

DAYANANDA SAGAR UNIVERSITY

SCHOOL OF ENGINEERING



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

Department of Computer Science and Engineering (Data Science)

SCHEME FOR BACHELOR OF TECHNOLOGY (B. Tech)

Batch 2024-2028



Dayananda Sagar University

School of Engineering

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

SCHEME - B.TECH – 2024-25 ONWARDS I SEM - CHEMISTRY CYCLE

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hrs Exam	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	24EN1101	LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS	3	0	0	0	3	3	60	40	100
2	24EN1102	OBJECT ORIENTED PROGRAMMING	2	1	2	0	4	3	60	40	100
3	24EN1103	COGNITIVE AND TECHNICAL SKILLS – I	0	0	4	0	2	1	100	-	100
4	24EN1104	ENGINEERING CHEMISTRY	2	0	2	0	3	3	60	40	100
5	24EN1105	INTRODUCTION TO MECHANICAL ENGINEERING	2	0	2	0	3	3	60	40	100
6	24EN1106	INTRODUCTION TO ELECTRICAL ENGINEERING	2	0	0	0	2	3	60	40	100
7	24EN1107	ENGINEERING MECHANICS	2	0	0	0	2	3	60	40	100
8	24EN1108	TECHNICAL ENGLISH	2	0	0	0	2	1	100	-	100
9	24EN1109	ENVIRONMENTAL SCIENCE	1	0	0	0	0	1	50	-	50
10	24EN1110	KANNADA KALI / MANASU	1	0	0	0	0	1	50	-	50
			17	1	10	0	21		660	240	900

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 – 2024-25 ONWARDS I SEM - PHYSICS CYCLE

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hrs Exam	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	24EN1101	LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS	3	0	0	0	3	3	60	40	100
2	24EN1102	OBJECT ORIENTED PROGRAMMING	2	1	2	0	4	3	60	40	100
3	24EN1103	COGNITIVE AND TECHNICAL SKILLS – I	0	0	4	0	2	1	100	-	100
4	24EN1111	ENGINEERING PHYSICS	3	0	2	0	4	3	60	40	100
5	24EN1112	INTRODUCTION TO ELECTRONICS ENGINEERING	3	0	0	0	3	3	60	40	100
6	24EN1113	ENGINEERING GRAPHICS AND DESIGN THINKING	2	0	2	0	3	2	60	40	100
7	24EN1114	BIOLOGY FOR ENGINEERS	2	0	0	0	2	1	100	-	100
8	24EN1115	CONSTITUTION OF INDIA AND PROFESSIONAL ETHICS	1	0	0	0	0	1	50	-	50
			16	1	10	0	21		550	200	750

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 – 2024-25 ONWARDS II SEM - CHEMISTRY CYCLE

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hrs Exam	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	24EN1201	SINGLE AND MULTIVARIATE CALCULUS	3	0	0	0	3	3	60	40	100
2	24EN1202	C PROGRAMMING FOR PROBLEM SOLVING	2	1	2	0	4	3	60	40	100
3	24EN1203	COGNITIVE AND TECHNICAL SKILLS – II	0	0	4	0	2	1	100	-	100
4	24EN1104	ENGINEERING CHEMISTRY	2	0	2	0	3	3	60	40	100
5	24EN1105	INTRODUCTION TO MECHANICAL ENGINEERING	2	0	2	0	3	3	60	40	100
6	24EN1106	INTRODUCTION TO ELECTRICAL ENGINEERING	2	0	0	0	2	3	60	40	100
7	24EN1107	ENGINEERING MECHANICS	2	0	0	0	2	3	60	40	100
8	24EN1108	TECHNICAL ENGLISH	2	0	0	0	2	1	100	-	100
9	24EN1109	ENVIRONMENTAL SCIENCE	1	0	0	0	0	1	50	-	50
10	24EN1110	KANNADA KALI / MANASU	1	0	0	0	0	1	50	-	50
			17	1	10	0			660	240	900

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 – 2024-25 ONWARDS II SEM - PHYSICS CYCLE

