DAYANANDA SAGAR UNIVERSITY

DEVARAKAGGALAHALLI, HAROHALLI, KANAKAPURA ROAD
BENGALURU SOUTH DISTRICT- 562112

SCHOOL OF ENGINEERING

SCHEME
FOR
BACHELOR OF TECHNOLOGY (B.Tech) – 2023-27

ELECTRONICS AND COMMUNICATION ENGINEERING

(With effect from 2023-27)

Dayananda Sagar University

School of Engineering

Devarakaggalahalli , Harohalli , Kanakapura Road , Bengaluru South District- 562112

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME AND SYLLABUS

B.Tech. PROGRAMME– 2023 BATCH

Definitions / Descriptions

Definition of Credit:	
01 Credit	1 Hour Lecture (L) Per Week
01 Credit	1 Hour Tutorial (T) Per Week
0.5 Credit	1 Hour Practical (P) Per Week
0.5 Credit	1 Hour Project (J) Per Week

Course code and Definition:	
BSC	Basic Science Courses
ESC	Engineering Science Courses
HSMC	Humanities and Social Sciences including Management Courses
IPCC	Integrated Professional Core Course
PCC	Professional Core Courses
PEC	Professional Elective Courses
OEC	Open Elective Courses
SEC	Skill Enhancement Courses
INT	Internship
PROJ	Project Work

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Implementation of National Education Policy (NEP) 2020 for the B.Tech students of Batch 2023-27

The implementation of Curriculum follows NEP 2020 and addresses the following features and categories of courses:

1. Student Centric flexible curriculum.
2. Inter-disciplinary Courses,
3. Multi-disciplinary Courses,
4. Ability Enhancement Courses,
5. Skill Enhancement Courses,
6. Value Added Courses,
7. Product Design and Development
8. Internship (Rural Internship, Industry Internship, Research/Development Internship), and
9. Multiple Exit and Multiple Entry
    - Certificate in Engineering after completion of first year.
    - Diploma in Engineering after completion of second year.
    - Advanced Diploma in Engineering after completion of third year.
    - Degree in Engineering after completion of fourth year

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME 2023 – 2027 Batch

I SEMESTER

S.N	Course Type	Course Name	Teaching Department	Specific to Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practice	Project	Durationin Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	BSC	Linear Algebra and Differential Equations	MAT	All Depts.	3	0	0	0	03	60	40	100	**3**
2	BSC	Engineering Chemistry	CHEM	All Depts.	2	0	2	0	03	60	40	100	**3**
3	ESC	Introduction to Mechanical Engineering	ME	All Depts.	2	0	2	0	03	60	40	100	**3**
4	ESC	Introduction to Electrical Engineering	EC	All Depts	2	0	0	0	03	60	40	100	**2**
5	ESC	Object Oriented Programming	CSE	All Depts.	2	2	2	0	03	60	40	100	**4**
6	ESC	Engineering Mechanics	ME	All Depts.	2	0	0	0	03	60	40	100	**2**
7	HSMC	Technical English	HUM	All Depts.	1	2	0	0	--	100	--	100	**2**
8	AEC	Environmental Science	Biology	All Depts.	1	0	0	0	--	100	--	100	**1**
9	HSMC	Kannada Kali / Manasu	HUM	All Depts.	0	0	0	0	--	100	--	100	**0**
									Total	**660**	**240**	**900**	**20**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME 2023 – 2027 Batch

II SEMESTER													
S.N	Course Type	Course Name	Teaching Department	Specific to Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practice	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	BSC	Single and Multivariate Calculus	MAT	All Depts.	3	0	0	0	03	60	40	100	**3**
2	BSC	Engineering Physics	PHY	All Depts.	3	0	2	0	03	60	40	100	**4**
3	ESC	Introduction to Electronics Engineering	ECE	All Depts.	3	0	0	0	03	60	40	100	**3**
4	ESC	C Programming for Problem Solving	CSE	All Depts.	2	2	2	0	03	60	40	100	**4**
5	ESC	Engineering Graphics and Design Thinking	ME	All Depts.	1	0	4	0	03	60	40	100	**3**
6	AEC	Biology for Engineers	Biology	All Depts.	2	0	0	0	--	100	--	100	**2**
7	HSMC	Constitution of India and Professional Ethics	HUM	All Depts.	1	0	0	0	--	100	--	100	**1**
		Total								**500**	**200**	**700**	**20**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME 2023 – 2027 Batch

