DAYANANDA SAGAR UNIVERSITY

SCHOOL OF ENGINEERING

Devarakaggalahalli, Harohalli, Kanakapura Road, Bengaluru South, Karnataka - 562 112
Department of Computer Science & Medical Engineering

SCHOOL OF ENGINEERING

Department of

Computer Science & Medical Engineering

TEACHING SCHEME

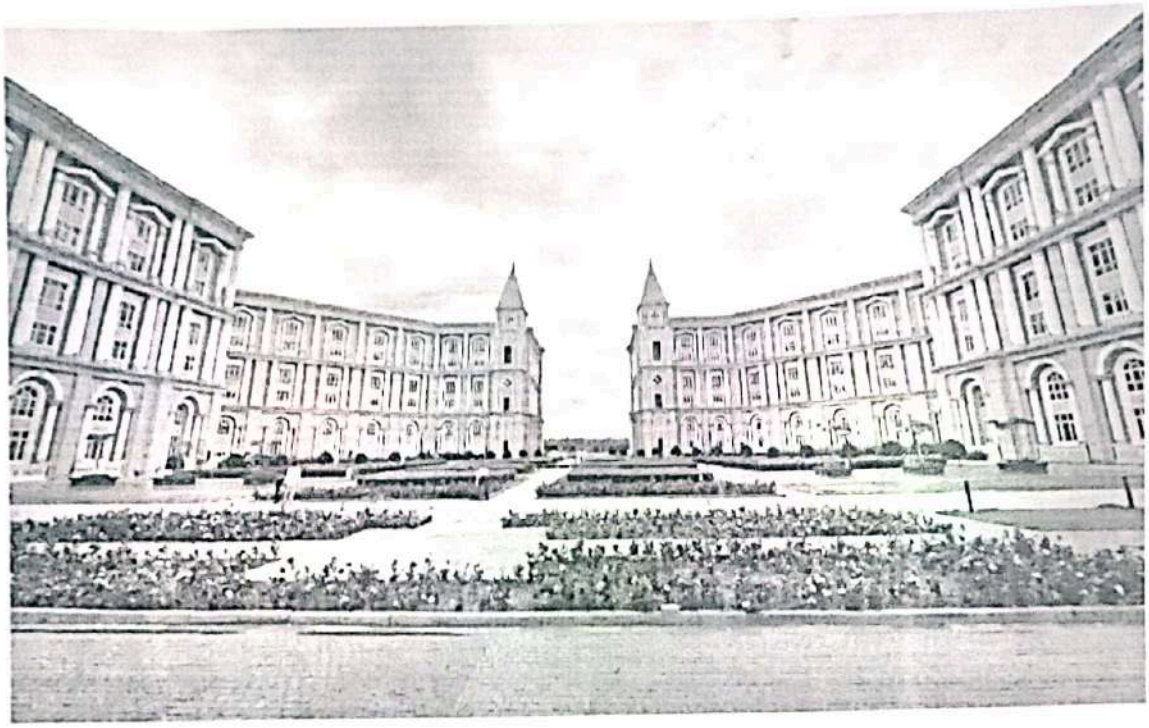
B. Tech PROGRAMME: 2025-29 BATCH

Academic Year: 2025-26



Devarakaggalahalli, Harohalli,
Kanakapura Main Road,
Bengaluru South District–562112

Devarakaggalahalli, Harohalli, Kanakapura Road, Bengaluru South, Karnataka – 562 112
Department of Computer Science & Medical Engineering



Vision and Mission of DSU

VISION

- To be a center of excellence in education, research & training, innovation & entrepreneurship and to produce citizens with exceptional leadership qualities to serve national and global needs.

MISSION

- To achieve our objectives in an environment that enhances creativity, innovation and scholarly pursuits while adhering to our vision.

Vision and Mission of School of Engineering

VISION

- Transform lives through excellence in engineeringeducation, research and innovation with an emphasison sustainability, inclusive technologies and globalneeds.

MISSION

- Design and deliver contemporary engineering curricula to address regional and global needs while emphasizing ethics, values, integrity and regional relevance.
- Carryout high impact academic research, industry projectsand innovation activities with active student engagement toadvance science and engineering knowledge and state-of-the-art industry practices.
- Develop regional and national leaders to advance the society and economy.

Vision and Mission of Department of CS&ME

VISION

- To become a center of excellence in Computer Science and Medical Engineering by empowering students to develop cutting-edge technological solutions that transform healthcare and improve lives globally.

