

# New Horizon College of Engineering

Department of Electronics and Communication Engineering

## BOARD OF STUDIES MEETING -10

**DATE:** 09/09/2023

**VENUE:** Department of ECE (CISCO LAB)

**Time:** 10.00 AM to 12:00 PM

# New Horizon College of Engineering

Department of Electronics and Communication Engineering

## BOARD OF STUDIES MEETING – 10

**DATE:** 09/09/2023

**VENUE:** Department of ECE (CISCO LAB) (Blended mode)

**Time:** 10.00 AM to 12:00 PM

### AGENDA

1. Scheme of the B.E. program of 160 credits (as per NEP) for 2021-25 and 2022-26 batches.
2. Syllabus of 3rd, 4th, 5th and 6th semesters B.E program (160 credits)

**NEW HORIZON COLLEGE OF ENGINEERING**  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION**

**LIST OF MEMBERS - BOARD OF STUDIES (2023-24)**

S. No	Category	Nomination of the committee	Name of the person	Designation & Affiliation
1	Head of the Department	Chairperson	Dr. Aravinda K.	HOD - ECE, NHCE
2	Special Invitees (one academician from Institution of National Eminence: IIT, NIT, IIM, IISc)	1	Dr. Manjunatha	Principal, NHCE
		2	Dr. R. J. Anandhi	Dean - Academics, NHCE
		3	Dr. Sudeb Dasgupta	HOD - ECE, IIT Roorkee
3	Faculty members at different level with different specialization	<b>Members</b>		
		1	Dr. Sanjeev Sharma	DEAN - QASDC, NHCE
		2	Dr. Jayanthi M.	Associate Professor, ECE, NHCE
		3	Dr. Piruthiviraj P.	Associate professor, ECE, NHCE
		4	Dr. Gurulakshmi A. B.	Associate professor, ECE, NHCE
		5	Dr. Arun Kumar	Associate Professor, ECE, NHCE
4	Subject experts from outside the College nominated by Academic Council	<b>Members</b>		
		1	Dr. R. Jayagowri	Associate professor, Department of ECE, B M S College of Engineering
		2	Dr. Ramya S	Assistant professor, Department of ECE, R V College of Engineering

5	Experts from outside the College nominated by VTU	<b>Member</b>		
		1	Dr. Shivananda	Associate Professor, Dept. of Electronics and Communication Engg. Cambridge Institute of Technology, Bangalore-560036
6	Representatives from Industry / Corporate sector / allied area related to placements, nominated by Academic Council	<b>Members</b>		
		1	Dr. Parag Bhatnagar	Senior Engineering Manager Intel Corporation
		2	Mr. Padmanaban K.	Software Enabling and Optimization Engineer - CEG Intel PSG
		3	Prof. Anis Mirza	Director – Corporate Relations, L&D, Placements & IIC Department of HRD NHCE
7	Post Graduate meritorious alumni nominated by Principal	<b>Member</b>		
		1	Mr. Kishore Y C	Staff engineer, Mediatek
8	Co-opted members	<b>Members</b>		
		1	Dr. Rajesh. G.	Associate Professor, ECE, NHCE
		2	Prof. Ramanamma M.	Sr. Assistant Professor, ECE, NHCE

## MINUTES OF THE 10<sup>TH</sup> MEETING OF THE BOARD OF STUDIES FOR AY 2023-2024

### 1. Welcome and Introductory remarks by the BOS Chairman

The Chairman welcomed VTU Nominee, Expert members from academics and industry and other members of the Board of Studies and highlighted the following salient points for discussion in the 10<sup>th</sup> BOS Meeting.

- Approval for Scheme of the B.E. program of 160 credits (as per NEP) for 2021-25 and 2022-26 batches.
- Approval for syllabus of 3rd, 4th, 5th and 6th semesters B.E program (160 credits)

### Introductory remarks by the BOS Chairman

1. Chairman remarked on the need of accreditation process which is predominantly outcome-based aiming at giving more weightage to the curriculum design, execution and outcome.
2. Chairman also mentioned about the 3 levels of expectation by the NBA namely the achievement of course outcomes, program outcomes and the program educational objectives.
3. Chairman mentioned that different guidelines such as that proposed by AICTE, Lead Professional Societies and VTU are available on the curriculum structure i.e., number of courses to be offered for B.E. program.
4. Chairman briefed about National Education Policy and emphasized more on conceptual understanding and Experiential Learning.
5. Chairman outlined Department Specific Centres of Excellence collaborated with reputed Industries.
6. Chairman sought opinion of industry experts on curriculum design and structure that could promote learning and impart industry-specific skills, most importantly technical skills. He also invited responses from the external academic experts on the same.