III SEMESTER													
Sl.No	Course Code	Course Type	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practical	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	23EC2301	BSC	Transforms and Numerical Methods	MAT	3	0	0	0	03	60	40	100	**3**
2	23EC2302	IPCC	Data Structures	ECE	3	0	2	0	03	60	40	100	**4**
3	23EC2303	IPCC	Digital Logic Design	ECE	3	0	2	0	03	60	40	100	**4**
4	23EC2304	PCC	Network Analysis	ECE	3	0	0	0	03	60	40	100	**3**
5	23EC2305	PCC	Signals and Systems	ECE	3	0	0	0	03	60	40	100	**3**
6	23LSXXXX	AEC	Liberal Studies – I	Any Dept.	1	0	0	0	01	100	--	100	**1**
7	23EC23XX	SEC	Skill Enhancement Course – I	ECE	1	0	2	0	01	100	--	100	**2**
8	23EC2306		Cognitive And Technical Skills I	Training & Placement	2	0	0	0	02	100	--	100	**2**
									Total	600	200	800	**22**

Skill Enhancement Course – II			
23EC2307	Introduction to Model-Based Design		
23ECEC2308	Microcontroller Programming		

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

IV SEMESTER

Sl.No	Course Code	Course Type	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practica	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	23EC2401	BSC	Probability and Statistics	MAT	3	0	0	0	03	60	40	100	**3**
2	23EC2402	PCC	Electromagnetic Field Theory	ECE	3	0	0	0	03	60	40	100	**3**
3	23EC2403	IPCC	Analog Electronic Circuits	ECE	3	0	2	0	03	60	40	100	**4**
4	23EC2404	IPCC	Embedded System Design	ECE	3	0	2	0	03	60	40	100	**4**
5	23EC2405	PCC	Control & Instrumentation	ECE	3	0	0	0	03	60	40	100	**3**
6	23EC2406	PCC	Computer Organization and Architecture	ECE	3	0	0	0	03	60	40	100	**3**
7	23EC24XX	SEC	Skill Enhancement Course – II	ECE	1	0	2	0	--	100	--	100	**2**
8	23EC2407		Cognitive And Technical Skills II	Training & Placement	2	0	0	0	02	100	--	100	**2**
Total										**560**	**240**	**800**	**24**

Skill Enhancement Course – II			
23EC2408	Introduction to Embedded Machine Learning		
23EC2409	Introduction to PSPICE ORCAD/Multisim-National Instruments/TINA-Texas Instruments		

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SCHEME 2023 – 2027 Batch

V SEMESTER

Sl.No	Course Code	Course Type	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practica	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	23EC3501	IPCC	Analog and Digital Communication	ECE	3	0	2	0	3	60	40	100	4
2	23EC3502	PCC	Digital Signal Processing	ECE	3	0	0	0	3	60	40	100	3
3	23EC3503	PCC	Machine Learning	ECE	3	0	0	0	3	60	40	100	3
4	23EC3504	PCC	Antennas and wave propagation	ECE	3	0	0	0	3	60	40	100	3
5	23EC3505	IPCC	CMOS VLSI Design	ECE	3	0	2	0	3	60	40	100	4
6	23EC35XX	PEC	Professional Elective Course – I / MOOC	ECE	3	0	0	0	3	60	40	100	3
7	23EC35XX	SEC	Skill Enhancement Course – III	ECE	1	0	2	0	1	100	--	100	2
8	23EC3506		Cognitive And Technical Skills - III	Training & Placement	2	0	0	0	2	100	--	100	0
Total					**21**	**0**	**6**	**0**	**21**	**560**	**240**	**800**	**22**

Skill Enhancement Course – III		
23EC3507	Signal Processing and Analysis Lab	
23EC3508	PLC Programming	

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SCHEME 2023 – 2027 Batch

VI SEMESTER													
Sl.No	Course Code	Course Type	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practical	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	23EC3601	IPCC	Microwave Engineering	ECE	3	0	2	0	3	60	40	100	4
2	23EC3602	PCC	VLSI Testing & Verification	ECE	3	0	0	0	3	60	40	100	3
3	23EC3603	IPCC	Power Electronics and EV	ECE	3	0	2	0	3	60	40	100	4
4	23OEXXXX	OE	Open Elective – I	ECE	3	0	0	0	3	60	40	100	3
5	23ECXXXX	PEC	Professional Elective Course – II / MOOC	ECE	3	0	0	0	3	60	40	100	3
6	23ECXXXX	PEC	Professional Elective Course – III / MOOC	ECE	3	0	0	0	3	60	40	100	3
7	23EC3604	PROJ	Minor Project	ECE	0	0	4	0	3	100	--	100	2
8	23EC3605		Cognitive And Technical Skills -IV	Training & Placement	2	0	0	0	2	100	--	100	0
									Total	**560**	**240**	**800**	**22**