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					Duration in Hrs Exam	Examination (Maximum Marks)		
			L	T	P	J	C		CIE	SEE	TM
1	24EN1201	SINGLE AND MULTIVARIATE CALCULUS	3	0	0	0	3	3	60	40	100
2	24EN1202	C PROGRAMMING FOR PROBLEM SOLVING	2	1	2	0	4	3	60	40	100
3	24EN1203	COGNITIVE AND TECHNICAL SKILLS – II	0	0	4	0	2	1	100	-	100
4	24EN1111	ENGINEERING PHYSICS	3	0	2	0	4	3	60	40	100
5	24EN1112	INTRODUCTION TO ELECTRONICS ENGINEERING	3	0	0	0	3	3	60	40	100
6	24EN1113	ENGINEERING GRAPHICS AND DESIGN THINKING	2	0	2	0	3	2	60	40	100
7	24EN1114	BIOLOGY FOR ENGINEERS	2	0	0	0	2	1	100	-	100
8	24EN1115	CONSTITUTION OF INDIA AND PROFESSIONAL ETHICS	1	0	0	0	0	1	50	-	50
			16	1	10	0	21		550	200	750

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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III SEMESTER													
Sl. No.	Course Type	Course Code	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					L	T	P	J	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	BSC	24DS2301	Probability and Statistics	MAT	3	0	0	0	03	60	40	100	3
2	IPCC	24DS2302	Data Structures	CSE	3	0	2	0	05	60	40	100	4
3	PCC	24DS2303	Computer Organization and Architecture	DS	3	0	0	0	03	60	40	100	3
4	PCC	24DS2304	Discrete Mathematics and Graph Theory	CSE	3	0	0	0	03	60	40	100	3
5	PCC	24DS2305	Web Technologies	DS	3	0	0	0	03	60	40	100	3
6	IPCC	24DS2306	Database and Management System	DS	3	0	2	0	05	60	40	100	4
7	SEC	24DS23XX	Skill Enhancement Course – I	DS	1	0	2	0	03	100	--	100	2
8	CTS	24DS2307	Cognitive & Technical Skills-III	ALL	-	-	-	-	-	-	-	-	P/F
Total					19	0	06	0	25	460	240	700	22

Sl. No	Course Code	Skill Enhancement Course – I
1	24DS2308	OOPS with JAVA
2	24DS2309	MOOC



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IV SEMESTER

Sl. N	Course Type	Course Code	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					L	T	P	J	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	BSC	24DS2401	Transforms and Numerical Techniques	MAT	3	0	0	0	03	60	40	100	3
2	IPCC	24DS2402	Design and Analysis of Algorithms	CSE	3	0	2	0	05	60	40	100	4
3	IPCC	24DS2403	Data Science and Visualization	DS	3	0	2	0	05	60	40	100	4
4	PCC	24DS2404	Enterprise Data Warehousing	DS	3	0	0	0	03	60	40	100	3
5	IPCC	24DS2405	Machine Learning	DS	3	0	2	0	05	60	40	100	4
6	PROJ	24DS2406	Minor Project -1	DS	0	0	0	4	04	60	40	100	2
7	SEC	24DS24XX	Skill Enhancement Course – II	DS	1	0	2	0	03	100	--	100	2
8	CTS	24DS2407	Cognitive & Technical Skills-IV	ALL	-	-	-	-	-	-	-	-	P/F
Total					16	00	08	04	28	460	240	700	22

Sl. No	Course Code	Skill Enhancement Course – II
1	24DS2408	Business Intelligence Tools
2	24DS2409	MOOC



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V SEMESTER													
S.N	Course Type	Course Code	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					L	T	P	J	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	PCC	24DS3501	Big Data Analytics	DS	3	0	2	0	03	60	40	100	4
2	PCC	24DS3502	Foundations of AI & Authentic Intelligence	DS	3	0	0	0	03	60	40	100	3
3	IPCC	24DS3503	Cloud Data Engineering	DS	3	0	2	0	05	100	--	100	4
4	IPCC	24DS3504	Deep learning Essentials	DS	3	0	2	0	05	60	40	100	4
5	IPCC	24DS3505	Operating System	DS	3	0	0	0	05	60	40	100	3
6	PEC	24DS35XX	Professional Elective Course – I	DS	3	0	0	0	03	60	40	100	3
7	CTS	24DS3506	Cognitive & Technical Skills- V	ALL	-	-	-	-	-	-	-	-	P/F
Total					18	00	06	0	24	400	200	600	21