## Remarks by Academic Experts and Expert Members

### 1. Comments, Suggestions and Discussions about Agenda

Agenda 1: Scheme of the B.E. program of 160 credits (as per NEP) for 2021-25 and 2022-26 batches

Academic Expert Members suggested the following:

- For the scheme of 2021-2025 Batch, change the title of the course of “Object Oriented Programming using Java” to “Object Oriented Programming using C++”.
- Make “Data Communication and Networking” course as Professional core course.
- Modify “Low power VLSI Course” so as to incorporate to mini project.
- Include “RTL verification Course” in the curriculum.
- For Physical Design II open elective course, talk to Industry sponsored person to include RTL Verification in the syllabus.
- For Industrial Internship, academic expert emphasized to request Center of excellence to provide the Internship for the students of Final year in emerging Technology in their respective domains, as the internship carries 14 credits.

Agenda 2: Syllabus of 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> semesters B.E program (160 credits)

1. Expert Member Suggested to verify the syllabus for “Linear Integrated Courses” and “Circuit design and Analysis”.
2. Expert members emphasized that some courses like Network analysis, Control Systems, Signals and Systems and Electromagnetic Field Theory courses are very much essential for GATE preparation. So, special care should be taken to make the students to become familiar about these courses.
3. All Expert members appreciated the syllabus curriculum structure of National Educational Policy (NEP).

2. The Board of Studies in Electronics and Communication Engineering recommended the following:

The Diverse Committee recommended

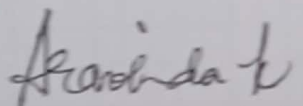
- Scheme of the B.E. program of 160 credits (as per NEP) for 2021-25 and 2022-26 batches
- Syllabus for 3rd, 4th, 5th and 6th semesters B.E program (160 credits)

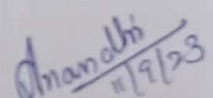
Scheme and syllabus of 3rd, 4th, 5th and 6th semesters can be forwarded for approval for the AY 2023-24.

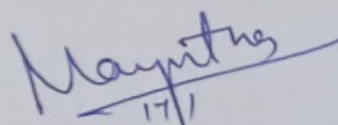
### 3. Vote of Thanks by the Chairman- BOS

The meeting concluded with the vote of thanks by the chairman (HOD, ECE Department). He appreciated the comments from all the experts, faculty members and student alumni for their valuable inputs and suggestions.

The schemes of 2021-25 and 2022-26 are enclosed with this MoM.

  
11.09.23  
BOS - CHARIMAN

  
11/9/23  
DEAN - ACADEMICS

  
17/9/23  
PRINCIPAL

New Horizon College of Engineering  
 Department of Electronics and Communication Engineering  
 Scheme of Semester I to Semester VIII (Autonomous) - 160 Credits (2021-25 batch) (AY:2022-23)

Semester I														
Sl. No.	Course Code	Name of the Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
				L	T	P	S					CIE	SEE	Total
1	21MAT11A	Applied Mathematics - I	AS	3	1	0	0	4	5	0	5	50	50	100
2	21CHE12A	Engineering Chemistry	AS	3	0	0	0	3	4	0	4	50	50	100
3	21CSE13A	Problem solving using Python	CSE	3	0	0	0	3	4	0	4	50	50	100
4	21MEE14A	Computer Aided Engineering Drawing	ME	2	0	1	0	3	2	2	4	50	50	100
5	21ECE15A	Basic Electronics	ECE	3	0	0	0	3	4	0	4	50	50	100
6	21CHL16A	Engineering Chemistry Lab	AS	0	0	1	0	1	0	3	3	50	50	100
7	21CSL17A	Problem solving using Python Lab	CSE	0	0	1	0	1	0	3	3	50	50	100
8	21AEC11A	Communicative English	HSS	1	0	0	0	1	2	0	2	50	50	100
9	21AEC13A	Political Science	HSS	1	0	0	0	1	1	0	1	50	50	100
								20	22	8	30	450	450	900

