System-I	3:01:00	4	III/IV
7	PCC-ECE-207	Communication System Lab-I	0:00:02	1	III/IV
8	PCC-ECE-208	Analog Electronics	3:01:00	4	III/IV
9	PCC-ECE-209	Analog Electronics Lab	0:00:02	1	III/IV
10	PCC-ECE-210	Linear Integrated Circuits	3:01:00	4	III/IV
11	PCC-ECE-211	Linear Integrated Circuits Lab	0:00:02	1	III/IV
12	PCC-ECE-212	Transmission Lines & Electromagnetic Waves	3:01:00	4	III/IV
			Total Credit:	**33**	

Professional Core Courses(Sem-V & VI)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ECE-301	Communication System-II	3:01:00	4	V/VI
2	PCC-ECE-302	Communication System Lab-II	0:00:02	1	V/VI
3	PCC-ECE-303	Microprocessors & Microcontroller	3:01:00	4	V/VI
4	PCC-ECE-304	Microprocessors & Microcontroller Lab	0:00:02	1	V/VI
5	PCC-ECE-305	Digital Signal Processing	3:01:00	4	V/VI
6	PCC-ECE-306	Digital Signal Processing Lab	0:00:02	1	V/VI
9	PCC-ECE-307	Control System	3:01:00	4	V/VI
			Total Credit:	**19**	

Professional Elective Courses (Sem V & VI)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester
1	PEC-ECE-301	Fiber Optic Communication	3:01:00	4	V/VI
2	PEC-ECE-302	Fiber Optic Communication Lab	0:00:02	1	V/VI
3	PEC-ECE-303	Semiconductor Memories & FPGA Technologies	3:01:00	4	V/VI
4	PEC-ECE-304	Semiconductor Devices	3:01:00	4	V/VI
5	PEC-ECE-305	Micro Electronics Circuits	3:01:00	4	V/VI
6	PEC-ECE-306	Introduction to MEMS	3:01:00	4	V/VI
7	PEC-ECE-307	VLSI Design	3:01:00	4	V/VI
8	PEC-ECE-308	VLSI Design Lab	0:00:02	1	V/VI

Professional Elective Courses (Sem VII & VIII)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester
1	PEC-ECE-401	Microwave Engineering	3:01:00	4	VII/VIII
2	PEC-ECE-402	Microwave & Antenna Measurement Lab	0:00:02	1	VII/VIII
3	PEC-ECE-403	Satellite Communication	3:01:00	4	VII/VIII
4	PEC-ECE-404	Embedded Systems	3:01:00	4	VII/VIII
5	PEC-ECE-405	Mobile Communication & Networks	3:01:00	4	VII/VIII
6	PEC-ECE-406	Mixed Signal Design	3:01:00	4	VII/VIII
7	PEC-ECE-407	Wireless Sensor Networks	3:01:00	4	VII/VIII
8	PEC-ECE-408	High Speed Electronics	3:01:00	4	VII/VIII
9	PEC-ECE-409	Wavelets	3:01:00	4	VII/VIII
10	PEC-ECE-410	Adaptive Signal Processing	3:01:00	4	VII/VIII
11	PEC-ECE-411	Digital System Design	3:01:00	4	VII/VIII
12	PEC-ECE-412	Digital System Design Lab	3:01:00	4	VII/VIII
13	PEC-ECE-413	Radar and Navigational Aids	3:01:00	4	VII/VIII

Open Elective Course

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits
1	OEC-CSE-303	Computer Networks	3:01:00	4
2	OEC-CSE-304	Computer Networks Lab	0:00:02	1
3	OEC-CSE-301	Machine Learning for Real-World Applications	3:01:00	4
4	OEC-CSE-412	Digital Image Processing	3:01:00	4
5	OEC-CSE-413	Digital Image Processing Lab	0:00:02	1
6	OEC-101	Economics	3:01:00	4
7	OEC-102	Sanskrit	3:01:00	4