MISSION

The Department of Computer Science and Medical Engineering is committed to:

- M1: To provide a robust interdisciplinary education that integrates core principles of computer science and medical engineering to prepare students for innovative careers in health technology.
- M2: To foster research and innovation in areas such as AI in healthcare, wearable devices, medical imaging, bioinformatics, and digital health systems.
- M3: To cultivate ethical, socially responsible professionals who understand the medical impact of technology and are committed to improving patient care and public health.
- M4: To build industry and academic partnerships that offer real-world exposure, internships, and collaborative projects to bridge the gap between theory and practice.
- M5: To encourage lifelong learning and entrepreneurship through continuous skill development and support for start-ups and translational research in MedTech.

Program Educational Objectives (PEOs)

After few years of graduation, the graduates of Computer Science and Medical Engineering will be able to:

- **PEO1:** Apply core principles of computer science, engineering, and healthcare-related technologies to design, develop, and maintain computational systems and intelligent solutions that support AI based Software applications, medical and healthcare applications.
- **PEO2:** Demonstrate professional competence, ethical responsibility, and effective communication skills while solving complex engineering problems and working with multidisciplinary teams in healthcare technology, research, or higher education using modern computing and AI-driven approaches.
- **PEO3:** Engage in lifelong learning, innovation, research, and entrepreneurial activities to create sustainable, technology-driven solutions that improve healthcare systems, patient care, and medical decision support using modern computing tools.

DAYANANDA SAGAR UNIVERSITY Harohalli 562 112

Program Outcomes (POs)

Engineering Graduates will be able to:

1. **PO1: Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
2. **PO2: Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development.
3. **PO3: Design / Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required.
4. **PO4: Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions.
5. **PO5: Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems.
6. **PO6: The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment.
7. **PO7: Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws.
8. **PO8: Individual and Collaborative Team work:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
9. **PO9: Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
10. **PO10: Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
11. **PO11: Life-long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change.

DAYANANDA SAGAR UNIVERSITY Harohalli 562 112

Program Specific Outcomes (PSOs)

Engineering Graduates will be able to:

- **PSO1: AI and Data-Driven Problem Solving**: Graduates will be able to apply computational techniques, data science, and artificial intelligence to analyze medical data, extract insights, and support clinical decision-making processes.
- **PSO2: Design and Deployment of Intelligent Systems:** Graduates will be proficient in designing, developing, and maintaining software and embedded systems for medical devices, healthcare applications, and diagnostic tools that meet regulatory and clinical standards.
- **PSO3: Ethical and Responsible Innovation:** Graduates will be capable of integrating computer science principles with biomedical knowledge to create innovative and cost-effective digital health solutions such as telemedicine, e-health platforms, and personalized healthcare technologies.

Definitions / Descriptions

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

Course code and Definition:	
BSC	Basic Science Courses
MCC	Mandatory Core Course
HASSC	Humanities Arts and Social Sciences Courses
IPCC	Integrated Professional Core Course
PCC	Professional Core Courses
PEC	Professional Elective Courses
OEC	Open Elective Courses
AEC	Ability Enhancement Courses
SEC	Skill Enhancement Course
INT	Internship
PROJ	Project Work

Implementation of National Education Policy (NEP) 2020 for the B. Tech Students of Batch 2025-2029

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.

SCHEME 2025 – 2026 Batch

YEAR 1 — THEME: THINKING ENGINEER + RESPONSIBLE HUMAN (40 CREDITS)
I – SEMESTER (CHEMISTRY CYCLE)

S.N	Course Type	Course Code	Course Title	Teaching Hours / Week				Examination				Credits
				Lecture	Tutorial	Practical	Project	Contact Hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	J					
1	BSC	25ENG1101	LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS	3	1	0	0	4	60	40	100	4
2	MCC	25ENG1102	ENGINEERING GRAPHICS AND DESIGN THINKING	2	1	2	0	5	60	40	100	4
3	BSC	25ENG1106	CHEMISTRY FOR CSME	2	1	2	0	5	60	40	100	4
4	PCC	25ENG1107	ENGINEERING SCIENCE COURSE – I FOR COMPUTER SCIENCE CLUSTER OBJECT ORIENTED PROGRAMMING	3	0	0	0	3	60	40	100	3
5	PCC	25ENG1110	TECHNICAL ENGLISH	2	0	0	0	2	100	-	100	2
6	PCC	25ENG1111	ENVIRONMENTAL SCIENCE	2	0	0	0	2	100	-	100	2
7	MCC	25ENG1112	KANNADA KALI / MANASU	1	0	0	0	1	50	-	50	1
8	MCC	25ENG1113	COGNITIVE AND TECHNICAL SKILLS - I	--	--	--	--	--	--	-	--	P/F
	TOTAL			15	3	4	0	22	490	160	650	20

*PCC- Program Core Course, IPCC- Integrated Program Core Course, PEC-Professional Elective Course, OEC- Open Elective Course, SEC- Skill Enhancement Course, MCC- Mandatory Core Course, BSC-Basic Science Course, HSMC-Humanities and Social Sciences including Management Courses

L – Lecture, T – Tutorial, P – Practical, J – Project, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations.