Semester II															
Sl. No.	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks			
				L	T	P	S					CIE	SEE	Total	
1	21MAT21A	Applied Mathematics - II	AS	3	1	0	0	4	5	0	5	50	50	100	
2	21PHY22A	Engineering Physics	AS	3	0	0	0	3	4	0	4	50	50	100	
3	21MEE23A	Elements of Mechanical Engineering	ME	3	0	0	0	3	4	0	4	50	50	100	
4	21CIV24A	Elements of Civil Engineering	CV	3	0	0	0	3	4	0	4	50	50	100	
5	21EEE25A	Basic Electrical Engineering	EE	3	0	0	0	3	4	0	4	50	50	100	
6	21PHL26A	Engineering Physics Lab	AS	0	0	1	0	1	0	3	3	50	50	100	
7	21EEL27A	Basic Electrical Engineering Lab	EE	0	0	1	0	1	0	3	3	50	50	100	
8	21AEC21A	Professional Writing Skills in English	HSS	1	0	0	0	1	2	0	2	50	50	100	
9	21AEC22A	Entrepreneurship Development - 1	MBA	1	0	0	0	1	1	0	1	50	50	100	
								Total	20	24	6	30	450	450	900

Semester III														
Sl. No.	Course Code	Name of the Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
				L	T	P	S					CIE	SEE	Total
1	21ECE31A	Applied Mathematics - III	AS	3	0	0	0	3	4	0	4	50	50	100
2	21ECE32A	Signals & Systems using Python	ECE	1	0	1	0	2	1	2	3	50	50	100
3	21HSS332A / 21HSS333A	Aadalitha Kannada / Vyavaharika Kannada	HSS	1	0	0	0	1	1	0	1	50	50	100
4	21HSS342A	Environmental Science	HSS	1	0	0	0	1	1	0	1	50	50	100
5	21ECE35A	Analog Electronic Circuits	ECE	3	0	0	0	3	4	0	4	50	50	100
6	21ECL35A	Analog Electronic Circuits Lab	ECE	0	0	1	0	1	0	2	2	50	50	100



7	21ECE209A	Digital Electronic Circuits	ECE	3	0	1	0	1	0	2	2	50	50	100
8	21ECL36A	Digital Electronic Circuits Lab	ECE	3	0	0	0	3	4	0	4	50	50	100
9	21ECE37A	Networks & Control Systems	ECE	0	0	1	0	1	0	2	2	50	50	100
10	21ECL37A	Networks & Control Systems Lab	ECE	0	0	1	0	2	0	4	4	50	50	100
11	21ECE38A	Mini project	ECE	0	0	2	0	2	19	12	31	550	550	1100

Semester IV														
Sl. No.	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
				L	T	P	S					CIE	SEE	Total
1	21ECE41A	Applied Mathematics - IV	AS	3	0	0	0	3	4	0	4	50	50	100
2	21HSS421A	Life Skills for Engineers	HSS	1	0	1	0	2	1	2	3	50	50	100
3	21HSS431A	Entrepreneurship Development - 2	HSS	1	0	0	0	1	1	0	1	50	50	100
4	21HSS441A	Constitution of India & Professional Ethics	HSS	1	0	0	0	1	1	0	1	50	50	100
5	21ECE45A	System Design using HDL	ECE	3	0	0	0	3	4	0	4	50	50	100
6	21ECL45A	Hardware Description Language Lab	ECE	0	0	1	0	1	0	2	2	50	50	100
7	21ECE46A	Microprocessors & Interfacing	ECE	3	0	0	0	3	4	0	4	50	50	100
8	21ECL46A	Microprocessors Lab	ECE	0	0	1	0	1	0	2	2	50	50	100
9	21ECE47A	Digital Signal Processing	ECE	3	0	0	0	3	4	0	4	50	50	100
10	21ECL47A	Digital Signal Processing Lab	ECE	0	0	1	0	1	0	2	2	50	50	100
11	21ECE48A	Summer Internship - I	ECE	0	0	0	2	2	0	0	0	50	50	100
							<b>Total</b>	<b>21</b>	<b>19</b>	<b>8</b>	<b>27</b>	<b>550</b>	<b>550</b>	<b>1100</b>

