

DAYANANDA SAGAR UNIVERSITY



SCHOOL OF ENGINEERING

(A State Private University under the Karnataka Act No. 20 of 2013)

Approved by UGC & AICTE, New Delhi, Accredited by NAAC with A+ grade

SCHEME FOR BACHELOR OF TECHNOLOGY (B. Tech)

COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

Batch 2026-2030



Dayananda Sagar University

School of Engineering

Devarakaggalahalli, Harohalli, Kanakapura Road, Bengaluru South Dist. – 562 112

Vision and Mission of DSU

VISION

To be a centre 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 engineering education, research and innovation with an emphasis on sustainability, inclusive technologies and global needs.

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 projects and innovation activities with active student engagement to advance 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 Dept. of CSE (Data Science)

VISION

To produce Engineers for Industry and Society in the field of Computer Science and Engineering (Data Science) by providing excellence in Education, Research and Entrepreneurship with a focus on sustainable solutions to fulfill global needs.



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MISSION

Impart quality technical education, critical thinking and sustainable learning practices in the domain of Computer Science and Engineering (Data Science) with ethical values and leadership qualities. Inculcate Interdisciplinary Research and Innovation by establishing Industry-Academia collaboration to solve critical problems.

Prepare graduates to become Ethical Data Science practitioners to contribute in data driven global society.

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



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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. Interdisciplinary 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
 - Degree in Engineering after completion of fourth year



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I Semester(Physics Cycle)											
S.No	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.		Linear Algebra and Data Foundations	3	0	0	0	3	60	40	100	3
2.		Engineering Physics (Computer Science Cluster)	3	0	2	0	5	60	40	100	4
3.		Computational Thinking & Programming Using Python	2	0	2	0	4	60	40	100	3
4.		Foundations of AI & Authentic Intelligence	3	0	0	0	3	60	40	100	3
5.		Engineering Science Course - I (Computer Science Cluster) Introduction to Electrical & Electronics Engineering	3	0	0	0	3	60	40	100	3
6.		Engineering Communication & Technical Writing	2	0	0	0	2	100	-	100	2
7.		Biology for Engineers	2	0	0	0	2	100	-	100	2
8.		Kannada Kali / Manasu	1	0	0	0	1	50	-	50	1
9.		Cognitive and Technical Skills (CTS)-I	-	-	-	-	-	-	-	-	P/F
TOTAL			19	0	4	0	23	550	200	750	21



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I Semester (Chemistry Cycle)											
S.No	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.		Linear Algebra and Data Foundations	3	0	0	0	3	60	40	100	3
2.		Engineering Chemistry (Computer Science Cluster)	2	0	2	0	4	60	40	100	3
3.		Engineering Graphics & Generative Design	2	0	2	0	4	60	40	100	3
4.		Human-Centered Design, Ethics & Values	2	0	0	0	2	60	40	100	2
5.		Engineering Science Course II (Computer Science Cluster) - Introduction to C Programming	2	0	2	0	4	60	40	100	3
6.		Design Studio I: Engineering Problem Solving	0	1	2	0	3	100	-	100	2
7.		Environmental Science	2	0	0	0	2	100	-	100	2
8.		Indian Constitution & Law	1	0	0	0	1	50	-	50	1
9.		Cognitive and Technical Skills (CTS)-I	-	-	-	-	-	-	-	-	P/F
TOTAL			14	1	8	0	23	550	200	750	19



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II Semester(Physics Cycle)											
S.No	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.		Calculus & Mathematical Modelling	3	0	0	0	3	60	40	100	3
2.		Engineering Physics (Computer Science Cluster)	3	0	2	0	5	60	40	100	4
3.		Computational Thinking & Programming Using Python	2	0	2	0	4	60	40	100	3
4.		Foundations of AI & Authentic Intelligence	3	0	0	0	3	60	40	100	3
5.		Engineering Science Course - I (Computer Science Cluster) Introduction to Electrical & Electronics Engineering	3	0	0	0	3	60	40	100	3
6.		Engineering Communication & Technical Writing	2	0	0	0	2	100	-	100	2
7.		Biology for Engineers	2	0	0	0	2	100	-	100	2
8.		Kannada Kali / Manasu	1	0	0	0	1	50	-	50	1
9.		Cognitive and Technical Skills (CTS)-II	-	-	-	-	-	-	-	-	P/F
TOTAL			19	0	4	0	23	550	200	750	21



