

SARALA BIRLA UNIVERSITY RANCHI



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

CURRICULUM FOR

Diploma in Electronics & Communication Engineering

(Based on AICTE- CBCS)

Effective from 2019-20

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-D	Basic Science Course
ESC-D	Engineering Science Course
HSMC-D	Humanities and Social Sciences including Management Course
ECCA-D	Extra Co-Curricular Activities Courses
MC-D	Mandatory Course
PCC-ECE-D	Professional Core Course
PEC-ECE-D	Professional Electives Course
OEC-D	Open Electives Course
ECE-DP1	Project Stage-I
ECE-DP2	Project Stage-II

Structure of Electronics & Communication Engineering

(Breakup of Credits)

Sl. No.	Category	Breakup of Credits (Total 142)
1	Humanities and Social Sciences including Management courses	13
2	Basic Science courses	25
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc	15
4	Professional core courses	55
5	Professional Elective courses relevant to chosen specialization/branch	16
6	Open subjects – Electives from other technical and /or emerging subjects	4
7	Project work, seminar and internship in industry or elsewhere	8
8	Extra Co-Curricular Activities Courses	2
9	Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge]	4
Total Credits:		142

BASIC SCIENCE COURSES

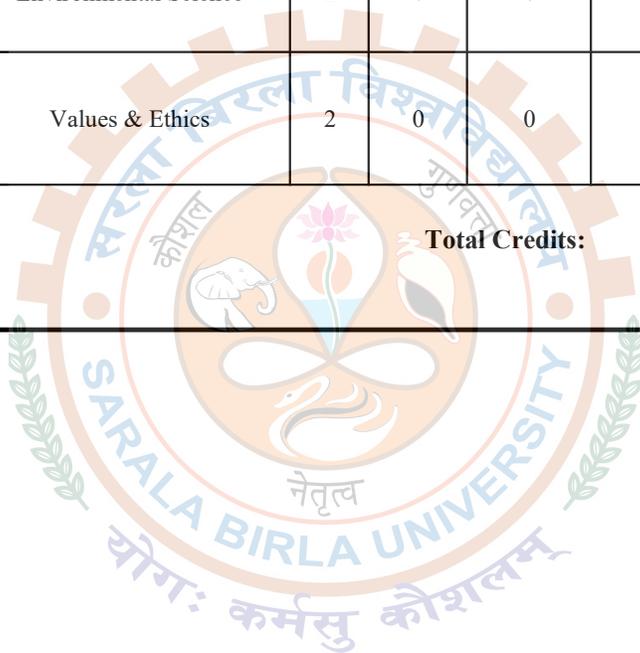
Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-D101	Basic Chemistry	3	1	0	4	I
2	BSC-D102	Basic Chemistry Lab	0	0	2	1	I
3	BSC-D103	Basic Physics	3	1	0	4	II
4	BSC-D104	Basic Physics Lab	0	0	2	1	II
5	BSC-D105	Basic Mathematics	4	1	0	5	I
6	BSC-D106	Engineering Mathematics	4	1	0	5	II
7	BSC-D107	Applied Mathematics	4	1	0	5	III
Total Credits:						25	

HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT COURSE

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	HSMC-D101	Technical English	3	0	0	3	I
2	HSMC-D102	Communication Skills	2	0	0	2	II
3	HSMC-D103	Life Skills & Professional Practices I	0	0	2	1	II
4	HSMC-D104	Life Skills & Professional Practices II	0	0	2	1	III
5	HSMC-D105	French Through Communicative Approach-I	2	0	0	2	III
6	HSMC-D106	French Through Communicative Approach-II	2	0	0	2	IV
7	HSMC-D107	Organizational Behaviour	2	0	0	2	VI
Total Credits:						13	