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VI SEMESTER													
Sl. No.	Course Type	Course Code	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					L	T	P	J	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	IPCC	24DS3601	Sustainable Software Engineering	DS	2	0	0	0	02	60	40	100	2
2	IPCC	24DS3602	CUDA for High Performance Computing	DS	3	0	2	0	05	60	40	100	4
3	PCC	24DS3603	Theory of computation with Compiler Design	DS	3	0	2	0	05	60	40	100	4
4	PCC	24DS3604	Computer Networks	DS	3	0	0	0	03	60	40	100	3
5	PEC	24DS36XX	Professional Elective II / MOOC	DS	3	0	0	0	03	60	40	100	3
6	PROJ	24DS3605	Minor Project (CoE-based / Start-up / Research Track)	DS	0	0	0	2	-	100	-	100	2
7	OEC	24OEXXXX	Open Elective I	DS	3	0	0	0	03	60	40	100	3
8	CTS	24DS3606	Cognitive & Technical Skills-VI	ALL	-	-	-	-	-	-	-	-	P/F
Total					17	0	02	02	21	460	240	700	20



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VII SEMESTER													
Sl. No.	Course Type	Course Code	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					L	T	P	J	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	HSMC	24DS4701	Entrepreneurial Finance & Deep Tech Start-ups	DS	2	0	0	0	02	100	-	100	2
3	PEC	24DS47XX	Professional Elective III	DS	3	0	0	0	03	60	40	100	3
4	PEC	24DS47XX	Professional Elective IV	DS	3	0	0	0	03	60	40	100	3
5	OEC	24OEXXXX	Open Elective II	DS	3	0	0	0	03	60	40	100	3
6	PROJ	24DS4702	Capstone Project Phase-I		0	0	0	8	-	60	40	100	4
Total					11	0	0	8	11	340	160	500	15

OPEN ELECTIVE COURSES			
Open Elective -I		Open Elective-II	
Course Code	Course Name	Course Code	Course Name
23OE0014	Statistical Computing for Data Science	23OE0015	Data Exploration Using R
	Data Analytics for Decision Making		MATLAB for Data Science
	Smart Cities & Urban Data Analytics		Social Media Analytics
			Industrial Data Analytics



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VIII SEMESTER													
Sl. No.	Course Type	Course Code	Course Name	Teaching Department	Teaching Hours / Week				Examination				Credits
					L	T	P	J	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	PEC	24DS48XX	Professional Elective V / MOOC	DS	3	0	0	0	03	60	40	100	03
2	PCC	24DS4801	Leadership, Policy & Authentic Intelligence	DS	2	0	0	0	2	-	-	100	02
3	INT	24DS4802	Internship (Industry / Research / CoE based)		0	0	0	4	-	100	-	100	02
4	PROJ	24DS4803	Capstone Project phase II		0	0	0	20	-	60	40	100	10
Total					5	0	0	20	05	280	120	400	17

I -21 II -21 III -22 IV – 22 V -21 VI -21 VII – 15 VIII – 17

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



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NOTE: Professional elective courses Domain-wise

Sl. No.	CSE (Data Science) Professional Elective Courses					
	Domain Clusters	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)	NLP	Generative AI+LLM	Agentic AI	Multimodal RAG Systems	Explainable AI/Multimodal AI for Data Science
2	Data Science Applications (COE Mapped)	Optimization Techniques for Data Science	Data-Driven Recommendation Systems	Immersive Data Science	AI for Cybersecurity Analytics	Autonomous System
3	AI+X	AI for Healthcare	AI for Agriculture	AI for FinTech & Risk Analytics	Geo-Spatial AI	Supply Chain AI
4	Industrial AI (Nvidia DGX)	AI for Industry 5.0	Industrial Digital Twin Technology	Embedded AI System & Edge Deployment	Scalable Enterprise AI	Enterprise Deployment
5	Data Security	Cryptography and Network Security	Cloud Data Security	Information security	Blockchain Technology	Adversarial Machine Learning