

ELECTRONICS & COMMUNICATION ENGINEERING
HALDIA INSTITUTE OF TECHNOLOGY
SYLLABUS (as per NEP 2020)
AY 2023-2024 ONWARDS

2nd Year: 3rd Semester

A. Theory							
Sl No	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC301	Electronic Devices & Circuits	3	0	0	3	3
2.	EC302	Digital System Design	3	0	0	3	3
3.	EC303	Signals and Systems	3	0	0	3	3
4.	EC304	Network Theory	3	0	0	3	3
5.	ES-CS305	Data Structure (ES)	3	0	0	3	3
6.	BS-M306	Probability and Statistics (BS) /Mathematics-III	3	0	0	3	3
Total Theory						18	18
B. Practical							
7.	EC391	Electronic Devices & Circuits Lab.	0	0	3	3	1.5
8.	EC392	Digital System Design Lab.	0	0	3	3	1.5
9.	EC393	Signals and Network lab	0	0	3	3	1.5
10.	ES-CS394	Data Structure & Algorithm Lab (ES)	0	0	3	3	1.5
Total Practical						12	6
Total Hours/Credits						30	24
C. Non Credit Course							
11.	MC381	Environmental Science	2	0	0	2	0

2nd Year: 4th Semester

A. Theory							
Sl No	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC401	Analog Communication	3	0	0	3	3
2.	EC402	Control System & Instrumentation	3	0	0	3	3
3.	EC403	Microprocessor & Microcontrollers	3	0	0	3	3
4.	EC404	Electromagnetics Theory & Transmission Lines	3	0	0	3	3
5.	ES-M405	Numerical Methods(ES)	2	0	0	2	2
Total Theory						14	14
B. Practical							
6.	EC491	Analog Communication Lab	0	0	3	3	1.5
7.	EC492	Control System & Instrumentation Lab	0	0	3	3	1.5
8.	EC493	Microprocessor & Microcontrollers Lab	0	0	3	3	1.5
9.	ES-CS494	Python Programming Lab (ES)	0	0	3	3	1.5
10.	HS-HU495	Technical Report Writing Lab	0	0	2	2	1
Total Practical						14	7
Total Hours/Credits						28	21
C. Non Credit Course							
11.	MC481	Economics for Engineers	2	0	0	2	0

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3rd Year: 5th Semester

A. Theory							
Sl No	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC501	Microwave & Antenna Engineering	3	0	0	3	3
2.	EC502	Digital Signal Processing	3	0	0	3	3
3.	EC503	Advanced Digital Communication	3	0	0	3	3
4.	EC-CS504	Computer Architecture (ES)	3	0	0	3	3
5.	PE-EC505 A/B/C/D	Program Elective-1	3	0	0	3	3
Total Theory						15	15
B. Practical							
6.	EC591	Microwave & Antenna Engineering Lab	0	0	3	3	1.5
7.	EC592	Digital Signal Processing Lab.	0	0	3	3	1.5
8.	EC593	Advanced Digital Communication Lab.	0	0	3	3	1.5
9.	EC594	Design Lab.-1 (Mini Project-1)	0	0	4	4	2
10.	EC595	Internet of Things (IoT) Lab	0	0	3	3	1.5
Total Practical						16	8
Total Hours/Credits						31	23
C. Non Credit Course							
11.	MC581	Essence of Indian Knowledge, Tradition & Culture	2	0	0	2	0

3rd Year: 6th Semester

A. Theory							
Sl No	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	EC601	VLSI Design	3	0	0	3	3
2.	PE-EC602 A/B/C/D	Program Elective-2	3	0	0	3	3
3.	PE-EC603 A/B/C/D	Program Elective-3	3	0	0	3	3
4.	OE-EC604 A/B/C/D	Open Elective-1	3	0	0	3	3
5.	OE-EC605 A/B/C/D	Open Elective-2	3	0	0	3	3
Total Theory						15	15
B. Practical							
6.	EC691	VLSI Design Lab.	0	0	3	3	1.5
7.	EC692	Design Lab.-2 (Mini Project-2)	0	0	4	4	2
8.	EC693	Technical Seminar Presentation Lab	0	0	3	3	1.5
9.	ES-CS694	Object Oriented Programming Lab (ES)	0	0	3	3	1.5
10.	EC695	Robotics Lab	0	0	3	3	1.5
Total Practical						16	8
Total Hours/Credits						31	23
C. Non Credit Course							
11.	MC681	Indian Constitution	2	0	0	2	0