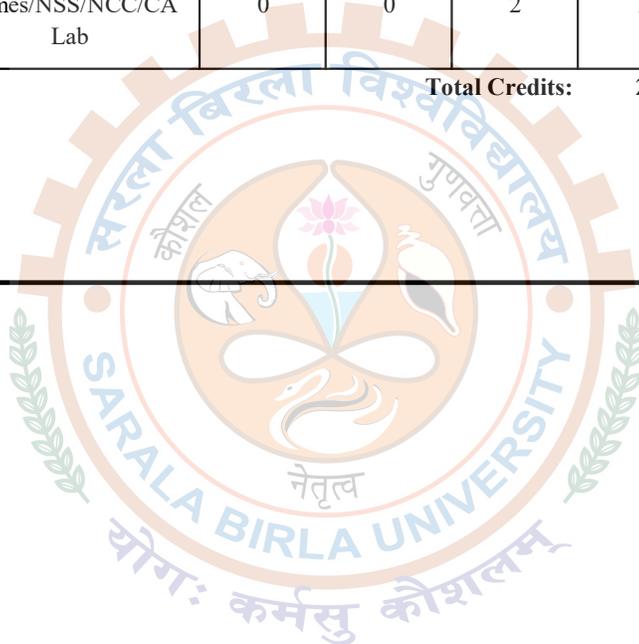
Mandatory Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MC-D101	Induction Program	0	0	0	0	I
2	MC-D102	Environmental Science	2	0	0	2	III
3	MC-D103	Values & Ethics	2	0	0	2	III
Total Credits:						4	



Extra Co-Curricular Activities Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	ECCA-D101	PT and Games/NSS/NCC/CA Lab	0	0	2	1	I
2	ECCA-D102	PT and Games/NSS/NCC/CA Lab	0	0	2	1	II
Total Credits:						2	



ENGINEERING SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	ESC-D101	Fundamentals of Computer	3	0	0	3	I
2	ESC-D102	Fundamentals of Computer Lab	0	0	4	2	I
3	ESC-D103	Workshop Practice	0	0	4	2	I
4	ESC-D104	Fundamentals of Electrical and Electronics	3	1	0	4	II
5	ESC-D105	Fundamentals of Electrical and Electronics Lab	0	0	2	1	II
6	ESC-D106	Engineering Graphics	1	0	4	3	II
Total Credits:						15	

Professional Core Courses

Branch: Electronics & Communication Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ECE-D201	Basic Electronics	03:01:00	4	III/IV
2	PCC-ECE-D202	Basic Electronics Lab	00:00:02	1	III/IV
3	PCC-ECE-D203	Network Theory	03:01:00	4	III/IV
4	PCC-ECE-D204	Network Theory Lab	00:00:02	1	III/IV
5	PCC-ECE-D205	Signal & System	03:01:00	4	III/IV
6	PCC-ECE-D206	Digital Electronics	03:01:00	4	III/IV
7	PCC-ECE-D207	Digital Electronics Lab	00:00:02	1	III/IV
8	PCC-ECE-D208	Analog Electronics	03:01:00	4	III/IV
9	PCC-ECE-D209	Analog Electronics lab	00:00:02	1	III/IV
10	PCC-ECE-D210	Analog & Digital Communication	03:01:00	4	III/IV
11	PCC-ECE-D211	Analog & Digital Communication Lab	00:00:02	1	III/IV
12	PCC-ECE-D212	Control System	03:01:00	4	III/IV
13	PCC-ECE-D213	Electromagnetic Wave	03:01:00	4	III/IV

Total Credits: 37

Professional Core Courses

Branch: Electronics & Communication Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ECE-D301	Microprocessors and Microcontroller	03:01:00	4	V/VI
2	PCC-ECE-D302	Microprocessors and Microcontroller Lab	00:00:02	1	V/VI
3	PCC-ECE-D303	Digital System Design	03:01:00	4	V/VI
4	PCC-ECE-D304	Digital System Design Lab	00:00:02	1	V/VI
5	PCC-ECE-D305	Antenna & Propagation	03:01:00	4	V/VI
6	PCC-ECE-D306	Embedded systems	03:01:00	4	V/VI

