Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

SCHEME

B.Tech. PROGRAMME– 2026 BATCH

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

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) 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

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

Implementation of National Education Policy (NEP) 2020 for the B.Tech students of Batch 2026-2030

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

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

SCHEME 2026 – 2030 Batch

Department of Mechanical Engineering

III SEMESTER

Sl.N	Course Type	CourseCode	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credit
					Lecture	Tutorial	Practical	Project	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	J					
1	BSC		Applied Statistics & Optimization	MAT	3	0	0	0	03	60	40	100	3
2	IPCC		Material Science and Metallurgy	Mech	2	0	2	0	04	60	40	100	3
3	IPCC		Fluid Mechanics and Machinery	Mech	2	0	2	0	04	60	40	100	3
4	PCC		Mechatronics & Embedded Systems*	Mech	3	0	0	0	03	60	40	100	3
5	PCC		Thermodynamics	Mech	3	0	0	0	03	60	40	100	3
6	IPCC		Data Structures with C	Mech	1	0	2	0	03	60	40	100	2
7	PCC		Sustainable Engineering and Environmental Governance	Mech	2	0	0	0	02	100	--	100	2
8	SEC		Skill Enhancement Course I*	Mech	2	0	0	0	02	100	--	100	2
9	SEC		Cognitive and Technical Skills -III	--	-	0	0	0	00	--	--	**P/F**	**0**
			Total		18	0	06	0	24				**21**

Course Code	Skill Enhancement Course – I
	NVIDIA-DLI- Certification Course- Generic Design/Digital Twin/Robotics/ Computational Thinking & GPU Foundations/Generative AI and LLMs)
	BOSCH REXROTH-Automation

Note: * Indicates NVIDIA-DLI Certification Course & # Indicates Course Integrated with Center of Excellence (LAB)

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

IV SEMESTER													
Sl.N	**Course Type**	**Course Code**	**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	BSC		Differential Equations & Numerical Methods	MAT	3	0	0	0	03	60	40	100	3
2	PCC		Mechanics of Materials	Mech	3	0	0	0	03	60	40	100	3
3	IPCC		Heat Transfer	Mech	2	0	2	0	04	60	40	100	3
4	IPCC		Manufacturing Technology#	Mech	2	0	2	0	04	60	40	100	3
5	IPCC		Machine Learning for Mechanical Engineers*	Mech	2	0	2	0	04	60	40	100	3
6	IPCC		CAD/CAM & Digital Visualization#	Mech	2	0	2	0	04	60	40	100	3
7	UHV		Humanities & Social Sciences	Mech	2	0	0	0	02	100	--	100	2
8	SEC		Skill Enhancement Course II*	Mech	2	0	0	0	02	100	--	100	2
9	SEC		Cognitive and Technical Skills -IV	--	-	-	-	-	-	--	--	**P/F**	**0**
			Total		18	0	08	0	26				**22**

Course Code	**Skill Enhancement Course – II**
	(NVIDIA-DLI Certification Course-Generic Design/Digital Twin/Robotics/ Accelerated Data Science/Generative AI and LLMs)
	Python Programming

Note: * Indicates NVIDIA-DLI Certification Course

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

V SEMESTER													
Sl. N	Course Type	Course Code	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	HSMC		Responsible AI, Ethics & Policy	AI&ML	2	0	0	0	02	60	40	100	2
2	PCC		Smart Manufacturing and Digital Transformation *	Mech	3	0	0	0	03	60	40	100	3
3	IPCC		Kinematics & Dynamics of Machines	Mech	2	0	2	0	02	60	40	100	3
4	IPCC		Finite Element Methods*	Mech	2	0	2	0	04	60	40	100	3
5	IPCC		Control systems & Automation	Mech	2	0	2	0	04	60	40	100	3
6	ESC		Design Studio III: Innovation & IP #	CST	0	0	4	0	04	100	--	100	2
7	PEC		**Professional Elective I / MOOC**	Mech	3	0	0	0	03	60	40	100	3
8	SEC		Cognitive and Technical Skills -V	--	0	0	0	0	0	--	--	P/F	0
			Total		14	0	12	0	22				**19**

Note: * Indicates NVIDIA-DLI Certification Course & # Indicates Course Integrated with Center of Excellence (LAB)