Sl. No.	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
				L	T	P	S					CIE	SEE	Total
1	21ECE51	Communication Systems - I	ECE	3	0	0	0	3	3	0	3	50	50	100
2	21ECL51	Communication Systems - I Lab	ECE	0	0	1	0	1	0	2	2	50	50	100
3	21ECE52	CMOS VLSI Design	ECE	3	0	0	0	3	3	0	3	50	50	100
4	21ECL52	CMOS VLSI Design Lab	ECE	0	0	1	0	1	0	2	2	50	50	100
5	21ECE53	Linear ICs and Applications	ECE	3	0	0	0	3	3	0	3	50	50	100
6	21ECE54X	Professional Elective Course - I	ECE	3	0	0	0	3	3	0	3	50	50	100
7	21ECL55X	Ability Enhancement Course - V	ECE	0	0	1	0	1	0	2	2	50	50	100
8	21ECE56	Mini Project	ECE	0	0	1	0	1	0	0	0	50	50	100
9	21ECK57	Research Methodology and IPR	ECE	1	0	0	0	1	1	0	1	50	50	100
10	21ECK58	Innovation and Design Thinking	Any	1	0	0	0	1	1	0	1	50	50	100
								<b>18</b>	<b>14</b>	<b>6</b>	<b>20</b>	<b>500</b>	<b>500</b>	<b>1000</b>

Course Code	Professional Elective Course - I
21ECE541	Internet of Things
21ECE542	Electromagnetic Field Theory
21ECE543	DSP Algorithms and Architecture
21ECE544	Programming with Data Structures using C
21ECE545	Nanoelectronics

Course Code	Ability Enhancement Course - V
21ECL551	Antenna simulation using Ansys
21ECL552	ALP with Microcontrollers
21ECL553	Network simulation using NS-2
21ECL554	Electronics Applications using Scilab
21ECL555	Optical Communication using Optsim

Semester VI															
Sl. No.	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks			
				L	T	P	S					CIE	SEE	Total	
1	21ECE61	Operations Research and Management	ECE	3	0	0	0	3	3	0	3	50	50	100	
2	21ECE62	Embedded System Design	ECE	3	0	0	0	3	3	0	3	50	50	100	
3	21ECL62	Embedded System Design Lab	ECE	0	0	1	0	1	0	2	2	50	50	100	
4	21ECE63	Communication Systems - II	ECE	3	0	0	0	3	3	0	3	50	50	100	
5	21ECL63	Communication Systems - II Lab	ECE	0	0	1	0	1	0	2	2	50	50	100	
6	21ECE64X	Professional Elective Course - II	ECE	3	0	0	0	3	3	0	3	50	50	100	
7	21ECK65	Social Connect and Responsibility	ECE	0	0	1	0	1	2	0	2	50	50	50	
8	21ECE66	Innovation / Entrepreneurship / Societal Internship	ECE	0	0	3	0	3	0	0	0	50	50	100	
9	21ECE67	Mini Project	ECE	0	0	1	0	1	0	0	0	50	50	100	
10	21NHOP6XX	Industrial Open Elective Course - I	ECE	2	0	1	0	3	3	0	3	50	50	100	
								<b>Total</b>	<b>22</b>	<b>17</b>	<b>4</b>	<b>21</b>	<b>500</b>	<b>500</b>	<b>950</b>

Course Code	Professional Elective Course - II

21ECT642	Biomedical Signal Processing
21ECT643	Low Power VLSI Design
21ECT644	Object Oriented Programming using Java
21ECT645	Bio-inspired Design and Innovation

Course Code	Industrial Open Elective Course - I
21NHOP609	CISCO - Routing & Switching - I
21NHOP622	Programming of Industrial Robot
21NHOP623	5G Communication
21NHOP625	VLSI Physical Design - I
21NHOP627	Juniper Network Operating System

Sl. No.	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
				L	T	P	S					CIE	SEE	Total
1	21ECE71	Wireless Communication	ECE	3	0	0	0	3	3	0	3	50	50	100
2	21ECE72	Coding and Cryptography	ECE	3	0	0	0	3	3	0	3	50	50	100
3	21ECE73X	Professional Elective Course - III	ECE	3	0	0	0	3	3	0	3	50	50	100
4	21ECE74	Project Work in startup / Industries	ECE	0	0	10	0	10	0	0	0	100	100	200
5	21NHOP7XX	Industrial Open Elective Course - II	ECE	3	0	0	0	3	3	0	3	50	50	100
<b>Total</b>								<b>22</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>300</b>	<b>300</b>	<b>600</b>

Course Code	Professional Elective Course - III
21ECE731	Cyber Security
21ECE732	Digital Image Processing
21ECE733	Analog & Mixed Mode VLSI Design
21ECE734	Data Communication and Networking
21ECE735	Introduction to Machine Learning

Course Code	Industrial Open Elective Course - II
21NHOP709	CISCO - Routing & Switching - I
21NHOP712	CISCO - Routing & Switching - II
21NHOP722	Programming of Industrial Robot
21NHOP723	5G Communication
21NHOP725	VLSI Physical Design - I
21NHOP726	VLSI Physical Design - II
21NHOP727	Juniper Network Operating System

Semester VIII														
Sl. No.	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
				L	T	P	S					CIE	SEE	Total
1	21ECE81	Technical Seminar	ECE	0	0	1	0	1	0	0	0	100	—	100
2	21ECE82	Research Internship / Industry Internship	ECE	0	0	14	0	14	0	0	0	100	100	200
3	21ECK83	Scientific Foundations of Health	XX	1	0	0	0	1	1	0	1	50	50	100
4	22NS584 /22PES84 /22YOG84	National Service Scheme / Physical Education (Sports and Athletics) / Yoga	XX	0	0	0	0	0	0	0	0	50	50	100
<b>Total</b>								<b>16</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>300</b>	<b>200</b>	<b>500</b>



New Horizon College of Engineering  
 Dep. .ment of Electronics and Communication Engineering  
 Scheme of Semester I to Semester VIII (Autonomous) - 160 Credits (2022-26 batch) (AY:2022-23)

Semester I															
Sl. No.	Category	Course Code	Name of the Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
					L	T	P	S					CIE	SEE	Total
1	ASC	22MTE11	Applied Mathematics for Engineers - I	AS	3	0	1	0	4	3	2	5	50	50	100
2	ASC	22CHE12	Applied Chemistry	AS	3	0	0	0	3	4	0	4	50	50	100
3	ASC	22CHL12	Applied Chemistry Lab	AS	0	0	1	0	1	0	3	3	50	50	100
4	ESC	22CAD13	Computer Aided Engineering Drawing	ME	2	0	1	0	3	3	2	5	50	50	100
5	ESC-I	22ESC142	Introduction to Electrical Engineering	EE	3	0	0	0	3	4	0	4	50	50	100
6	PLC-I	22PLC151	Problem solving using Python	IS	2	0	1	0	3	3	2	5	50	50	100
7	AEC	22ENG16	Communicative English	HSS	1	0	0	0	1	2	0	2	50	50	100
8	HSS	22CIP17	Indian Constitution and Professional Ethics	HSS	1	0	0	0	1	1	0	1	50	50	100
9	AEC	22SFH18	Scientific Foundation for Health with Yoga	CV	1	0	0	0	1	2	0	2	50	50	100
<b>Total</b>									<b>20</b>	<b>22</b>	<b>9</b>	<b>31</b>	<b>450</b>	<b>450</b>	<b>900</b>

Semester II															
Sl. No.	Category	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
					L	T	P	S					CIE	SEE	Total
1	ASC	22MTE21	Applied Mathematics for Engineers - II	AS	3	0	1	0	4	3	2	5	50	50	100
2	ASC	22PHE22	Applied Physics	AS	3	0	0	0	3	4	0	4	50	50	100
3	ASC	22PHL22	Applied Physics Lab	AS	0	0	1	0	1	0	3	3	50	50	100
4	ESC	22CSE23	Programming Data Structures in C	CS	2	0	0	0	2	3	0	3	50	50	100
5	ESC	22CSL23	Programming Data Structures in C Lab	CS	0	0	1	0	1	0	3	3	50	50	100
6	ESC-II	22ESC241	Basic Electronics	EC	3	0	0	0	3	4	0	4	50	50	100
7	ETC-II	22ETC251	Robotics and Automation	ME	3	0	0	0	3	4	0	4	50	50	100
8	AEC	22ENG26	Professional Writing Skills	HSS	1	0	0	0	1	2	0	2	50	50	100
9	HSS	22KSK27 / 22KSK27	Samskruthika Kannada / Balake Kannada	HSS	1	0	0	0	1	1	0	1	50	50	100
10	AEC	22IDT28	Innovation and Design Thinking	CV	1	0	0	0	1	2	0	2	50	50	100
<b>Total</b>									<b>20</b>	<b>23</b>	<b>8</b>	<b>31</b>	<b>500</b>	<b>500</b>	<b>1000</b>

Semester III															
Sl. No.	Category	Course Code	Name of the Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
					L	T	P	S					CIE	SEE	Total
1	BSC	22ECE31	Applied Mathematics - III	AS	3	0	0	0	3	3	0	3	50	50	100
2	PCC	22ECE32	Analog Electronic Circuits	EC	3	0	0	0	3	3	0	3	50	50	100
3	PCCL	22ECL32	Analog Electronic Circuits Lab	EC	0	0	1	0	1	0	2	2	50	50	100
4	PCC	22ECE33	Digital Electronic Circuits	EC	3	0	0	0	3	3	0	3	50	50	100
5	PCCL	22ECL33	Digital Electronic Circuits Lab	EC	0	0	1	0	1	0	2	2	50	50	100
6	ESC	22ECE34X	Engineering Science Course	EC	3	0	0	0	3	3	0	3	50	50	100
7	AEC	22ECL35X	Ability Enhancement Course - III	EC	0	0	1	0	1	0	2	2	50	50	100
8	BSC	22BIK36	Bio-inspired Design and Innovation	Any	3	0	0	0	3	3	0	3	50	50	100
9	NCMC	22NSK37 / 22PEK37 / 22YOK37	National Service Scheme / Physical Education (Sports and Athletics) / Yoga	XX	0	0	0	0	0	2	0	2	50	-	50
10	UHV	22SCK38	Social Connect and Responsibility	Any	0	0	1	0	1	2	0	2	50	-	50
<b>Total</b>									<b>19</b>	<b>19</b>	<b>6</b>	<b>25</b>	<b>500</b>	<b>400</b>	<b>900</b>

11	NCMC	22DMAT31	Basic Applied Mathematics - I
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Course Code	Engineering Science Course
22ECE341	Circuit Design and Analysis
22ECE342	Signals and Systems
22ECE343	Linear Integrated Circuits
22ECE344	Control Systems

Course Code	Ability Enhancement Course - III
22ECL351	Electronics Design using Proteus
22ECL352	PCB Design using OrCAD
22ECL353	Embedded Design using MPLAB
22ECL354	System Design using Altium

Sl. No.	Category	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks			
					L	T	P	S					CIE	SEE	Total	
					1	BSC	22ECE41	Applied Mathematics - IV					AS	3	0	0
2	PCC	22ECE42	System Design using HDL	EC	3	0	0	0	3	3	0	3	50	50	100	
3	PCCL	22ECL42	Hardware Description Language Lab	EC	0	0	1	0	1	0	2	2	50	50	100	
4	PCC	22ECE43	Digital Signal Processing	EC	3	0	0	0	3	3	0	3	50	50	100	
5	PCCL	22ECL43	Digital Signal Processing Lab	EC	0	0	1	0	1	0	2	2	50	50	100	
6	PCC	22ECE44	Microprocessors & Interfacing	EC	3	0	0	0	3	3	0	3	50	50	100	
7	PCCL	22ECL44	Microprocessors Lab	EC	0	0	1	0	1	0	2	2	50	50	100	
8	PLC	22ECE45X	Programming Language Course	EC	2	0	1	0	3	3	0	3	50	50	100	
9	AEC	22ECL46X	Ability Enhancement Course - IV	EC	0	0	1	0	1	0	2	2	50	--	50	
10	NCMC	22NSK47	National Service Scheme	XX	0	0	0	0	0	2	0	2	50	--	50	
		/22PEK47	Physical Education (Sports and Athletics)													
		/22YOK47	Yoga													
11	UHV	22UHK48	Universal Human Values Course	Any	1	0	0	0	1	2	0	2	50	--	50	
12	PROJ	22ECE49	Mini Project	EC	0	0	1	0	1	0	0	0	50	50	100	
									<b>Total</b>	<b>21</b>	<b>19</b>	<b>8</b>	<b>27</b>	<b>600</b>	<b>500</b>	<b>1100</b>
				BS	0	0	0	0	0	2	0	2	50	--	50	

13	NCMC	22DMAT41	Basic Applied Mathematics - II
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Course Code	Programming Language Course
22ECE451	Object Oriented Programming using Java
22ECE452	IoT Programming
22ECE453	Embedded Linux Programming
22ECE454	Programming using RoboDK

Course Code	Ability Enhancement Course - IV
22ECL461	Electronics Applications using Scilab
22ECL462	Embedded Designs using Atmel Studio
22ECL463	Virtual Instrumentation using Labview
22ECL464	App Development using Google Flutter

Sl. No.	Category	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
					L	T	P	S					CIE	SEE	Total
1	HSMC	22ECE51	Operations Research and Management	EC	3	0	0	0	3	3	0	3	50	50	100
2	PCC	22ECE52	Communication Systems - I	EC	3	0	0	0	3	3	0	3	50	50	100
3	PCCL	22ECL52	Communication Systems - I Lab	EC	0	0	1	0	1	0	2	2	50	50	100
4	PCC	22ECE53	CMOS VLSI Design	EC	3	0	0	0	3	3	0	3	50	50	100
5	PCCL	22ECL53	CMOS VLSI Design Lab	EC	0	0	1	0	1	0	2	2	50	50	100
6	PEC	22ECE54X	Professional Elective Course - I	EC	3	0	0	0	3	3	0	3	50	50	100
7	AEC	22RMK55	Research Methodology and Intellectual Property Rights	EC	2	1	0	0	3	4	0	4	50	50	100
8	UHV	22ESK56	Environmental Studies	Any	2	0	0	0	2	2	0	2	50	50	100
9	NCMC	22NSK57 /22PEK57 /22YOK57	National Service Scheme / Physical Education (Sports and Athletics) / Yoga	XX	0	0	0	0	0	2	0	2	50	--	50
10	PROJ	22ECE58	Mini Project	EC	0	0	1	0	1	0	0	0	50	50	100
<b>Total</b>									<b>20</b>	<b>20</b>	<b>4</b>	<b>24</b>	<b>500</b>	<b>450</b>	<b>950</b>

Course Code	Professional Elective Course - I
22ECE541	Data Communication and Networking
22ECE542	Electromagnetic Field Theory
22ECE543	DSP Algorithms and Architecture
22ECE544	Artificial Neural Networks
22ECE545	Internet of Things

Semester VI															
Sl. No.	Category	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
					L	T	P	S					CIE	SEE	Total
1	PCC	22ECE61	Embedded System Design	EC	3	0	0	0	3	3	0	3	50	50	100
2	PCCL	22ECL61	Embedded System Design Lab	EC	0	0	1	0	1	0	2	2	50	50	100
3	PCC	22ECE62	Communication Systems - II	EC	3	0	0	0	3	3	0	3	50	50	100
4	PCCL	22ECL62	Communication Systems - II Lab	EC	0	0	1	0	1	0	2	2	50	50	100
5	PCC	22ECE63	Essentials of Cyber Security	EC	3	0	0	0	3	3	0	3	50	50	100
6	PEC	22ECE64X	Professional Elective Course - II	EC	3	0	0	0	3	3	0	3	50	50	100
7	PROJ	22ECE65	Project Phase - I	EC	0	0	2	0	2	0	0	0	50	50	100
8	OEC	22NHOP6XX	Industrial Open Elective Course - I	XX	3	0	0	0	3	3	0	3	50	50	100
9	AEC	22ECL66X	Ability Enhancement Course - V	EC	0	0	1	0	1	0	2	2	50	50	100
10	MC	22NSK67 /22PEK67 /22YOK67	National Service Scheme / Physical Education (Sports and Athletics) / Yoga	XX	0	0	0	0	0	2	0	2	50	0	50
<b>Total</b>									<b>20</b>	<b>17</b>	<b>6</b>	<b>23</b>	<b>500</b>	<b>450</b>	<b>950</b>