Project Work

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	ECE-P1	Project Stage-I (Mini Project/ Industrial Training)	0:00:04	2	VI
2	ECE-P2	Project Stage-II (Minor Project) **(To be continued in next Semester)**	0:00:10	5	VII
3	ECE-P3	Project Stage-III (Major Project Work & Dissertation)	0:00:18	9	VIII
		Total Credits:		**16**	

Mandatory Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MC-101	Induction Programme	0	0	0	0	I
2	MC-102	Environmental Science	2	0	0	2	IV
3	MC-103	Values & Ethics	2	0	0	0	IV
4	MC-104	PDP-I	2	0	0	0	I
5	MC-105	PDP-II	2	0	0	0	II
6	MC-106	PDP-III	2	0	0	0	III
7	MC-107	PDP-IV	2	0	0	0	IV
8	MC-108	PDP-V	2	0	0	0	V
9	MC-109	PDP-VI	2	0	0	0	VI
10	MC-110	PDP-VII	2	0	0	0	VII
11	MC-111	PDP-VIII	2	0	0	0	VIII
12	MC-112	PT & Games/NSS/NCC-I	0	0	0	0	I
13	MC-113	PT & Games/NSS/NCC-II	0	0	0	0	II
14	MC-114	Vedic Mathematics-I	2	0	0	0	VI
15	MC-115	Vedic Mathematics-II	2	0	0	0	VII
					Total Credit:	**2**	

Massive Open Online Courses

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits
1	MOOCs -101	Artificial Intelligence for Real-World Application	3:01:00	4
2	MOOCs -102	Applications of Deep Learning & Neural Networks	3:01:00	4
3	MOOCs -103	Usability Design of Software Applications	3:01:00	4
4	MOOCs -104	Applied Cloud Computing	3:01:00	4
5	MOOCs -105	Information Security - Practitioner's Perspective	3:01:00	4
6	MOOCs -106	Innovation & Entrepreneurship	3:01:00	4
7	MOOCs -107	Practical Approach to Data Mining & Analytics	3:01:00	4
8	MOOCs -108	IoT & its Applications	3:01:00	4
9	MOOCs -109	Intelligent Game Design & its Applications	3:01:00	4
10	MOOCs -110	Industrial Mechatronic Systems	3:01:00	4
11	MOOCs -111	Solar Energy Technology & its Applications	3:01:00	4

Note: A student will be eligible to get Under Graduate degree with Honours or additional Minor Engineering, if he/she completes an additional 20 credits. These could be acquired through MOOCs.