Total Credits: 18

Professional Elective Courses

Branch: Electronics & Communication Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester
1	PEC-ECE-D301	Microwave Theory and Techniques	03:01:00	4	V/VI
2	PEC-ECE-D302	Fiber Optic Communications	03:01:00	4	V/VI
3	PEC-ECE-D303	Mobile Communication and Networks	03:01:00	4	V/VI
4	PEC-ECE-D304	Wireless Sensor Networks	03:01:00	4	V/VI
5	PEC-ECE-D305	Satellite Communication	03:01:00	4	V/VI
6	PEC-ECE-D306	High Speed Electronics	03:01:00	4	V/VI
7	PEC-ECE-D307	Error Correcting Codes	03:01:00	4	V/VI
8	PEC-ECE-D308	Digital Signal Processing	03:01:00	4	V/VI

Open Elective Course

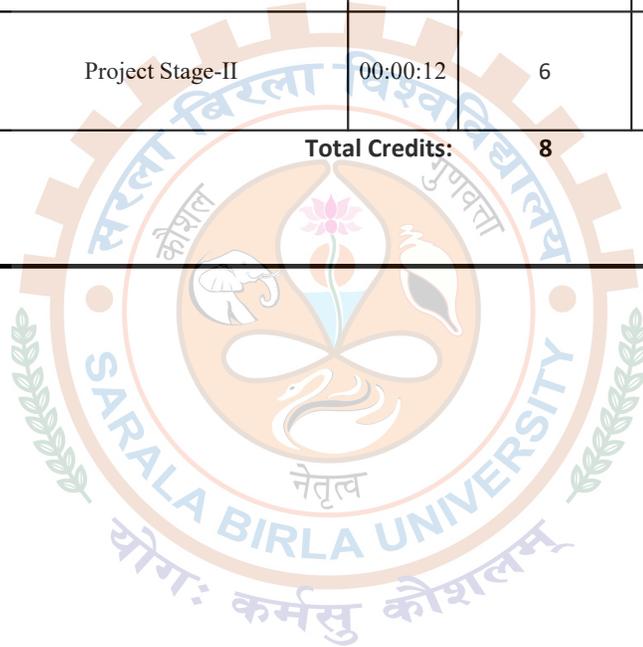
Branch: Electronics & Communication Engineering(Diploma)

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits
1	OEC-EEE-D401	Line Commutated and Active Rectifiers	03:01:00	4
2	OEC-EEE-D402	Electrical Drives	03:01:00	4
3	OEC-EEE-D403	Electrical Machine Design	03:01:00	4
4	OEC-EEE-D404	High Voltage Engineering	03:01:00	4
5	OEC-EEE-D405	Electrical Energy Conservation and Auditing	03:01:00	4
6	OEC-EEE-D406	Industrial Electrical Systems	03:01:00	4
7	OEC-EEE-D407	Digital Control Systems	03:01:00	4
8	OEC-EEE-D408	Computational Electromagnetics	03:01:00	4
9	OEC-EEE-D409	Control Systems Design	03:01:00	4
10	OEC-EEE-D410	Wind and Solar Energy Systems	03:01:00	4
11	OEC-EEE-D411	Electrical and Hybrid Vehicles	03:01:00	4
12	OEC-EEE-D412	Power System Protection	03:01:00	4
13	OEC-EEE-D413	HVDC Transmission Systems	03:01:00	4
14	OEC-EEE-D414	Power Quality and FACTS	03:01:00	4
15	OEC-EEE-D415	Power System Dynamics and Control	03:01:00	4
16	OEC-EEE-D416	Advanced Electric Drives	03:01:00	4
17	OEC-CSE-D301	Artificial Intelligence	03:00:00	3
18	OEC-CSE-D302	Internet-of-Things	03:00:00	3
19	OEC-CSE-D303	Cloud Computing	03:00:00	3
20	OEC-CSE-D304	Soft Computing	03:00:00	3
21	OEC-CSE-D305	Cyber Law and Ethics	03:00:00	3
22	OEC-CSE-D306	Data Mining Concepts and Techniques	03:00:00	3
23	OEC-CSE-D307	Data Analytics	03:00:00	3
24	OEC-CSE-D308	Introduction to Multimedia	03:00:00	3
25	OEC-CSE-D309	Introduction to Multimedia Lab	00:00:02	1
26	OEC-CSE-D310	Web App Development	03:00:00	3
27	OEC-CSE-D311	Web App Development Lab	00:00:02	1
28	OEC-CSE-D312	Mobile Computing	03:00:00	3
29	OEC-CSE-D313	Mobile Computing Lab	00:00:02	1
30	OEC-CSE-D314	Cryptography & Network Security	03:00:00	3
31	OEC-CSE-D315	Cryptography & Network Security Lab	00:00:02	1
32	OEC-CSE-D316	Image Processing	03:00:00	3
33	OEC-CSE-D317	Image Processing Lab	00:00:02	1