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II Semester(Chemistry Cycle)											
S.No	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.		Calculus & Mathematical Modelling	3	0	0	0	3	60	40	100	3
2.		Engineering Chemistry (Computer Science Cluster)	2	0	2	0	4	60	40	100	3
3.		Engineering Graphics & Generative Design	2	0	2	0	4	60	40	100	3
4.		Human-Centered Design, Ethics & Values	1	1	0	0	2	60	40	100	2
5.		Engineering Science Course II (Computer Science Cluster) - Introduction to C Programming	2	0	2	0	4	60	40	100	3
6.		Design Studio I: Engineering Problem Solving	1	0	0	2	3	100	-	100	2
7.		Environmental Science	2	0	0	0	2	100	-	100	2
8.		Indian Constitution & Law	1	0	0	0	1	50	-	50	1
9.		Cognitive and Technical Skills (CTS)-II	-	-	-	-	-	-	-	-	P/F
TOTAL			14	1	6	2	23	550	200	750	19



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SCHEME - B. TECH – 2026-2030 ONWARDS III SEM

SL. No	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hours	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	26DS2301	Applied Statistics & Stochastic Processes	3	0	0	0	3	3	60	40	100
2	26DS2302	Data Structures	3	0	2	0	4	5	60	40	100
3	26DS2303	Computer Organization and Architecture	3	0	0	0	3	3	60	40	100
4	26DS2304	IoT and Sensor Systems	2	0	2	0	3	3	60	40	100
5	26DS2305	Database Management System	3	0	2	0	4	5	60	40	100
6	26DS2306	Sustainability Engineering & Environmental Social and Governance	2	0	0	0	2	2	60	40	100
7	26DS23XX	Skill Enhancement Course I (Choice of Courses)	1	0	2	0	2	3	100	-	100
8	26DS2307	Cognitive and Technical Skills (CTS)-III	-	-	-	-	-	-	-	-	P/F
Total			18	0	6	0	21	24	460	240	700

L – Lecture, T – Tutorial, P – Practical, J – Project, C – No. of Credits, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations, TM – Total Marks.

SKILL ENHANCEMENT COURSE I		
SL. NO	COURSE CODE	COURSE NAME
1	26DS2308	JAVA Programming
2	26DS2309	BI Tools
3	26DS2310	No Coding/Low Coding Development



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SCHEME - B. TECH – 2026-2030 ONWARDS IV SEM

SL. No	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hours	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	26DS2401	Differential Equations & Optimization	3	0	0	0	3	3	60	40	100
2	26DS2402	Introduction to Data Science	2	0	0	0	2	2	60	40	100
3	26DS2403	Design and Analysis of Algorithms	3	0	2	0	4	5	60	40	100
4	26DS2404	Machine Learning	3	0	2	0	4	5	60	40	100
5	26DS2405	Operating systems	3	0	0	0	3	3	60	40	100
6	26DS2406	Design Studio II-(AI Enabling System)	1	0	0	2	2	2	100	-	100
7	26DS24XX	Skill Enhancement Course II	1	0	2	0	2	3	100	-	100
8	26DS2407	Liberal Studies	2	0	0	0	2	2	60	40	100
Total			18	0	6	2	22	25	560	240	800

L – Lecture, T – Tutorial, P – Practical, J – Project, C – No. of Credits, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations, TM – Total Marks.