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SCHEME 2023 – 2027 Batch

VII SEMESTER													
Sl.No	Course Code	Course Type	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practical	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	23EC4701	HSMC	Entrepreneurial Finance & Deep-Tech Start-ups	ECE	3	0	0	0	3	60	40	100	3
2	23EC47XX	PEC	Professional Elective Course – IV/ MOOC	ECE	3	0	0	0	3	60	40	100	3
3	23EC47XX	PEC	Professional Elective Course – V / MOOC	ECE	3	0	0	0	3	60	40	100	3
4	23OEXXXX	OE	Open Elective – II	ECE	3	0	0	0	3	60	40	100	3
5	23EC4702	PROJ	Capstone Project I	ECE	0	0	0	8	3	100	--	100	4
Total										**340**	**160**	**500**	**16**

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SCHEME 2023 – 2027 Batch

VIII SEMESTER												
Sl.No	Course Code	Course Type	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					Lecture	Tutorial	Practical	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	23EC4801	HSMC	Leadership Policy & Authentic Intelligence		2	0	0	0	2	100	--	100	2
2	23EC4802	PROJ	Capstone Project-II		0	0	0	24	3	60	40	100	12
3	23EC4803	INT	Internship (Industry/Research/COE Based)		0	0	0	4	3	100	--	100	2
Total										**260**	**40**	**300**	**16**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME 2023 – 2027 Batch

PROFESSIONAL ELECTIVE COURSES

5th Semester	
PEC-I	
Course Code	**Course Name**
	Sensors & Transducers
	Network Security
	Information Theory and Coding
	Real Time Operating Systems Design and Programming
	Quantum Computing
	MOOCs (NPTEL)

6th Semester			
PEC-II		PEC-III	
Course Code	**Course Name**	**Course Code**	**Course Name**
	Digital Image Processing		Satellite Remote Sensing
	Electronic Materials Device and Processing		Digital IC Design
	Embedded Linux and Device Drivers		Design Patterns for Embedded Systems
	Wireless Sensor Network		Hardware accelerator for Artificial Intelligence
	Industrial Automation		5G Mobile Communication
	MOOCs (NPTEL)		MOOCs (NPTEL)

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SCHEME 2023 – 2027 Batch

7th Semester			
PEC-IV		PEC-V	
Course Code	Course Name	Course Code	Course Name
23EC4703	Biomedical Signal Processing	23EC4710	Introduction to Deep Learning
23EC4704	Nanoelectronics	23EC4711	Wearable Technology
23EC4705	Software-Defined Radio	23EC4712	Principles of Soft Computing
23EC4706	Industrial Internet of Things & Industry 4.0	23EC4713	RADAR and Navigation
23EC4707	Low Power VLSI	23EC4714	Wireless Communication
23EC4708	Generative AI & LLM		
23EC4709	AI and ML for VLSI CAD		

OPEN ELECTIVE COURSES

Open Elective I -Courses		Open Elective II-Courses	
Course Code	Course Name	Course Code	Course Name
23OE0042	Renewable Energy Technology	23OE0045	Introduction to Nanotechnology and its Applications
23OE0043	Fundamentals of Telecommunication	23OE0056	Human-Machine Interaction
23OE0044	Smart Cities and Smart Grids	23OE0047	Electric Vehicle Technology

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Sl.No		Verticals		V-1		V-2	V-4		
		Domain Clusters		Signal Processing and Communication		VLSI	IoT & Embedded Systems		
				(A)	(B)	(C)	(E)	(F)	
1	PROFESSIONAL ELECTIVE COURSES	PEC-I	5th Sem	Network Security	Information Theory and Coding	Quantum Computing	Sensors and Transducers	Real Time Operating systems Design and Programming	MOOCs (NPTEL)
2		PEC-II	6th Sem	Digital Image Processing	Wireless Sensor Networks	Electronic Materials Device and Processing	Industrial Automation	Linux Device Driver	MOOCs (NPTEL)
3		PEC-III		Satellite Remote Sensing	5G Mobile Communication	Digital IC Design	Hardware Accelerator for AI	Design Patterns for Embedded Systems	
4		PEC-IV	7th Sem	Biomedical Signal Processing	Software Defined Radio	AI and ML for VLSI CAD	Industrial Internet of Things and Industry 4.0	Nano Electronics	Low Power VLSI Generative AI & LLM
5		PEC-V		Introduction to Deep Learning	RADAR and Navigation	Wearable Technology	Principles of Soft Computing	Wireless Communication	