Project

Branch: Electronics & Communication Engineering (Diploma)

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	ECE-DP1	Project Stage-I	00:00:04	2	V
2	ECE-DP2	Project Stage-II	00:00:12	6	VI
Total Credits:				8	



COURSE STRUCTURE

SEMESTER I (FIRST YEAR)

Branch: Electronics & Communication Engineering (Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-D101	Basic Chemistry	3	1	0	4	30	70	100
2	Basic Science Course	BSC-D105	Basic Mathematics	4	1	0	5	30	70	100
3	Humanities and Social Sciences including Management Courses	HSMC-D101	Technical English	3	0	0	3	30	70	100
4	Engineering Science Course	ESC-D101	Fundamentals of Computer	3	0	0	3	30	70	100
Total(A)							15	120	280	400
Practical/Drawing/Design										
1	Basic Science Course	BSC-D102	Basic Chemistry Lab	0	0	2	1	30	20	50
2	Engineering Science Course	ESC-D102	Fundamentals of Computer Lab	0	0	4	2	30	20	50
3	Engineering Science Course	ESC-D103	Workshop Practice	0	0	4	2	30	20	50
4	Extra Co-Curricular Activities Courses	ECCA-D101	PT and Games/NSS/NCC/CA Lab	0	0	2	1	30	20	50
Total(B)							6	120	80	200
Grand Total (A+B)							21	240	360	600

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER II (FIRST YEAR)

Branch: Electronics & Communication Engineering(Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-D103	Basic Physics	3	1	0	4	30	70	100
2	Basic Science Course	BSC-D106	Engineering Mathematics	4	1	0	5	30	70	100
3	Humanities and Social Sciences including Management Courses	HSMC-D102	Communication Skills	2	0	0	2	30	70	100
4	Engineering Science Course	ESC-D104	Fundamentals of Electrical and Electronics	3	1	0	4	30	70	100
Total(A)							15	120	280	400
Practical/Drawing/Design										
1	Basic Science Course	BSC-D104	Basic Physics Lab	0	0	2	1	30	20	50
2	Engineering Science Course	ESC-D105	Fundamentals of Electrical and Electronics Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-D106	Engineering Graphics	1	0	4	3	30	20	50
4	Humanities and Social Sciences including Management Courses	HSMC-D103	Life Skills & Professional Practices-I	0	0	2	1	30	20	50
5	Extra Co-Curricular Activities Courses	ECCA-D102	PT and Games/NSS/NCC/CA Lab	0	0	2	1	30	20	50
Total(B)							7	150	100	250
Grand Total (A+B)							22	270	380	650

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER III (2nd YEAR)

Branch: Electronics & Communication Engineering(Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Basic Science Course	BSC-D107	Applied Mathematics	4	1	0	5	30	70	100
2	Professional Core Courses	PCC-ECE-D201	Basic Electronics	3	1	0	4	30	70	100
3	Professional Core Courses	PCC-ECE-D203	Network Theory	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-ECE-D205	Signal & System	3	1	0	4	30	70	100
5	Mandatory Courses	MC-D102	Environmental Science	2	0	0	2	30	70	100
6	Mandatory Courses	MC-D103	Values & Ethics	2	0	0	2	30	70	100
7	Humanities and Social Sciences including Management Courses		Foreign Languages-I	2	0	0	2	30	70	100
Total(A)							23	210	490	700
Practical/Drawing/Design										
1	Professional Core Courses	PCC-ECE-D204	Network Theory Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-ECE-D202	Basic Electronics Lab	0	0	2	1	30	20	50
3	Humanities and Social Sciences including Management Courses	HSMC-D104	Life skill & Professional Practice-II	0	0	2	1	30	20	50
Total(B)							3	90	60	150
Grand Total (A+B)							26	300	550	850
L-Lecture, T-Tutorial, P-Practical IA- Internal Assessment, ESE-End Semester Examination										

