DAYANANDA SAGAR UNIVERSITY

DEVARAKAGGALAHALLI, HAROHALLI, BENGALURU
SOUTH- 562112

SCHOOL OF ENGINEERING

SCHEME & SYLLABUS
FOR
BACHELOR OF TECHNOLOGY (B.Tech)

COMMON TO ALL BRANCHES

(With effect from 2025-29)

PART-B

SCHEME AND SYLLABUS FOR THE FIRST YEAR B.TECH (2025-29) PROGRAMEE

Definitions / Descriptions

Definition of 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	0.5 Credit

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
UHV	Universal Human Value Course
PROJ	Project Work
INT	Internship

Implementation of National Education Policy (NEP) 2020 for the B.Tech. students of Batch 2025-29

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 2025 – 2029 Batch

I 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 Mark	
					L	T	P	J					
1	BSC	Linear Algebra and Differential Equations	MAT	All Depts.	4	0	0	0	03	60	40	100	**4**
2	BSC	Engineering Physics	CHEM	All Depts.	3	0	2	0	03	60	40	100	**4**
3	ESC	Introduction to Sustainable Engineering	ME	All Depts.	2	0	0	0	03	60	40	100	**2**
4	ESC	Introduction to Electronics Engineering	EC	All Depts	3	0	0	0	03	60	40	100	**3**
5	ESC	C Programming for Problem Solving	CSE	All Depts.	2	2	2	0	03	60	40	100	**4**
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**
8		Cognitive and Technical Skills I		Training & Placement	2	0	0	0	02	100	--	100	0
									Total	**700**	**200**	**900**	**20**

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SCHEME 2025 – 2029 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.	4	0	0	0	03	60	40	100	**4**
2	BSC	Engineering Chemistry	PHY	All Depts.	3	0	2	0	03	60	40	100	**4**
3	ESC	Introduction to Electrical Engineering	ECE	All Depts.	3	0	0	0	03	60	40	100	**3**
4	ESC	Engineering Graphics and Design Thinking	ME	All Depts.	2	0	4	0	03	60	40	100	**4**
5	HSMC	Technical English	HUM	All Depts.	1	2	0	0	--	100	--	100	**2**
6	AEC	Environmental Science	Biology	All Depts.	1	2	0	0	--	100	--	100	**2**
7	HSMC	Kannada Kali / Manasu	HUM	All Depts.	1	0	0	0	--	100	--	100	**1**
8		Cognitive and Technical Skills II		Training & Placement	2	0	0	0	02	100	--	100	**0**
		Total								**600**	**200**	**800**	**20**

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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	25EC2301	BSC	Applied Statistics & Stochastic Processes	MAT	3	0	0	0	03	60	40	100	**3**
2	25EC2302	IPCC	Analog Electronics Circuits	ECE	3	0	2	0	03	60	40	100	**4**
3	25EC2303	IPCC	Digital Logic Design	ECE	3	0	2	0	03	60	40	100	**4**
4	25EC2304	PCC	IoT-enabled Sensor Engineering	ECE	3	0	0	0	03	60	40	100	**3**
5	25EC2305	DSC	Design Studio I: Data Structures	ECE	2	0	0	0	03	100	--	100	**2**
6	25EC2306	PCC	Computer Organisation & Architecture (Introduction to CUDA)	ECE	3	0	0	0	03	60	40	100	**3**
7	25EC23XX	SEC	Skill Enhancement Course – I	ECE	1	0	2	0	01	100	--	100	**2**
8	25EC2307		Cognitive And Technical Skills III	Training & Placement	2	0	0	2	2	100	--	100	0
			Total							600	200	800	**21**