SKILL ENHANCEMENT COURSE II		
SL. NO	COURSE CODE	COURSE NAME
1	26DS2408	R Programming
2	26DS2409	MATLAB for Data science
3	26DS2410	Research ethics and Technical writing
4	26DS2411	Full Stack Development



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LIBERAL STUDIES		
Sl. No.	Course Code	Course Title
1	26LS0001	Introduction to Japanese Language
2	26LS0002	Introduction to German Language
3	26LS0003	Law for Engineers
4	26LS0004	Introduction to Painting
5	26LS0005	Vedic Mathematics
6	26LS0006	Fundamentals of Critical Thinking
7	26LS0007	Cyber Crimes, Policies & Laws
8	26LS0008	Introduction to Film Studies
9	26LS0009	Practicing Yoga & Meditation
10	26LS0010	Universal Human Values
11	26LS0011	Data Governance

MOOC		
Sl. No.	Course Code	Course Title
1	*CID	Soft Skill Development (NPTEL)
2	*CID	Enhancing Soft Skills and Personality



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SCHEME - B. TECH – 2026-2030 ONWARDS V SEM

SL. No	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hours	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	26DS3501	Responsible AI, Ethics & Policy	2	0	0	0	2	2	60	40	100
2	26DS3502	Multimodal AI for Data Science	3	0	0	0	3	3	60	40	100
3	26DS3503	Big Data Analytics	3	0	2	0	4	5	60	40	100
4	26DS3504	Deep Learning Essentials	3	0	2	0	4	5	60	40	100
5	26DS3505	Theory of Computation with Compiler Design	3	0	0	0	3	3	60	40	100
6	26DS3506	Design Studio III: Innovation, Design Thinking & IP	1	0	0	2	2	2	100	-	100
7	26DS35XX	Professional Elective I / MOOC	3	0	0	0	3	3	60	40	100
8	26DS3507	Cognitive and Technical Skills (CTS)-IV	-	-	-	-	-	-	-	-	P/F
Total			18	0	4	2	21	23	460	240	700

L – Lecture, T – Tutorial, P – Practical, J – Project, C – No. of Credits, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations, TM – Total Marks.



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SCHEME - B. TECH – 2026-2030 ONWARDS VI SEM

SL. No	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hours	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	26DS3601	Sustainable Software Engineering	2	0	0	0	2	2	60	40	100
2	26DS3602	CUDA for High Performance Computing	3	0	2	0	4	5	60	40	100
3	26DS3603	Cloud Data Engineering	3	0	0	0	3	3	60	40	100
4	26DS3604	Computer Networks	3	0	0	0	3	3	60	40	100
5	26DS36XX	Professional Elective II / MOOC	3	0	0	0	3	3	60	40	100
6	26DS3605	Minor Project (CoE-based / Start-up / Research Track)	0	0	0	4	2	-	100	-	100
7	26OEXXXX	Open Elective I	3	0	0	0	3	3	60	40	100
8	26DS3606	Cognitive and Technical Skills (CTS)-V	-	-	-	-	-	-	-	-	P/F
Total			17	0	2	4	20	19	460	240	700

L – Lecture, T – Tutorial, P – Practical, J – Project, C – No. of Credits, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations, TM – Total Marks

OPEN ELECTIVE I		
Sl. No.	COURSE CODE	COURSE NAME
1	23OE0014	Statistical Computing for Data Science
2		Data Analytics for Decision Making
3		Smart Cities & Urban Data Analytics
4		R Programming for Data Analytics



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SCHEME - B. TECH – 2026-2030 ONWARDS VII SEM

SL. No	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hours	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	26DS4701	Entrepreneurial Finance & Deep Tech Start-ups	2	0	0	0	2	2	100	-	100
2	26DS4702	Principles of DEVOPS & MLOPS	3	0	2	0	4	5	60	40	100
3	26DS47XX	Professional Elective III	3	0	0	0	3	3	60	40	100
4	26DS47XX	Professional Elective IV	3	0	0	0	3	3	60	40	100
5	26OEXXXX	Open Elective II	3	0	0	0	3	3	60	40	100
6	26DS4703	Capstone Project I	0	0	0	8	4	-	60	40	100
Total			14	0	2	8	19	16	400	200	600