COURSE STRUCTURE

SEMESTER IV (2nd YEAR)

Branch: Electronics & Communication Engineering(Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Core Courses	PCC-ECE-D206	Digital Electronics	3	1	0	4	30	70	100
2	Professional Core Courses	PCC-ECE-D208	Analog Electronics	3	1	0	4	30	70	100
3	Professional Core Courses	PCC-ECE-D210	Analog & Digital Communication	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-ECE-D212	Control System	4	0	0	4	30	70	100
5	Professional Core Courses	PCC-ECE-D213	Electromagnetic Wave	3	1	0	4	30	70	100
6	Humanities and Social Sciences including Management Courses		Foreign Languages-II	2	0	0	2	30	70	100
Total(A)							22	180	420	600
Practical/Drawing/Design										
1	Professional Core Courses	PCC-ECE-D207	Digital Electronics	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-ECE-D209	Analog Electronics Lab	0	0	2	1	30	20	50
3	Professional Core Courses	PCC-ECE-D211	Analog & Digital Communication Lab	0	0	2	1	30	20	50
Total(B)							3	90	60	150
Grand Total (A+B)							25	270	480	750
<p>L-Lecture, T-Tutorial, P-Practical IA- Internal Assessment, ESE-End Semester Examination</p>										

COURSE STRUCTURE

SEMESTER V (3rd YEAR)

Branch: Electronics & Communication Engineering(Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course		Professional Elective Course-I	3	1	0	4	30	70	100
2	Professional Core Courses	PCC-ECE-D303	Digital System Design	4	0	0	4	30	70	100
3	Professional Elective Course		Professional Elective Course-II	3	1	0	4	30	70	100
4	Professional Core Courses	PCC-ECE-D301	Microprocessors and Microcontroller	3	1	0	4	30	70	100
5	Professional Elective Course		Professional Elective Course-III	3	1	0	4	30	70	100
Total(A)							20	150	350	500
Practical/Drawing/Design										
1	Professional Elective Course	PCC-ECE-D302	Microprocessors and Microcontroller Lab	0	0	2	1	30	20	50
2	Professional Core Courses	PCC-ECE-D304	Digital System Design Lab	0	0	2	1	30	20	50
3	Project Stage-I	ECE-DP1	Mini Project/ Electronic Design Workshop	0	0	4	2	75	25	100
Total(B)							4	135	65	200
Grand Total (A+B)							24	285	415	700

L-Lecture, T-Tutorial, P-Practical

IA- Internal Assessment, ESE-End Semester Examination

COURSE STRUCTURE

SEMESTER VI (3rd YEAR)

Branch: Electronics & Communication Engineering(Diploma)

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
Theory										
1	Professional Elective Course		Professional Elective Course-IV	4	0	0	4	30	70	100
2	Professional Core Courses	PCC-ECE-D306	Embedded systems	4	0	0	4	30	70	100
3	Professional Core Courses	PCC-ECE-D305	Antenna & Propagation	4	0	0	4	30	70	100
4	Open Elective Course		Open Elective Course-I	4	0	0	4	30	70	100
5	Humanities and Social Sciences including Management Courses	HSMC-D107	Organisational Behaviour	2	0	0	2	30	70	100
Total(A)							18	150	350	500
Practical/Drawing/Design										
1	Project Stage-II	ECE-DP2	Project Work & Dissertation	0	0	12	6	150	50	200
Total(B)							6	150	50	200
Grand Total (A+B)							24	300	400	700
<p>L-Lecture, T-Tutorial, P-Practical IA- Internal Assessment, ESE-End Semester Examination</p>										