ENGINEERING SCIENCE COURSE – I:

CS Cluster: Object Oriented Programming
ECE Cluster: Introduction to Electrical Engineering
MECH Cluster: Introduction to Electrical and Electronics Engineering

DAYANANDA SAGAR UNIVERSITY
Harohalli
562 112

YEAR 1 — THEME: THINKING ENGINEER + RESPONSIBLE HUMAN (40 CREDITS)
I– SEMESTER (PHYSICS CYCLE)

S.N	Course Type	Course Code	Course Title	Teaching Hours / Week				Examination				Credits
				Lecture	Tutorial	Practical	Project	Contact Hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	J					
1	BSC	25ENG1101	LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS	3	1	0	0	4	60	40	100	4
2	MCC	25ENG1114	CPROGRAMMING FORPROBLEM SOLVING	2	1	2	0	5	60	40	100	4
3	BSC	25ENG1115	PHYSICS FOR COMPUTER SCIENCE CLUSTER	3	0	2	0	5	60	40	100	4
4	PCC	25ENG1109	ENGINEERING SCIENCE COURSE – II FOR COMPUTER SCIENCE CLUSTER INTRODUCTION TO ELECTRICAL AND ELECTRONICS ENGINEERING	3	0	0	0	3	60	40	100	3
5	PCC	25ENG1120	INTRODUCTION TO SUSTAINABLE ENGINEERING	2	0	0	0	2	100	-	100	2
6	PCC	25ENG1121	BIOLOGY FOR ENGINEERS	2	0	0	0	2	100	-	100	2
7	HASSC	25ENG1122	CONSTITUTION OF INDIA AND PROFESSIONAL ETHICS	1	0	0	0	1	50	-	50	1
8	MCC	25ENG1113	COGNITIVE AND TECHNICAL SKILLS – I	--	--	--	--	--	--	-	--	P/F
	TOTAL			16	2	4	0	22	490	160	650	20

*PCC- Program Core Course, IPCC- Integrated Program Core Course, PEC-Professional Elective Course, OEC- Open Elective Course, SEC- Skill Enhancement Course, MCC- Mandatory Core Course, BSC-Basic Science Course, HSMC-Humanities and Social Sciences including Management Courses

L – Lecture, T – Tutorial, P – Practical, J – Project, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations.

ENGINEERING SCIENCE COURSE – I:

CS Cluster: Introduction to Electrical and Electronics Engineering
ECE Cluster: Introduction to Electronics Engineering
MECH Cluster: Engineering Mechanics

DAYANANDA SAGAR UNIVERSITY Harohalli 562 112

YEAR 1 — THEME: THINKING ENGINEER + RESPONSIBLE HUMAN (40 CREDITS)
II – SEMESTER (CHEMISTRY CYCLE)

S.N	Course Type	Course Code	Course Title	Teaching Hours / Week				Examination				Credits
				Lecture	Tutorial	Practical	Project	Contact Hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	J					
1	BSC	25ENG1201	SINGLE AND MULTIVARIATE CALCULUS	3	1	0	0	4	60	40	100	4
2	MCC	25ENG1102	ENGINEERING GRAPHICS AND DESIGN THINKING	2	1	2	0	5	60	40	100	4
3	BSC	25ENG1106	CHEMISTRY FOR CSME	2	1	2	0	5	60	40	100	4
4	PCC	25ENG1107	ENGINEERING SCIENCE COURSE - I FOR COMPUTER SCIENCE CLUSTER OBJECT ORIENTED PROGRAMMING	3	0	0	0	3	60	40	100	3
5	PCC	25ENG1110	TECHNICAL ENGLISH	2	0	0	0	2	100	-	100	2
6	PCC	25ENG1111	ENVIRONMENTAL SCIENCE	2	0	0	0	2	100	-	100	2
7	MCC	25ENG1112	KANNADA KALI / MANASU	1	0	0	0	1	50	-	50	1
8	MCC	25ENG1202	COGNITIVE AND TECHNICAL SKILLS - II	--	--	--	--	--	--	-	--	P/F
	TOTAL			15	3	4	0	22	490	160	650	20