COURSE STRUCTURE

SEMESTER-I (1st YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-101	Chemistry	3	1	0	4	30	70	100
2	Basic Science Course	BSC-105	Mathematics-I	3	1	0	4	30	70	100
3	Engineering Science Course	ESC-101	Basic Electrical	3	1	0	4	30	70	100
4	Engineering Science Course	ESC-103	Introduction to Unix & C Programming	3	1	0	4	30	70	100
5	Humanities & Social Sciences including Management Course	HSMC-101	English	3	0	0	3	30	70	100
						Total(A)	**19**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Engineering Science Course	ESC-105	Engineering Graphics & Design	1	0	4	3	30	20	50
2	Basic Science Course	BSC-102	Chemistry Lab	0	0	3	1.5	30	20	50
3	Engineering Science Course	ESC-102	Basic Electrical Lab	0	0	2	1	30	20	50
4	Engineering Science Course	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	30	20	50
						Total(B)	**6.5**	**120**	**80**	**200**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-101	Induction Programme	0	0	0	0	0	0	0
2	Mandatory Course	MC-110	PT & Games/NSS/NCC-I	0	0	2	0	0	0	0
3	Mandatory Course	MC-104	PDP-I	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**25.5**	**270**	**430**	**700**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-II (1st YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-106	Mathematics-II	3	1	0	4	30	70	100
2	Humanities and Social Sciences including Management Course	HSMC-102	Technical Communication	2	0	0	2	30	70	100
3	Professional Core Courses	PCC-ECE-101	Basic Electronics	3	1	0	4	30	70	100
4	Basic Science Course	BSC-103	Physics	3	1	0	4	30	70	100
5	Engineering Science Course	ESC-108	Data Structures	3	1	0	4	30	70	100
						Total(A)	**18**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Engineering Science Course	ESC-110	Workshop & Manufacturing Practices	1	0	4	3	30	20	50
2	Professional Core Course	PCC-ECE-102	Basic Electronics Lab	0	0	2	1	30	20	50
3	Basic Science Course	BSC-104	Physics Lab	0	0	3	1.5	30	20	50
4	Humanities & Social Sciences including Management Course	HSMC-103	Technical Communication Lab	0	0	2	1	30	20	50
5	Engineering Science Course	ESC-109	Data Structures Lab	0	0	2	1	30	20	50
			Total(B)	**1**	**0**	**13**	**7.5**	**150**	**100**	**250**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-102	Environmental Science	2	0	0	2	30	70	100
2	Mandatory Course	MC-111	PT & Games/NSS/NCC-II	0	0	2	0	0	0	0
3	Mandatory Course	MC-105	PDP-II	2	0	0	0	0	0	0
						Total(C)	**2**	**30**	**70**	**100**
Grand Total (A+B+C)							**27.5**	**330**	**520**	**850**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-III (2nd YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-107	Mathematics-III	3	1	0	4	30	70	100
2	Engineering Science Course	ESC-111	Engineering Mechanics	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ECE-201	Digital Electronics	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ECE-203	Signals & Systems	3	1	0	4	30	70	100
5	Professional Core Course	PCC-ECE-204	Electrical Circuit Analysis	3	1	0	4	30	70	100
6	Humanities & Social Sciences including Management Course	HSMC-105	French Through Communicative Approach-I	2	0	0	2	30	70	100
						Total(A)	**22**	**180**	**420**	**600**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ECE-202	Digital Electronics Lab	0	0	2	1	30	20	50
2	Engineering Science Course	ESC-112	Programming using MATLAB	0	0	2	1	30	20	50
3	Professional Core Course	PCC-ECE-205	Electrical Circuit Analysis Lab	0	0	2	1	30	20	50
						Total(B)	**3**	**90**	**60**	**150**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-103	Values & Ethics	2	0	0	0	0	0	0
2	Mandatory Course	MC-106	PDP-III	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**25**	**270**	**480**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-IV (2nd YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-ECE-206	Communication System-I	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ECE-208	Analog Electronics	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ECE-210	Linear Integrated Circuits	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ECE-212	Transmission Lines & Electromagnetic Waves	3	1	0	4	30	70	100
5	Humanities & Social Sciences including Management Course	HSMC-104	Organisational Behaviour	2	0	0	2	30	70	100
6	Humanities & Social Sciences including Management Course	HSMC-106	French Through Communicative Approach-II	2	0	0	2	30	70	100
						Total(A)	**20**	**180**	**420**	**600**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ECE-209	Analog Electronics Lab	0	0	2	1	30	20	50