L – Lecture, T – Tutorial, P – Practical, J – Project, C – No. of Credits, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations, TM – Total Marks

Open Elective Course- II		
Sl. No	COURSE CODE	COURSE NAME
1.	23OE0015	Data Exploration Using R
2.		MATLAB for Data Science
3.		Social Media Analytics
4.		Industrial Data Analytics



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SCHEME - B. TECH – 2026-2030 ONWARDS VIII SEM

SL. No	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hours	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	26DS48XX	Professional Elective V / MOOC	3	0	0	0	3	3	60	40	100
2	26DS4801	Leadership, Policy & Authentic Intelligence	2	0	0	0	2	2	-	-	100
3	26DS4802	Internship (Industry / Research / CoE based)	0	0	0	4	2	-	100	-	100
4	26DS4803	Capstone Project Phase II	0	0	0	20	10	-	60	40	100
Total			5	0	0	24	17	05	220	80	400

L – Lecture, T – Tutorial, P – Practical, J – Project, C – No. of Credits, CIE – Continuous Internal Evaluation, SEE- Semester End Examinations, TM – Total Marks

I -21 II -19 III -21 IV – 22 V -21 VI -20 VII – 19 VIII – 17

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



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NOTE: Professional elective courses Domain-wise

Sl.No	CSE (Data Science) Professional Elective Courses										
	Domain		PEC-I		PEC-II		PEC-III		PEC-IV		PEC-V
			5 th Semester		6 th Semester			7 th Semester			8 th Semester
1	GEN AI (DLI Mapped)	26DS3512	NLP	26DS3607	Generative AI and LLM	26DS4704	Multimodal RAG Systems	26DS4709	Agentic AI	26DS4804	Explainable AI
2	Data Science Applications (COE Mapped)	26DS3513	Optimization Techniques for Data Science	26DS3608	Data-Driven Recommendation Systems	26DS4705	Immersive Data Science	26DS4710	AI for Cybersecurity Analytics	26DS4805	Autonomous System
3	AI+X	26DS3514	AI for Healthcare	26DS3609	AI for Agriculture	26DS4706	AI for FinTech & Risk Analytics	26DS4711	Geo-Spatial AI	26DS4806	Supply Chain AI
4	Industrial AI (DLI Mapped)	26DS3515	AI for Industry 5.0	26DS3610	Industrial Digital Twin Technology	26DS4707	Embedded AI System & Edge Deployment	26DS4712	Scalable Enterprise AI	26DS4807	Enterprise Deployment
5	Data Security	26DS3516	Cryptography and Network Security	26DS3611	Cloud Data Security	26DS4708	Information security	26DS4713	Blockchain Technology	26DS4808	Adversarial Machine learning



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Sl.No	MINORS (18 CREDITS)			
	Semester	Course Title	DLI Mapping	Credits
1	4th	AI-Driven Data Engineering	3	3
2	5th	GPU Accelerated Data Mining	3	3
3	6th	High-Performance Big Data Analytics	3	3
4	7th	Deep Learning for AI	3	3
5	8th	Data Science Project DGX Cluster	6	6
Total			18	18

SLN0	HONORS (18 CREDITS)			
	Semester	Course Title	DLI Mapping	Credits
1	5th	Applied Deep Learning for Computer Vision Systems	3	3
2	6th	Accelerated Data Processing & Engineering	3	3
3	6th	Deep Learning for Autonomous & Video Analytics Systems	3	3
4	7th	Scalable AI Model Training & Optimization	3	3
5	7th	Conversational AI Systems & Intelligent Assistants	3	3
6	8th	Cybersecurity Analytics using AI & Deep Learning	3	3
Total			18	18