*PCC- Program Core Course, IPCC- Integrated Program Core Course, PEC-Professional Elective Course, OEC- Open Elective Course, SEC- Skill Enhancement Course, MCC- Mandatory Core Course, BSC-Basic Science Course, HSMC-Humanities and Social Sciences including Management Courses

L - Lecture, T - Tutorial, P - Practical, J - Project, CIE - Continuous Internal Evaluation, SEE- Semester End Examinations.

ENGINEERING SCIENCE COURSE - I:

CS Cluster: Object Oriented Programming
ECE Cluster: Introducuon to Electronics Engineering
MECH Cluster: Engineering Mechanics

DAYANANDA SAGAR UNIVERSITY Harohalli 562 112

YEAR 1 — THEME: THINKING ENGINEER + RESPONSIBLE HUMAN (40 CREDITS)
II– SEMESTER (PHYSICS CYCLE)

S.N	Course Type	Course Code	Course Title	Teaching Hours / Week				Examination				Credits
				Lecture	Tutorial	Practical	Project	Contact Hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	J					
1	BSC	25ENG1201	SINGLE AND MULTIVARIATE CALCULUS	3	1	0	0	4	60	40	100	4
2	MCC	25ENG1114	CPROGRAMMINGFORPROBLEM SOLVING	2	1	2	0	5	60	40	100	4
3	BSC	25ENG1115	PHYSICS FOR COMPUTER SCIENCE CLUSTER	3	0	2	0	5	60	40	100	4
4	PCC	25ENG1109	ENGINEERING SCIENCE COURSE - II FOR COMPUTER SCIENCE CLUSTER INTRODUCTION TO ELECTRICAL AND ELECTRONICS ENGINEERING	3	0	0	0	3	60	40	100	3
5	PCC	25ENG1120	INTRODUCTION TO SUSTAINABLE ENGINEERING	2	0	0	0	2	100	-	100	2
6	PCC	25ENG1121	BIOLOGY FOR ENGINEERS	2	0	0	0	2	100	-	100	2
7	HASSC	25ENG1122	CONSTITUTION OF INDIA AND PROFESSIONAL ETHICS	1	0	0	0	1	50	-	50	1
8	MCC	25ENG1202	COGNITIVE AND TECHNICAL SKILLS - II	--	--	--	--	--	--	-	--	P/F
	TOTAL			16	2	4	0	22	490	160	650	20

*PCC- Program Core Course, IPCC- Integrated Program Core Course, PEC-Professional Elective Course, OEC- Open Elective Course, SEC- Skill Enhancement Course, MCC- Mandatory Core Course, BSC-Basic Science Course, HSMC-Humanities and Social Sciences including Management Courses

L – Lecture, T – Tutorial, P – Practical, J – Project, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations.

ENGINEERING SCIENCE COURSE – II:

CS Cluster: Introduction to Python Programming
ECE Cluster: Introduction to Electrical Engineering
MECH Cluster: Introduction to Electrical and Electronics Engineering

DAYANANDA SAGAR UNIVERSITY Harohalli 562 112

YEAR 2 — CORE ENGINEERING & SYSTEMS (43 CREDITS) III-SEMESTER - THEME: BUILD REAL SYSTEMS												
S.NO	Course Type	Course Code	Course Title	Teaching Hours / Week				Examination				Credits
				Lecture	Tutorial	Practical	Project	Contact Hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	J					
1	BSC	25SM2301	APPLIED STATISTICS & STOCHASTIC PROCESSES	3	0	0	0	3	60	40	100	3
2	MCC	25SM2302	INTRODUCTION TO BIOMEDICAL SIGNAL PROCESSING	3	0	0	0	3	60	40	100	3
3	IPCC	25SM2303	DISCRETE MATHEMATICS & GRAPH THEORY	3	0	0	0	3	60	40	100	3
4	PCC	25SM2304	DATABASE MANAGEMENT SYSTEM	3	0	2	0	5	60	40	100	4
5	PCC	25SM2305	DATA STRUCTURES & ALGORITHMS	3	0	2	0	5	60	40	100	4
6	IPCC	25SM2306	SUSTAINABLE ENGINEERING &ESG	2	0	0	0	2	60	40	100	2
7	SEC	25SM23XX	SKILL ENHANCEMENT COURSE I	1	1	0	0	2	100	-	100	2
8	MCC	25SM2307	COGNITIVE & TECHNICAL SKILLS - III	-	-	-	-	-	-	-	-	P/F
	TOTAL			18	1	4	0	23	460	240	700	21