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4th Year: 7th Semester

A. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	PE-EC701 A/B/C/D	Program Elective – 4	3	0	0	3	3
2.	HS-HU702	Organizational Behaviour	3	0	0	3	3
Total Theory						6	6
B. Sessional							
4.	EC781	Internship-1 During Semester Break(6&7)	0	0	8	8	4
5.	EC782	Project-1	0	0	12	12	6
6.	EC783	Group Discussion	0	0	4	4	2
Total Practical						24	12
Total Hours/Credits						30	18

4th Year: 8th Semester

A. Theory							
Sl No.	Field	Theory	Contact Hours/week				Credit Points
			L	T	P	Total	
1.	HS-HU 801	Universal Human Values & Ethics	3	0	0	3	3
Total Theory						3	3
B. Sessional							
3.	EC881	Internship – 2 During Semester Break(7&8)	0	0	8	8	4
4.	EC882	Project-2	0	0	12	12	6
5.	EC883	Grand Viva	0	0	4	4	2
Total Practical						24	12
Total Contact /Credits						27	15

Total Credit Points
Year 1 = 38
Year 2 = 45
Year 3 = 46
Year 4 = 33

162

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LIST OF PROGRAM ELECTIVES

Sl No.	Course Code	Course Title	Hours/week			Credits	Semester	Elective No.
			L	T	P			
1	PE-EC505A	Information Theory and Coding	3	0	0	3	5	PE-1
2	PE-EC505B	Internet of Things (IoT)	3	0	0	3		
3	PE-EC505C	Cloud Computing	3	0	0	3		
4	PE-EC505D	Sensors & Transducers	3	0	0	3		
5	PE-EC602A	Satellite Communication	3	0	0	3	6	PE-2
6	PE-EC602B	Embedded System	3	0	0	3		
7	PE-EC602C	Autonomous Mobile Robots	3	0	0	3		
8	PE-EC602D	Power Electronics	3	0	0	3		
9	PE-EC603A	Mobile Communication and Networks	3	0	0	3	6	PE-3
10	PE-EC603B	Wireless Sensor Networks	3	0	0	3		
11	PE-EC603C	Computer Network	3	0	0	3		
12	PE-EC603D	Bio-Medical Electronics	3	0	0	3		
13	PE-EC701A	Optical Communication	3	0	0	3	7	PE-4
14	PE-EC701B	Digital Image Processing	3	0	0	3		
15	PE-EC701C	Augmented Reality (AR) & Virtual Reality (VR)	3	0	0	3		
16	PE-EC701D	FPGA Design	3	0	0	3		

LIST OF OPEN ELECTIVES

Sl No.	Course Code	Course Title	Hours/week			Credits	Semester	Elective No.
			L	T	P			
1	OE-EC604A	Programming with Java	3	0	0	3	6	OE-1
2	OE-EC604B	Machine Learning (ML)	3	0	0	3		
3	OE-EC604C	Data Science (DS)	3	0	0	3		
4	OE-EC604D	Big Data Analytics	3	0	0	3		
5	OE-EC605A	Human Resource Management	3	0	0	3	6	OE-2
6	OE-EC605B	Cyber Security (CS)	3	0	0	3		
7	OE-EC605C	Artificial Intelligence (AI)	3	0	0	3		
8	OE-EC605D	Entrepreneurship	3	0	0	3		

NOTE- The department may offer suitable additional electives based on the expertise available.

MOOCs for Honours Degree at B.Tech (ECE)

For B.Tech Honours Degree, a B.Tech student will have to earn 20 credits from MOOCs from any established MOOCs platform addition to 162 credits for B.Tech degree.

All of the MOOCs courses are to be taken any MOOCs platform as per following scheme of credit points. There would not be any concept of fixed basket anymore.

MOOCs courses which are taken for earning credits for Honours degree will not be considered in MAR purpose.

For MOOCs platforms like NPTEL/Swayam, Coursera, edX, Udemy, Simpilearn etc

Courses of 4 weeks to 7 weeks or 20 Hours: 1 credit point

Courses of 8 weeks to 11 weeks or 30 Hours: 2 credit point

Courses of 12 weeks to 15 weeks or 40 Hours: 3 credit point

Courses of 16 weeks or 50 Hours: 4 credit point

1 st year	4 to 8 credits
2 nd year	4 to 8 credits
3 rd year	4 to 8 credits
4 th year	4 credits

Mandatory Additional Requirements (MAR) for earning B.Tech (ECE) Degree

A student should acquire a total of minimum 100/75 activity points throughout 4year/3year curriculum which should be acquired by earning a minimum of 25 activity points in each year of his/her study.

MOOCs courses which are taken for earning credits for Honours degree will not be considered in MAR purpose.

Level of Entry in B.Tech Course	Total duration for earning Points	Minimum Points to be earned
1st Year onwards	1st to 4th Year	100
2nd Year (Lateral Entry) onwards	2nd to 4th Year	75