2	Professional Core Course	PCC-ECE-207	Communication System Lab-I	0	0	2	1	30	20	50
3	Professional Core Course	PCC-ECE-211	Linear Integrated Circuits Lab	0	0	2	1	30	20	50
						Total(B)	**3**	**90**	**60**	**150**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-107	PDP-IV	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**23**	**270**	**480**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-V (3rd YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-ECE-301	Communication System-II	3	1	0	4	30	70	100
2	Open Elective Course	OEC-CSE-303	Computer Networks	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ECE-303	Microprocessors & Microcontroller	3	1	0	4	30	70	100
4	Open Elective Course	OEC-CSE-301	Machine Learning for Real-World Applications	3	1	0	4	30	70	100
5	Professional Elective Course	PEC-ECE-301	Fiber Optic Communication	3	1	0	4	30	70	100
						Total(A)	**20**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ECE-302	Communication System Lab-II	0	0	2	1	30	20	50
2	Open Elective Course	OEC-CSE-304	Computer Networks Lab	0	0	2	1	30	20	50
3	Professional Elective Course	PEC-ECE-302	Fiber Optic Communication Lab	0	0	2	1	30	20	50
4	Professional Core Course	PCC-ECE-304	Microprocessors & Microcontroller Lab	0	0	2	1	30	20	50
						Total(B)	**4**	**120**	**80**	**200**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-108	PDP-V	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**24**	**270**	**430**	**700**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-VI (3rd YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Course	PCC-ECE-305	Digital Signal Processing	3	1	0	4	30	70	100
2	Professional Elective Course	PEC-ECE-307	VLSI Design	3	1	0	4	30	70	100
3	Professional Elective Course	PEC-ECE-305	Micro Electronics Circuits	3	1	0	4	30	70	100
4	Professional Elective Course	PEC-ECE-303	Semiconductor Memories & FPGA Technologies	3	1	0	4	30	70	100
5	Professional Core Course	PCC-ECE-309	Control System	3	1	0	4	30	70	100
						Total(A)	**20**	**150**	**350**	**500**
Practical/Drawing/Design										
1	Professional Core Course	PCC-ECE-306	Digital Signal Processing Lab	0	0	2	1	30	20	50
2	Professional Elective Course	PEC-ECE-308	VLSI Design Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-113	Python Programming	1	0	2	2	30	20	50
4	Project Work	ECE-P1	Project Stage-I (Mini Project/ Industrial Training)	0	0	4	2	75	25	100
						Total(B)	**6**	**165**	**85**	**250**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-112	Vedic Mathematics-I	2	0	0	0	0	0	0
2	Mandatory Course	MC-109	PDP-VI	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**26**	**315**	**435**	**750**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-VII (4th YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course	PEC-ECE-401	Microwave Engineering	3	1	0	4	30	70	100
2	Professional Elective Course	PEC-ECE-403	Satellite Communication	3	1	0	4	30	70	100
3	Open Elective Course	OEC-CSE-412	Digital Image Processing	3	1	0	4	30	70	100
						Total(A)	**12**	**90**	**210**	**300**
Practical/Drawing/Design										
1	Open Elective Course	OEC-CSE-413	Digital Image Processing Lab	0	0	2	1	30	20	50
2	Professional Elective Course	PEC-ECE-402	Microwave & Antenna Measurement Lab	0	0	2	1	30	20	50
3	Project Work	ECE-P2	Project Stage-II (Minor Project)	0	0	10	5	75	25	100
						Total(B)	**7**	**135**	**65**	**200**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-109	PDP-VII	2	0	0	0	0	0	0
2	Mandatory Course	MC-113	Vedic Mathematics-II	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**19**	**225**	**275**	**500**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER-VIII (4th YEAR)

Branch: Electronics & Communication Engineering (B.Tech)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course	PEC-ECE-404	Embedded Systems	3	1	0	4	30	70	100
2	Professional Elective Course	PEC-ECE-405	Mobile Communication & Networks	3	1	0	4	30	70	100
3	Professional Elective Course	PEC-ECE-413	Radar & Naviogational Aids	3	1	0	4	30	70	100
						Total(A)	**12**	**90**	**210**	**300**
Practical/Drawing/Design										
1	Project Work	ECE-P3	Project Stage-III (Major Project Work & Dissertation)	0	0	18	9	75	25	100
						Total(B)	**9**	**75**	**25**	**100**
Mandatory Courses/MOOC'S										
1	Mandatory Course	MC-109	PDP-VIII	2	0	0	0	0	0	0
						Total(C)	**0**	**0**	**0**	**0**
Grand Total (A+B+C)							**21**	**165**	**235**	**400**

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination