SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)

VIDYA NAGAR, PALISSERY, KARUKUTTY- 683 576

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Curriculum for B.Tech. in Electronics Engineering (VLSI Design and Technology)

Branch Code – EV

(Group B)

2026 Scheme • Semesters S1 – S8

Vision

To become a premier Electronics Engineering Department driving innovation, research, and technological leadership for sustainable societal advancement.

Mission

- Impart quality Electronics Engineering education by strengthening core fundamentals and engaging with industry and society.
- Conduct and promote research in Electronics Engineering to develop practical and innovative technological solutions.
- Develop socially responsible professionals with ethical leadership qualities.

Program Outcomes (POs)

- PO1: Engineering Knowledge: Apply math, science, computing, and engineering fundamentals to complex problems.
- PO2: Problem Analysis: Formulate and analyse complex engineering research and literature.
- PO3: Design/Development of Solutions: Design solutions considering public safety, cost, and net-zero carbon goals.
- PO4: Conduct Investigations: Use research methods, experiment design, and data analysis for valid conclusions.
- PO5: Engineering Tool Usage: Select and apply modern engineering and IT tools with an understanding of limits.
- PO6: The Engineer and the World: Evaluate societal, health, legal, and environmental sustainability impacts
- PO7: Ethics: Apply professional ethics, human values, inclusivity, and legal compliance.
- PO8: Individual and Collaborative Teamwork: Function effectively as an individual or team leader.
- PO9: Communication: Communicate and write effectively across diverse cultural and technical communities.
- PO10: Project Management and Finance: Apply management and economic principles in multidisciplinary settings.
- PO11: Life-Long Learning: Adapt to emerging technologies and engage in independent critical thinking.

Program Specific Outcomes (PSOs)

- PSO1: Design and implement digital and analog VLSI systems using modern semiconductor design tools to meet industry specifications.
- PSO2: Develop research skills to analyze, design, and verify VLSI circuits and systems using electronic design automation (EDA) and simulation tools.
- PSO3: Work effectively in multidisciplinary teams to develop sustainable VLSI systems for technological applications.

Program Educational Objectives (PEOs)

- PEO1: Graduates will establish successful careers in Electronics Engineering and related fields by applying strong fundamentals and EDA tools.
- PEO2: Graduates will pursue higher studies and research to develop practical and effective technological solutions in Electronics Engineering.
- PEO3: Graduates will demonstrate leadership in professional practice and contribute to societal development through innovative engineering solutions.

ABBREVIATIONS & COURSE CATEGORIES

L – Lecture (hours)	T – Tutorial (hours)	P – Practical (hours)
SL – Self-Learning (hours)	MC – MOOC Course	Cr. – Credits
IAT1 / IAT2 – Internal Assessment Test 1 / 2	CIA – Continuous Internal Assessment	SEE – Semester End Examination
BSC – Basic Science Course	ESC – Engineering Science Course	PC / PCL – Programme Core / Programme Core Lab
PC-PBL – Programme Core – Project Based Learning	PE – Programme Elective	OE – Open Elective
HMC – Humanities Management Course	SEC – Skill Enhancement Course	HWP – Health & Wellness Programme
PWS – Project Work / Seminar	GC / UC / UE – Group Course / Universal Course/ Universal Elective	MOOC – Massive Open Online Course

SEMESTER 1 (S1)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GYMAT101	BSC	GC	Matrices, Ordinary Differential Equations and Transforms	3	45	0	0	45	90	40	40	40	60	100
2	B	26GBPHT121 / 26GXCYT122	BSC	GC	Physics for Electrical Science / Chemistry for Information Science and Electrical Science	4	45	0	30	45	120	40	40	40	60	100
3	C	26GXEST103	ESC	GC	Engineering Graphics	3	30	0	30	30	90	60	60	40	60	100
4	D	26GXEST104	ESC	GC	Introduction to Electrical and Electronics Engineering	4	60	0	0	60	120	40	40	40	60	100
5	E	26UCEST105	ESC	UC	Programming in C	4	45	0	30	45	120	40	40	40	60	100
6	F	26GXESL106	ESC	GC	Basic Electrical and Electronics Engineering Workshop	1	0	0	30	0	30	-	-	100	-	100
7	G	26UCHWT127	HWP	UC	Health and Wellness	1	0	0	30	0	30	-	-	50	-	50
		26UCHUT128	HMC		Life Skills and Professional Communication									100	-	100
8		26UCSEM129	SEC	UC	MOOC Course/Communicative English (8 WEEKS)	0	0	0	0	0	0	-	-	-	-	-
TOTAL						**20**	**225**	**0**	**150**	**225**	**600**					
Bridge Course: Total 15 Hours																

SEMESTER 2 (S2)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GYMAT201	BSC	GC	Partial Differential Equations and Vector Calculus	3	45	0	0	45	90	40	40	40	60	100
2	B	26GBPHT121 / 26GXCYT122	BSC	GC	Physics for Electrical Science / Chemistry for Information Science and Electrical Science	4	45	0	30	45	120	40	40	40	60	100
3	C	26GBEST203	ESC	GC	Foundations of Artificial Intelligence and Data Science	3	45	0	0	45	90	40	40	40	60	100
4	D	26PCECT204	PC	PC	Network Theory	4	45	15	0	60	120	40	40	40	60	100
5	E	26UCEST205	ESC	UC	Engineering Entrepreneurship & IPR	3	45	0	0	45	90	40	40	60	40	100
6	F	26GBESL206	ESC	GC	IoT Workshop	1	0	0	30	0	30	-	-	100	-	100
7	G	26UCHWT127	HWP	UC	Health and Wellness	1	0	0	30	0	30	-	-	50	-	50
		26UCHUT128	HMC		Life Skills and Professional Communication									100	-	100
8		26UCSEM129	SEC	UC	MOOC Course/Communicative English (8 WEEKS)	1	0	0	0	30	30	-	-	-	-	-
TOTAL						**20**	**225**	**15**	**90**	**270**	**600**					

SEMESTER 3 (S3)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GYMAT301	BSC	GC	Complex Analysis and Integral Transforms	3	45	0	0	45	90	40	40	40	60	100
2	B	26PCECT302	PC	PC	Solid State Devices	3	45	0	0	45	90	40	40	40	60	100
3	C	26PCECT303	PC	PC	Logic Circuit Design	4	45	15	0	60	120	40	40	40	60	100
4	D	26PBEVT304	PC-PBL	PB	Analog Integrated Circuits	4	60	0	0	60	120	40	40	60	40	100
5	E	26GREST305	ESC	GC	Fundamentals of Computer Architecture	3	45	0	0	45	90	40	40	40	60	100
6	F	26UCHUT346	HMC	UC	Economics for Engineers	2	30	0	0	30	60	40	40	50	50	100
		26UCHUT347			Engineering Ethics and Sustainable Development							-	-	50	50	100
7	G	26PCECL307	PCL	PC	Logic Circuit Design Lab	2	0	0	45	15	60	-	-	50	50	100
8	H	26PCECL308	PCL	PC	Scientific Computing Lab	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC Course (8 WEEKS)	0	0	0	0	0	0	-	-	-	-	-
TOTAL						**23**	**270**	**15**	**90**	**315**	**690**					
Bridge Course for Lateral Entry Students: Total 15 Hours																

SEMESTER 4 (S4)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GBMAT401	BSC	GC	Probability Distributions, Statistical Inference and Random Process	3	45	0	0	45	90	40	40	40	60	100
2	B	26PCEVT402	PC	PC	VLSI Technology	3	45	0	0	45	90	40	40	40	60	100
3	C	26PCEVT403	PC	PC	Digital System Design	4	45	15	0	60	120	40	40	40	60	100
4	D	26PBECT404	PC-PBL	PB	Microcontroller Based System Design	4	60	0	0	60	120	40	40	60	40	100
5	E	26PEEVT41N	PE	PE	Program Elective-1	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
6	F	26UCHUT346	HMC	UC	Economics for Engineers	2	30	0	0	30	60	40	40	50	50	100
		26UCHUT347			Engineering Ethics and Sustainable Development							-	-	50	50	100
7	G	26PCEVL407	PCL	PC	Analog Integrated Circuits and Simulation Lab	2	0	0	45	15	60	-	-	50	50	100
8	H	26PCECL408	PCL	PC	Microcontroller Lab	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC Course (8 WEEKS)	1	0	0	0	30	30	-	-	-	-	-
TOTAL						**24/ 26**	**270**	**15**	**90**	**345/ 405**	**720/ 780**					

SEMESTER 5 (S5)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PCEVT501	PC	PC	Embedded Systems and RTOS	3	45	0	0	45	90	40	40	40	60	100
2	B	26PCEVT502	PC	PC	VLSI Verification and Testing	3	45	0	0	45	90	40	40	40	60	100
3	C	26PCEVT503	PC	PC	Digital Signal Processing	4	45	15	0	60	120	40	40	40	60	100
4	D	26PBEVT504	PC-PBL	PB	Analog CMOS design	4	60	0	0	60	120	40	40	60	40	100
5	E	26PEEVT52N	PE	PE	Program Elective-2	3/5	45	0	0	45/105	90/150	40	40	40	60	100
6	F	26GXEST566	ESC	GC	Design Thinking and Product Development (Group specific)	2	30	0	0	30	60	40	40	40	60	100
		26UCHUT567	HMC	UC	Constitution of India											
7	G	26PCEVL507	PCL	PC	Analog Design Lab	2	0	0	45	15	60	-	-	50	50	100
8	H	26PCEVP508	PWS	PC	Mini Project	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC (8 weeks)	0	0	0	0	0	0	-	-	-	-	-
TOTAL						**23/25**	**270**	**15**	**90**	**315/375**	**690/750**					

Industrial Visit: Maximum 12 days are permitted in S5/S6, not exceeding more than 6 working days.
Industrial Training: Students who are not participating in the industrial visit must attend industrial training during that period.

SEMESTER 6 (S6)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PCEVT601	PC	PC	Design Flow from RTL to GDSII	3	45	0	0	45	90	40	40	40	60	100
2	B	26PCEVT602	PC	PC	Digital CMOS Design	4	45	15	0	60	120	40	40	40	60	100
3	C	26PBEVT603	PC-PBL	PB	FPGA Based System Design	4	60	0	0	60	120	40	40	60	40	100
4	D	26PEEVT63N	PE	PE	Program Elective-3	3/5	45	0	0	45/105	90/150	40	40	40	60	100
5	E	26OEECT61N	OE	OE	Open Elective-1	3	45	0	0	45	90	40	40	40	60	100
6	F	26GXEST566	ESC	GC	Design Thinking and Product Development (Group specific)	2	30	0	0	30	60	40	40	40	60	100
		26UCHUT567	HMC	UC	Constitution of India											
7	G	26PCEVL607	PCL	PC	Digital Design Lab	2	0	0	45	15	60	-	-	50	50	100
8	H	26PCEVL608	PCL	PC	RTOS Lab	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC (8 weeks)	1	0	0	0	30	30	-	-	-	-	-
TOTAL						**24/26**	**270**	**15**	**90**	**345/405**	**720/780**					

Industrial Visit: Maximum 12 days are permitted S5/S6, not exceeding more than 6 working days
Industrial Training: Students who are not participating in the industrial visit must attend industrial training during that period..

***Note**: Open Electives are such courses which will be offered by other departments*

SEMESTER 7 (S7)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PEEVT74N/ 26PEEVM74N	PE	PE	Program Elective-4 (Self Study/MOOC/Online)	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
2	B	26PEEVT75N/ 26PEEVM75N	PE	PE	Program Elective-5 (Self Study/MOOC/Online)	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
3	C	26UEHUT71N/ 26UEHUM71N	HMC	UE	HMC Elective (Self Study/ MOOC/Online)	2	30	0	0	30	60	40	40	50	50	100
4	D	26OEECT72N/ 26OEECM72N	OE	OE	Open Elective-2 (Self Study/MOOC/Online)	3	45	0	0	45	90	40	40	40	60	100
5	E	26PCEVS705	PWS	PC	Seminar	2	0	0	45	15	60	-	-	50	-	50
6	F	26PCEVP706/ 26PCEVI706	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	5	0	0	150	0	150	-	-	100	-	100
					TOTAL	**18/ 20/ 22**	**165**	**0**	**195**	**180/ 240/ 300**	**540/ 600/ 660**					

SEMESTER 8 (S8)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PEEVT86N / 26PEEVM86N	PE	PE	Program Elective-6 (Self Study/MOOC/Online)	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
2	B	26UCHUT802 / 26UCHUM802	HMC	UC	Organizational Behavior and Business Communication (Self Study/MOOC/Online)	2	30	0	0	30	60	40	40	50	50	100
3	C	26OEECT83N/ 26OEECM83N	OE	OE	Open Elective-3 (Self Study/MOOC/Online)	3	45	0	0	45	90	40	40	40	60	100
4	D	26PCEVP806/ 26PCEVI806/ 26PCEVJ806	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project - Phase II	5	0	0	150	0	150	-	-	100	-	100
					TOTAL	**13/ 15**	**120**	**0**	**150**	**120/ 180**	**390/ 450**					

TOTAL PROGRAMME CREDITS (S1 – S8):
165 + Additional Credits from Level 5 courses (if awarded) + 3 Credits from Activity Points

PROGRAMME ELECTIVES, OPEN ELECTIVES & HMC ELECTIVES

Note : *Level 5 courses in the B. Tech. curriculum carry a total of 5 credits, consisting of 3 credits for the Programme Elective and 2 additional credits. The additional 2 credits shall be awarded only if the student meets the eligibility conditions specified in the B. Tech.. -2026 regulations. If those conditions are not fulfilled, the student will receive only 3 credits for the course.*

PROGRAM ELECTIVE-1

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEEVT411	PE	PE	Electronic Materials for VLSI	3	45	0	0	45	90	40	40	40	60	100
2	26PEEVT412	PE	PE	Digital Logic Optimization	3	45	0	0	45	90	40	40	40	60	100
3	26PEEVT413	PE	PE	Power Semiconductor Devices	3	45	0	0	45	90	40	40	40	60	100
4	26PEEVT414	PE	PE	Electromagnetics	3	45	0	0	45	90	40	40	40	60	100
5	26PEEVT415	PE	PE	Internet of Things	3	45	0	0	45	90	40	40	40	60	100
6	**26PEEVT416**	**PE**	**PE**	**High Voltage Power Semiconductor Devices**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-2

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEEVT521	PE	PE	ASIC	3	45	0	0	45	90	40	40	40	60	100
2	26PEEVT522	PE	PE	System on Chip	3	45	0	0	45	90	40	40	40	60	100
3	26PEEVT523	PE	PE	Low Power VLSI	3	45	0	0	45	90	40	40	40	60	100
4	26PEEVT524	PE	PE	Control Systems	3	45	0	0	45	90	40	40	40	60	100
5	26PEEVT525	PE	PE	ARM Programming	3	45	0	0	45	90	40	40	40	60	100
6	**26PEEVT526**	**PE**	**PE**	**Power-Efficient VLSI Engineering**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-3

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEEVT631	PE	PE	CAD for VLSI Design System	3	45	0	0	45	90	40	40	40	60	100
2	26PEEVT632	PE	PE	Hardware Design and Verification Techniques	3	45	0	0	45	90	40	40	40	60	100
3	26PEEVT633	PE	PE	Mixed Signal Circuit Design	3	45	0	0	45	90	40	40	40	60	100
4	26PEEVT634	PE	PE	Analog and Digital Communication	3	45	0	0	45	90	40	40	40	60	100
5	26PEEVT635	PE	PE	Computer Networks	3	45	0	0	45	90	40	40	40	60	100
6	**26PEEVT636**	**PE**	**PE**	**Mixed Signal VLSI Design**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-4

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEEVT741	PE	PE	Multi Core Processor Architecture	3	45	0	0	45	90	40	40	40	60	100
2	26PEEVT742	PE	PE	Network on Chip	3	45	0	0	45	90	40	40	40	60	100
3	26PEEVT743	PE	PE	VLSI Data Converters	3	45	0	0	45	90	40	40	40	60	100
4	26PEEVT744	PE	PE	Speech and Audio Processing	3	45	0	0	45	90	40	40	40	60	100
5	26PEEVT745	PE	PE	Sensors and Actuators	3	45	0	0	45	90	40	40	40	60	100
6	**26PEEVT746**	**PE**	**PE**	**Wireless Network on Chip**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-5

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEEVT751	PE	PE	Semiconductors Packaging and Testing	3	45	0	0	45	90	40	40	40	60	100
2	26PEEVT752	PE	PE	Design for Testability	3	45	0	0	45	90	40	40	40	60	100
3	26PEEVT753	PE	PE	Power Management IC Design	3	45	0	0	45	90	40	40	40	60	100
4	26PEEVT754	PE	PE	Nano Electronics	3	45	0	0	45	90	40	40	40	60	100
5	26PEEVT755	PE	PE	Robotics	3	45	0	0	45	90	40	40	40	60	100
6	**26PEEVT756**	**PE**	**PE**	**Robot Operating System**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-6

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEEVT861	PE	PE	Compound Semiconductors	3	45	0	0	45	90	40	40	40	60	100
2	26PEEVT862	PE	PE	Hign Speed IC	3	45	0	0	45	90	40	40	40	60	100
3	26PEEVT863	PE	PE	Quantum Devices Electronics	3	45	0	0	45	90	40	40	40	60	100
4	26PEEVT864	PE	PE	Opto Electronics	3	45	0	0	45	90	40	40	40	60	100
5	26PEEVT865	PE	PE	MEMS	3	45	0	0	45	90	40	40	40	60	100
6	**26PEEVT866**	**PE**	**PE**	**Opto Electronic Sensors and Devices**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

OPEN ELECTIVE-1

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26OEECT611	OE	OE	Entertainment Electronics	3	45	0	0	45	90	40	40	40	60	100
2	26OEECT612	OE	OE	Computer Networks	3	45	0	0	45	90	40	40	40	60	100
3	26OEECT613	OE	OE	Biomedical Engineering	3	45	0	0	45	90	40	40	40	60	100

OPEN ELECTIVE-2

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26OEECT721	OE	OE	Optical Communication	3	45	0	0	45	90	40	40	40	60	100
2	26OEECT722	OE	OE	Digital Image Processing	3	45	0	0	45	90	40	40	40	60	100
3	26OEECT723	OE	OE	Optimization Techniques	3	45	0	0	45	90	40	40	40	60	100

OPEN ELECTIVE-3

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26OEECT831	OE	OE	Internet of Things	3	45	0	0	45	90	40	40	40	60	100
2	26OEECT832	OE	OE	Satellite and Radar Communication	3	45	0	0	45	90	40	40	40	60	100
3	26OEECT833	OE	OE	Robotics	3	45	0	0	45	90	40	40	40	60	100

HMC ELECTIVE

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26UEHUT711	HMC	UE	Project Management: Planning, Execution, Evaluation and Control	2	30	0	0	30	60	40	40	50	50	100
2	26UEHUT712	HMC	UE	Proficiency course in Foreign Language (MOOC only)	2	0	0	0	60	60	-	-	-	-	-
3	26UEHUT713	HMC	UE	Financial Management	2	30	0	0	30	60	40	40	50	50	100

MINOR PROGRAM - ELECTRONICS AND COMMUNICATION ENGINEERING

Semester	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
S3	26MNECT309	MN	MN	Electronic Circuits and Linear ICs	4	45	15	0	60	120	40	40	40	60	100
S4	26MNECT409/ 26MNECM40N	MN	MN	Fundamentals of Microcontrollers and applications/ MOOC	4	45	15	0	60	120	40	40	40	60	100
S5	26MNECT509/ 26MNECM50N	MN	MN	Principles of Communication System/ MOOC	4	45	15	0	60	120	40	40	40	60	100
S6	26MNECT609/ 26MNECM60N	MN	MN	Discrete Signals and Signal Processing/ MOOC	3	45	0	0	45	90	40	40	40	60	100
				TOTAL	**15**										

Slot M is assigned to Minor Examinations in the respective semesters.

HONOURS PROGRAM – SIGNAL PROCESSING AND COMMUNICATION STREAM

Note: *Students should select any one stream/basket in S4 and register for courses within that stream/basket in the subsequent semesters.*

Semester	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
S4	26HNECT409	HN	HN	Linear Algebra for Communication	4	45	15	0	60	120	40	40	40	60	100
S5	26HNECT509/ 26HNECM50N	HN	HN	Detection and Estimation Theory / MOOC	4	45	15	0	60	120	40	40	40	60	100
S6	26HNECT609/ 26HNECM60N	HN	HN	Random Signal Processing / MOOC	4	45	15	0	60	120	40	40	40	60	100
S7	26HNECT709/ 26HNECM70N	HN	HN	Advanced Wireless Communication / MOOC	3	45	0	0	45	90	40	40	40	60	100
				TOTAL	**15**										

HONOURS PROGRAM - VLSI STREAM

Semester	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
S4	26HNEVT409	HN	HN	Hardware- Software Co-Design for Embedded VLSI Systems	4	45	15	0	60	120	40	40	40	60	100
S5	26HNEVT509/ 26HNEVM50N	HN	HN	Advanced Materials, Devices, and Fabrication for Nano-Scale ICs/MOOC	4	45	15	0	60	120	40	40	40	60	100
S6	26HNEVT609/ 26HNEVM60N	HN	HN	Advanced Verification and System - Level Modelling/MOOC	4	45	15	0	60	120	40	40	40	60	100
S7	26HNEVT709/ 26HNEVM70N	HN	HN	Design for Manufacturability in VLSI and Advanced Packaging/ MOOC	3	45	0	0	45	90	40	40	40	60	100
				TOTAL	**15**										

Slot N is assigned to Honours Examinations in the respective semesters.

COURSES UNDER VARIOUS COURSE CLASSIFICATION

Engineering Science Courses (ESC)				
Sl. No:	**Semester**	**Course Category**	**Course Name**	**Credits**
1	S1	GC	Engineering Graphics Drawing (A &B)/ Engineering Mechanics (C)	**3**
2		GC	Introduction to Electrical & Electronics Engineering (A & B)	**4**
3		UC	Programming in C	**4**
4		GC	Basic Electrical and Electronics Engineering Workshop	**1**
5	S2	GC	Foundations of Artificial Intelligence and Data Science	**3**
6		UC	Engineering Entrepreneurship & IPR	**3**
7		GC	IOT Workshop	**1**
8	S3	GC	Fundamentals of Computer Architecture	**3**
9	S5/S6	GC	Design Thinking and Product Development (Group specific)	**2**
			TOTAL	**24**

Basic Science Course (BSC)				
Sl. No:	**Semester**	**Course Category**	**Course Name**	**Credits**
1	S1	GC	Matrices, Ordinary Differential Equations and Transforms	**3**
2	S1/S2	GC	Physics for Electrical Science	**4**
3			Chemistry for Electrical Science	**4**
4	S2	GC	Partial Differential Equations and Vector Calculus	**3**
5	S3	GC	Complex Analysis and Integral Transforms	**3**
6	S4	GC	Probability Distributions, Statistical Inference and Random Process	**3**
			TOTAL	**20**

Humanities Based Courses (HMC)/Health and Wellness (HWP)				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S1/S2	UC	Health and Wellness	1
2	S1/S2	UC	Life Skills and Professional Communication	1
3	S3/S4	UC	Economics for Engineers	2
4	S3/S4	UC	Engineering Ethics and Sustainable Development	2
5	S5/S6	UC	Constitution of India	2
6	S7	UE	HMC Elective-1 (Self Study/MOOC/Online)	2
7	S8	UC	Organizational Behavior and Business Communication (Self Study/MOOC/Online)	2
			TOTAL	**12**

Program Core (PC) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S2	PC	Network theory	4
2	S3	PC	Solid state Devices	3
3	S3	PC	Logic circuit Design	4
4	S4	PC	Linear Integrated Circuits	3
5	S4	PC	Digital System Design	4
6	S5	PC	Embedded Systems and RTOS	3
7	S5	PC	VLSI Technology	3
8	S5	PC	Digital Signal Processing	4
9	S6	PC	VLSI Verification and Testing	3
10	S6	PC	Digital CMOS Design	4
			TOTAL	**35**
Project Based Program Core (PC-PBL) Course				
1	S3	PB	Analog Circuits	4
2	S4	PB	Microcontroller based System Design	4
3	S5	PB	Analog CMOS design	4
4	S6	PB	FPGA based System Design	4
			TOTAL	**16**
Program Core Laboratory (PCL) Course				
1	S3	PC	Logic Circuit Design Lab	2
2	S3	PC	Scientific Computing Lab	2
3	S4	PC	Analog Circuits Lab	2
4	S4	PC	Microcontroller Lab	2
5	S5	PC	Analog Design Lab	2
6	S6	PC	Digital Design Lab	2
7	S6	PC	RTOS Lab	2
			TOTAL	**14**
			GRAND TOTAL for Program Core	**65**

Program Elective (PE) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S4	PE	Program Elective-1	3
2	S5	PE	Program Elective-2	3
3	S6	PE	Program Elective-3	3
4	S7	PE	Program Elective-4 (Self Study/ MOOC/ Online)	3
5	S7	PE	Program Elective-5 (Self Study/ MOOC/ Online)	3
6	S8	PE	Program Elective-6 (Self Study/ MOOC/ Online)	3
			TOTAL	**18**

Project/Internship & Seminar (PWS)				
Sl. No:	**Semester**	**Course Category**	**Course Name**	**Credits**
1	S5	PC	Lab/Mini Project	2
2	S7	PC	Seminar	2
3		PC	Option 1: Major Project Option 2: Internship (4-6 Months)	5
4	S8	PC	Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project Phase-2 (For the students who have not opted for internship in either S7 or S8)	5
			TOTAL	**14**

Open Elective (OE) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S6	OE	Open Elective-1	3
2	S7	OE	Open Elective-2 (Self Study/ MOOC/ Online)	3
3	S8	OE	Open Elective-3 (Self Study/ MOOC/ Online)	3
			TOTAL	**9**

Skill Enhancement (SEC) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S1/S2	UC	MOOC (8 Weeks)	1
2	S3/S4	MC	MOOC (8 Weeks)	1
3	S5/S6	MC	MOOC (8 Weeks)	1
			TOTAL	**3**

Activity Points					
Sl. No.	**Group**	**Activities**	**Point**	**Credit**	**Minimum Credit Requirements**
Participation					
1	I	Short Term Internship (Minimum 2 weeks offline).	10 points	1 Credit for 40 Points	**3 Credits (One credit from each Group)**
2		Industrial Training (Minimum 2 weeks).	10 points		
3		Attending Conference (Within Institute or outside).	5 points		
4		Attended Conference with Paper Presentation (Within Institute or outside).	10 points		
5		Attended Workshops/STTP (Totaling 5 days of all programs per semester).	5 points per semester		
6		Professional Body member.	5 points		
7		Participation in Club activity within institutions.	2 points		
8		Participation in Inter/Intra college Hackathons/Project Competitions/ Technical Festivals/Technical Events.	5 points per event		
9		Participation in Industrial Visit organized by S5/S6 curriculum.	10 points		
10		Participation in GATE/National Exams (on submission of score cards/result).	10 points		

11		Participation in IEDC Activities (minimum 2 activities per year).	10 points per year		
12		MOOC certification on Indian knowledge systems (IKS).	10 points		
Technical/ Academic/ Co-Curricular Achievements					
1	II	Journal/Conference Publication.	40 points per publication	1 Credit for 40 Points	
2		Patent Publishing.	40 points per publication		
3		Department/College owned Magazine/newsletter publication.	5 points per year		
4		Winners in Inter/Intra college Hackathons/Project Competitions/ Technical Festivals/Technical Events.	20 points per win		
5		Winners of Club Activities (college level).	10 points per win		
6		Academic achievement (Above 9 SGPA in any semester).	20 points		
7		Silver or above certification in any NPTEL/SWAYAM MOOCs.	20 points for each MOOC		
8		Aptitude Proficiency Certification (GRE, CAT, GMAT etc.)/Valid Gate Score.	40 points for every single score		
9		Funded Projects.	40 points per funded project		
10		Individual Start-up/Entrepreneurship activity validated by the department.	20 points (per year)		
11		Elected Student Representatives of Club/ University/ National/ International Technical Bodies.	20 points		
12		Foreign Language Skill (TOEFL/IELTS/BEC exams).	20 points per score		
13		International Internship.	40 points		
14		Coordinators of Editorial board/Club/University/National Technical events.	10 points per year		
Extracurricular					
1	III	NSS, NCC, NSO (National Sports Organization) (minimum 2 years of activity done as member).	40 points	1 Credit for 40 Points	
2		Arts/Sports/Games: (Multiply by 2 for University level, Multiply by 3 for state level, Multiply by 4 for national level).	5 points for Participation per year		
			10 points for winning in any event per year		
			10 points for coordinating any event per year		
3		Union Activities	5 points for Participation in Election as a voter per year		
			10 points for Standing in Election as a candidate per year (must have come in top 5 in election result within the category)		
			15 points for Elected members		
4		Participation Social outreach program (initiated or approved by Department/College/NSS/Government bodies/professional bodies).	5 points per certificate		

Course classifications of the B. Tech Program and Overall Credit Structure			
S.No.	**Code Type**	**Category**	**Credits**
1	ESC	Engineering Science Courses	24
2	BSC	Basic Science Course	20
3	HMC/ HWP	Humanities Based Courses /Health and Wellness	12
4	PC	Program Core Courses	35
5	PC-PBL	Project Based Program Core Course	16
6	PCL	Program Core Laboratory Course	14
7	PE	Program Elective Courses	18
8	PWS	Project/Internship & Seminar	14
9	OE	Open Elective Courses	9
10	SEC	Skill Enhancement Courses	3
11	MSA	Mandatory Student Activities	3
		TOTAL CREDITS	**168**