Skill Enhancement Course – I		
1	Electrical Circuit Design -Maker Space	25EC2308

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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	25EC2401	BSC	Differential Equations & Optimization	MAT	3	0	0	0	03	60	40	100	**3**
2	25EC2402	PCC	Electromagnetic Field Theory	ECE	3	0	0	0	03	60	40	100	**3**
3	25EC2403	IPCC	CMOS VLSI Design	ECE	3	0	2	0	03	60	40	100	**4**
4	25EC2404	PCC	Sustainability Engineering	ECE	2	0	0	0	--	100	--	100	**2**
5	25EC2405	IPCC	Embedded Systems Engineering (Real-Time Sensor Fusion on STM32 + Nvidia Jetson)	ECE	3	0	2	0	03	60	40	100	**4**
6	25EC2406	PCC	Signals and Systems	ECE	3	0	0	0	03	60	40	100	**3**
7	25LSXXXX	HSMC	Humanities and Social Science (Choice of Courses: Liberal Studies / Humanities / Society)	ECE	1	0	2	0	--	100	--	100	**2**
8	25EC24XX	SEC	Skill Enhancement Course – II	ECE	1	0	2	0	--	100	--	100	**2**
9	25EC2407		Cognitive And Technical Skills IV	Training & Placement	2	0	0	2	2	100	--	100	0
			Total							700	200	900	**23**

Skill Enhancement Course – II		
1	Accelerating End-to-End Data Science Workflows	25EC2408

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SCHEME 2025 – 2029 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		IPCC	Machine Learning for Engineers	ECE	3	0	2	0	3	60	40	100	4
2		PCC	Digital Signal Processing	ECE	3	0	0	0	3	60	40	100	**3**
3		IPCC	Analog and Digital Communication	ECE	3	0	2	0	3	60	40	100	**4**
4		PCC	Digital Design Verification	ECE	3	0	0	0	3	60	40	100	**3**
5		PCC	Antenna & Wave Propagation	ECE	3	0	0	0	3	60	40	100	**3**
6		DSC	Design Studio II: AIOT System Design	ECE	2	0	0	0	--	100	--	100	2
7		PEC	Professional Elective Course – I / MOOC	ECE	3	0	0	0	3	60	40	100	**3**
8			Cognitive And Technical Skills V	Training & Placement	2	0	0	2	2	100	--	100	0
			Total							560	240	800	**22**

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SCHEME 2025 – 2029 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		PCC	Control Automation and Intelligent Machines	ECE	3	0	0	0	03	60	40	100	3
2		IPCC	Power Electronics for Electric Vehicles and Smart Grids	ECE	3	0	2	0	03	60	40	100	4
3		IPCC	RF and Microwave Engineering	ECE	3	0	2	0	03	60	40	100	**4**
4		PCC	Wireless Communication	ECE	3	0	0	0	03	60	40	100	**3**
5		PEC	Professional Elective Course – II / MOOC	ECE	3	0	0	0	03	60	40	100	**3**
6		OEC	Open Elective – I	ECE	3	0	0	0	03	60	40	100	**3**
7		PROJ	Minor Project	ECE	0	0	0	4	03	100	--	100	**2**
8			Cognitive And Technical Skills VI	Training & Placement	2	0	0	2	2	100	--	100	0
			Total							560	240	800	**22**

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SCHEME 2025 – 2029 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		PCC	Entrepreneurial Finance & Deep-Tech Start-ups	ECE	3	0	0	0	03	60	40	100	**3**
2		PEC	Professional Elective Course – III/ MOOC	ECE	3	0	0	0	03	60	40	100	**3**
3		PEC	Professional Elective Course – IV/ MOOC	ECE	3	0	0	0	03	60	40	100	**3**
4		OEC	Open Elective II	ECE	3	0	0	0	03	60	40	100	**3**
5		PROJ	Capstone Project I	ECE	0	0	0	8	04	100	--	100	**4**
			Total							340	160	500	**16**