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

VI SEMESTER													
Sl. N	**Course Type**	**Course Code**	**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		Analysis of sustainable energy systems	Mech	3	0	0	0	03	60	40	100	3
2	IPCC		Additive Manufacturing & Product Development #	Mech	2	0	2	0	04	60	40	100	3
3	IPCC		Design of Machine Elements	Mech	3	0	2	0	05	60	40	100	4
4	IPCC		Noise, Vibration and Harshness	Mech	2	0	2	0	04	60	40	**100**	3
5	OEC		**Professional Elective II / MOOC**	Mech	3	0	0	0	03	60	40	100	3
6	PROJ		**Mini Project #**	Mech	0	0	0	4	04	100	--	100	2
7	PEC		Open Elective I	Mech	3	0	0	0	03	60	40	100	3
8	SEC		Cognitive and Technical Skills -V	--	0	0	0	0	0	--	--	P/F	0
			Total		16	0	06	4	26				**21**

Note: * Indicates NVIDIA-DLI Certification Course & # Indicates Course Integrated with Center of Excellence (LAB)

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

VII SEMESTER													
Sl. N	**Course Type**	**Course Code**	**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	HSMC		Entrepreneurial Finance & Deep Tech Start-up	CST	3	0	0	0	03	60	40	100	3
2	IPCC		Robotics & Autonomous Systems*	Mech	2	0	2	0	04	60	40	100	3
3	PEC		Professional Elective III	Mech	3	0	0	0	03	60	40	100	3
4	PEC		Professional Elective IV	Mech	3	0	0	0	03	60	40	100	3
5	OEC		Open Elective II	Mech	3	0	0	0	03	60	40	100	3
6	PROJ		Capstone Project I #	Mech	0	0	0	08	08	100	--	100	4
			Total		14	0	02	08	24				**19**

Note: # Indicates Course Integrated with Center of Excellence (LAB)

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

VIII SEMESTER													
S.N	Course Type	Course Code	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	PE		**Professional Elective V / MOOC**	Mech	3	0	0	0	3	60	40	100	3
2	HSMC		Leadership, Policy & Authentic Intelligence	**CSE**	3	0	0	0	03	60	40	100	3
3	INT		Internship (Industry/Research) #	Mech	3	0	0	0	03	60	40	100	3
4	PROJ		Capstone Project II #	Mech	0	0	0	20	20	60	40	100	10
			Total		9	0	0	20	29				**19**

Note: # Indicates Course Integrated with Center of Excellence (LAB)

NOTE: Total Credits (I-Sem to VIII Sem) = 160 credits

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

Professional Elective

S.N	Domain-wise	Domain Clusters	PROFESSIONAL ELECTIVE COURSES				
			PEC-I	PEC-II	PEC-III	PEC-IV	PEC-V
			5th Semester	6th Semester		7th Semester	
1	Domain-1	ROBOTICS & AUTOMATION	Robot Programming and Simulation	Drives & Control systems	# Robot Kinematics and Dynamics	Machine Vision and Robotic Inspection	Mobile Robotics and Autonomous Navigation
		Course Code					
2	Domain-2	ADDITIVE MANUFACTURING	Hybrid Manufacturing Technologies	# Materials for Additive Manufacturing	Processing Of Plastics & Composites	# Computational Tools for Additive Manufacturing	Bioprinting and Biomedical Additive Manufacturing
		Course Code					
3	Domain-3	HYBRID & ELECTRIC VEHICLES	Sustainable Mobility and Green Transportation	Hybrid Vehicle Architecture and Powertrains	Fundamental of Drives and DC Machine Modeling	Power Electronics for Electric Vehicles	Battery Management Systems
		Course Code					
4	Domain-4	DESIGN ENGINEERING	Advanced Solid Mechanics	Dynamics & Control of Mechanical Systems	* Computational Mechanics	Fracture Mechanics	Design Optimization
		Course Code					
5	Domain-5	AI+X	# Smart Production systems (AR/VR-Lab)	* Micro Electro Mechanical Systems (MEMS)	* Predictive maintenance & Industrial AI	AI-Based Design Optimization	# Cyber Physical Systems
		Course Code					
6	Domain- 6	Industrial Engineering	Supply chain management	Automotive Engineering Essentials	Fixed Equipments in Oil & Gas Industry	Automotive Engineering and Simulation	Reliability and maintenance in O&G Industry
		Course Code					
7	Domain- 7	Thermal and Energy Engineering	Advanced Heat Transfer	Refrigeration and Sustainable Energy	Heating, Ventilation, and Air Conditioning	* Computational Fluid Dynamics (CFD)	Renewable Energy Systems