*PCC- Program Core Course, IPCC- Integrated Program Core Course, PEC-Professional Elective Course, OEC- Open Elective Course, SEC- Skill Enhancement Course, MCC- Mandatory Core Course, BSC-Basic Science Course, HASSC- Humanities Arts and Social Sciences Courses, INT-Internship, PROJ-Project work

*L- Lecture, T- Tutorial, P-Practical, J-Project, CIE-Continuous Internal Evaluation, SEE-Semester End Examination

SKILL ENHANCEMENT COURSE I			
Sl. No.	COURSE CODE	ENGINEERING SCIENCE COURSE – II	Credits
1	25SM2308	OOPS WITH JAVA	2
2	25SM2309	IOT APP DEVELOPMENT FOR MEDICAL WEARABLES	2
3	*CID	MOOC	2

MOOC			
1	25SM2310	DATABASE MANAGEMENT SYSTEM	2
2	25SM2311	DATA STRUCRES & ALGORITHMS DESIGN	2

*CID – NPTEL Course Id

YEAR 2 — CORE ENGINEERING & SYSTEMS (43 CREDITS)
IV-SEMESTER - THEME: BUILD REAL SYSTEMS

S.NO	Course Type	Course Code	Course Title	Teaching Hours / Week				Examination				Credits
				Lecture	Tutorial	Practical	Project	Contact Hours	CIE Marks	SEE Marks	Total Marks	
				L	T	P	J					
1	MCC	25SM2401	DIFFERENTIAL EQUATIONS & OPTIMIZATION	3	0	0	0	3	60	40	100	3
2	MCC	25SM2402	INTRODUCTION TO DATA SCIENCE	2	0	0	0	2	60	40	100	2
3	IPCC	25SM2403	IOT &SENSOR SYSTEMS	3	0	0	0	3	60	40	100	3
4	MCC	25SM2404	MACHINE LEARNING	3	0	2	0	5	60	40	100	4
5	PCC	25SM2405	DIGITAL LOGIC DESIGN& COMPUTER ARCHITECTURE	3	0	2	0	5	60	40	100	4
6	HSMC	25SM24XX	HUMANITIES & SOCIAL SCIENCES LIBERAL STUDIES	2	0	0	0	2	60	40	100	2
7	PCC	25SM2406	DESIGN STUDIO :AI-ENABLED HEALTHCARE SYSTEMS	1	1	0	0	2	100	-	100	2
8	SEC	25SM24XX	SKILL ENHANCEMENT COURSE II	1	1	0	0	2	100	-	100	2
9	MCC	25SM2407	COGNITIVE & TECHNICAL SKILLS - IV	-	-	-	-	-	-	-	-	P/F
	TOTAL			18	2	4	0	24	560	240	800	22

*PCC- Program Core Course, IPCC- Integrated Program Core Course, PEC-Professional Elective Course, OEC- Open Elective Course, SEC- Skill Enhancement Course, MCC- Mandatory Core Course, BSC-Basic Science Course, HASSC-Humanities Arts and Social Sciences Courses, INT-Internship, PROJ-Project work

*L- Lecture, T- Tutorial, P-Practical, J-Project, CIE-Continuous Internal Evaluation, SEE-Semester End Examination

SKILL ENHANCEMENT COURSE II			
Sl. No.	COURSE CODE	COURSES	Credits
1	25SM2412	MATLAB PROGRAMMING	2
2	25SM2413	R PROGRAMMINGFOR DATA ANALYTICS	2
3	*CID	MOOC	2

HUMANITIES & SOCIAL SCIENCES: LIBERAL STUDIES			
Sl. No.	COURSE CODE	COURSES	Credits
1	25SM2408	CLINICAL RESEARCH & ETHICS	2
2	25SM2409	INTRODUCTION TO FILM STUDIES	2
3	25SM2410	CYBER CRIMES, POLICIES & LAWS	2
4	25SM2411	YOGA & MEDITATION	2
MOOC			
1	25SM2414	ENHANCING SOFT SKILLS & PERSONALITY [NPTEL]	2
2	25SM2415	SOFT SKILL DEVELOPMENT [NPTEL]	2

*CID – NPTEL Course Id