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SCHEME 2025 – 2029 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		PEC	Professional Elective Course – V/ MOOC	ECE	3	0	0	0	03	60	40	100	**3**
2		HMSC	Leadership, Policy & Authentic Intelligence	ECE	2	0	0	0	02	100	--	100	**2**
3		PROJ	Capstone Project II	ECE	0	0	0	20	03	60	40	100	**10**
4		INT	Internship (Industry/ Research/ CoE Based)	ECE	2	0	0	0	03	100	--	100	**2**
			Total							320	80	400	**17**

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

SCHEME - B.TECH – 2025-29 ONWARDS

PROFESSIONAL ELECTIVE COURSES

5th Semester	
PEC-I	
Course Code	**Course Name**
	Information Theory and Coding
	Adaptive Signal Processing
	Mixed Signal IC design
	Real-Time Operating Systems
	Data Acquisition & Processing Systems
	Deep Learning

6th Semester	
PEC-II	
Course Code	**Course Name**
	Photonics and Optical Communication
	Digital Image Processing
	Digital IC Design
	Applied Model-Based Design
	Speech & Audio Signal Processing
	Computer Vision and Video Analytics

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SCHEME - B.TECH – 2025-29 ONWARDS

7th Semester			
PEC-IV		PEC-V	
Course Code	Course Name	Course Code	Course Name
	Wireless Sensor Networks		5G and Mobile Communication
	Satellite Remote Sensing		Seismic Signal Processing
	Low Power VLSI Design		Semiconductor Device Modeling
	Edge AI		In-vehicle Networking
	Industrial IoT		Software Defined Radio
	Generative AI and LLM		Industrial Digital Twins

8th Semester	
PEC-V	
Course Code	Course Name
	Radar and Navigation Systems
	AI in Healthcare & Biomedical Systems
	AI and ML for VLSI CAD
	Embedded Linux
	Chip Packaging and Semiconductor Manufacturing
	Robotics

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Professional Elective Courses

Sl.No		Verticals		V-1	V-2	V-3	V-4	V-5	V-6
		Domain Clusters		Communication	Signal Processing	VLSI & Semiconductor Systems	IoT & Embedded Systems	Interdisciplinary	NVIDIA DLI Courses
				(A)	(B)	(C)	(D)	(E)	(F)
1	PROFESSIONAL ELECTIVE COURSES	PEC-I	5th Sem	Information Theory and Coding	Adaptive Signal Processing	Mixed Signal IC design	Real Time Operating Systems	Data Acquisition & Processing Systems	Deep Learning
2		PEC-II	6th Sem	Photonics and Optical Communication	Digital Image Processing	Digital IC Design	Applied Model Based Design	Speech & Audio Signal Processing	Computer Vision and Video Analytics
3		PEC-III	7th Sem	Wireless Sensor Networks	Satellite Remote Sensing	Low Power VLSI Design	Edge AI	Industrial IoT	Generative AI and LLM
4		PEC-IV	7th Sem	5G and Mobile Communication	Seismic Signal Processing	Semiconductor Device Modelling	In Vehicle Networking	Software Defined Radio	Industrial Digital Twins
5		PEC-V	8th Sem	Radar and Navigation Systems	AI in Healthcare & Biomedical Systems	AI and ML for VLSI CAD	Embedded Linux	Chip Packaging and Semiconductor Manufacturing	Robotics

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

OPEN ELECTIVE COURSES

	Open Elective I -Courses		Open Elective II-Courses
Course Code	**Course Name**	**Course Code**	**Course Name**
	Energy Storage Technologies (Batteries and BMS)		Introduction to Nanotechnology and its Applications
	Electronic Materials, Processing & Fabrication		Human-Machine Interaction
	Smart Cities and Smart Grids		Electric Vehicle Technology

Minor Track for Non-ECE Students

Name of the Course	Credit
IoT-enabled Sensor Engineering	3
Embedded Systems Engineering	4
Real-Time Operating System	3
Speech & Audio Signal Processing	3
Edge AI	3
Project	2
Total Credits	**18**