7	**MOOC**		1	2			3
		Course Code					

Note: * Indicates NVIDIA-DLI Certification Course & # Indicates Course Integrated with Center of Excellence (LAB)

OPEN ELECTIVES:

Humanities & Social Sciences 4-SEM	**Open Elective- 1 6-SEM**	**Open Elective -2 7-SEM**
NPTEL COURSE	Industrial Robotics	Production & Operation management
Psychology for Engineers	Operation Research	Net zero emissions buildings
Indian knowledge systems for engineers	Additive manufacturing	Total Quality Management and Reliability
Food & Nutrition	Materials for Engineering applications	Organizational Behaviour
Community and social responsibility	Automobile Engineering	Renewable energy Engineering
Emotional Intelligence and Interpersonal Skills	Hybrid Manufacturing	Supply Chain and Logistics Management

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

MINORS DEGREE PROGRAM

B.Tech -Minors-20 Credits

Minor Subjects Proposed for CSE, CST and ECE students

- Materials Engineering (3 Credits)
- Additive Manufacturing Technology (Theory & Practice – 4 Credits)
- Strength of Materials (3-Credits)
- Fluids & Thermal Engineering (Theory & Practice – 4 Credits)
- Fundamentals of Machine Design (3-Credits)

AI Trends in Mechanical Engineering (3-Credits)

Minor Subjects for Electric & Hybrid Vehicles-18 Credits

- Electric Vehicle Technology (3 credits)
- Battery Systems and Energy Storage (3 credits)
- Power Electronics for EVs (3 credits)
- Vehicle Dynamics (3 credits)
- Charging Infrastructure (3 credits)
- Advanced Driver Assistance Systems (ADAS) (3 credits)

B.Tech- Honours for Mechanical Engineering -18 Credits

1. AI & Data Analytics in Manufacturing Systems (3 credits)
2. Advanced Computational Design & Generative Engineering (3 credits)
3. Advanced Thermodynamics & Energy Systems (3 credits)
4. Robot Perception & Machine Vision (3 credits)
5. Mechatronics and Intelligent System (3 credits)
6. Bio-Mechanical and System Engineering (3 credits)

Department of Mechanical Engineering
Dayananda Sagar University
School of Engineering
Harohalli, Kanakapura Road, Bengaluru South Dt. – 562 112

General Instructions:

- **Open Elective Courses:** At least two courses must be provided from each department and the courses shall be general course on emerging areas with broad coverage of syllabus so that student shall chose without any difficulty.
- **Honors Degree:** An honors degree typically refers to a higher level of academic achievement in the major area. That is, certificate in his/her OWN major for Research orientation. The Credit requirement: **172 to 178 credits** (Major worth 160 credits + Honors 12 to 18 credits)
- **Minor Degree:** Minor is a secondary concentration of courses that often complements the honors. Minor in any OTHER branch for Improving Employability.
  - Minor is an option rather than a requirement for B. Tech students. They may opt for one of the Engineering or Non-engineering discipline as Minor, earning additional credits ranging from 12 to 18. However, students are permitted to choose only one Minor either from engineering or non-engineering discipline.
  - This opportunity is ideal for students who took a Major out of necessity but would still like to pursue their passion in another discipline or to enrich/equip them for a specific profession where greater job opportunities exist. Another advantage of opting for a Major with a Minor is to earn standing credits for pursuing a Master's degree abroad or within India too.
  - Only students who satisfy a set of minimum eligibility criteria set forth by the university and meet certain pre-requisites, will be permitted to opt for a Minor.
  - Credit requirement: **172 to 178 credits** (Major worth 160 credits + Minor 12 to 18 credits)
  - Degree nomenclature: The degree will contain the Major / Major with Specialization. The Minor pursued by the student will be provided in the transcript along with details on courses completed and associated credits earned.
  - For e.g., For a student who pursued Computer Science and Engineering with a Minor in Industrial Psychology, the degree will read "B. Tech in Computer Science and Engineering", Transcripts of B. Tech will reflect the Minor courses and the Minor certificate in Industrial Psychology will be issued separately.

SCHOOL OF ENGINEERING

Dayananda Sagar University
Devarakaggalahalli , Harohalli , Kanakapura Road ,
Ramanagar District- 562112