Course Code	Professional Elective Course - II
22ECE641	Machine Learning Algorithms
22ECE642	Biomedical Signal Processing
22ECE643	Error Control Coding
22ECE644	Low Power VLSI Design
22ECE645	Optical Communication

Course Code	Industrial Open Elective Course
22NHOP609A	CISCO - Routing & Switching - I
22NHOP622A	Programming of Industrial Robot
22NHOP623A	5G Communication
22NHOP625A	VLSI Physical Design - I



Course Code	Ability Enhancement Course - V
22ECL661	Antenna simulation using Ansys
22ECL662	Network simulation using NS-2
22ECL663	Electronic Design Automation using Tanner
22ECL664	ALP with Microcontrollers



Sl. No.	Category	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
					L	T	P	S					CIE	SEE	Total
1	PCC	22ECE71	Wireless Communication	EC	3	0	0	0	3	3	0	3	50	50	100
2	PCCL	22FCL71	Wireless Communication Lab	EC	0	0	1	0	1	0	2	2	50	50	100
3	PCC	22ECE72	Computer Vision	EC	3	0	0	0	3	3	0	3	50	50	100
4	PCCL	22FCL72	Computer Vision Lab	EC	0	0	1	0	1	0	2	2	50	50	100
5	PCC	22ECE73	Analog and Mixed mode VLSI Design	EC	3	1	0	0	4	5	0	5	50	50	100
6	PEC	22ECE74X	Professional Elective Course - III	EC	3	0	0	0	3	3	0	3	50	50	100
7	PROJ	22ECE75	Project Phase - II	EC	0	0	6	0	6	0	0	0	50	50	100
8	OEC	22NHOP7XX	Industrial Open Elective Course - II	XX	3	0	0	0	3	3	0	3	50	50	100
<b>Total</b>									<b>24</b>	<b>17</b>	<b>4</b>	<b>21</b>	<b>400</b>	<b>400</b>	<b>800</b>

Course Code	Professional Elective Course - III
22ECE741	Automotive Electronics
22ECE742	Advanced Microcontrollers
22ECE743	Software Defined Radio
22ECE744	Satellite Communication
22ECE745	Digital Image Processing

Course Code	Industrial Open Elective Course
22NHOP709A	CISCO - Routing & Switching - I
22NHOP712A	CISCO - Routing & Switching - II
22NHOP722A	Programming of Industrial Robot
22NHOP723A	5G Communication
22NHOP725A	VLSI Physical Design - I
22NHOP7XXA	VLSI Physical Design - II
22NHOP7XXA	JUNIPER - Routing & Switching

Semester VIII															
Sl. No.	Category	Course Code	Course	BoS	Credit Distribution				Overall Credits	Contact hours Weekly (Theory)	Contact hours Weekly (Lab)	Contact hours Weekly (Total)	Marks		
					L	T	P	S					CIE	SEE	Total
1	PEC	22ECE81X	Professional Elective Course - IV	EC	3	0	0	0	3	3	0	3	50	50	100
2	PEC	22ECE82X	Professional Elective Course - V	EC	3	0	0	0	3	3	0	3	50	50	100
3	INT	22ECE83	Internship (Industry / Research / Rural)	EC	0	0	10	0	10	0	0	0	100	100	200
<b>Total</b>									<b>16</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>200</b>	<b>200</b>	<b>400</b>

Course Code	Professional Elective Course - IV
22ECE811	Multimedia Communication
22ECE812	Wireless Sensor Networks
22ECE813	Nanoelectronics
22ECE814	Speech Processing
22ECE815	Statistical Signal Processing

Course Code	Professional Elective Course - V
22ECE821	Quantum Computing
22ECE822	Geospatial Communication
22ECE823	Adaptive Signal Processing
22ECE824	Radar Networks
22ECE825	Power Electronics