



DAYANANDA SAGAR UNIVERSITY

SCHOOL OF ENGINEERING



**SCHEME FOR
BACHELOR OF TECHNOLOGY (B.Tech)**

**COMPUTER SCIENCE & ENGINEERING
(Artificial Intelligence & Machine Learning)
(1st to 8th Semester)**

Graduation Batch: 2024-2028

(With effect from 2024-25)



Dayananda Sagar University
School of Engineering

Devarakagalahalli, Harohalli, Kanakapura Road, Ramanagara Dt., Bengaluru- 562112

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
(Artificial Intelligence & Machine Learning)

Total Credits

Sl. No	Semester	Credits
1	1 st semester	21
2	2 nd semester	21
3	3 rd semester	23
4	4 th semester	23
5	5 th semester	22
6	6 th semester	22
7	7 th semester	13
8	8 th semester	15
Total		160



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.



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.



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	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.



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 SEM – CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

SL. NO	Course Type	Course Code	Course Name	Teaching Hours / Week				Examination			
				Lecture	Tutorial	Practical	Project	CIE Marks	SEE Marks	Total Marks	Credit
				L	T	P	J				
1	BSC	24AM2301	Probability & Statistics	3	0	0	0	60	40	100	03
2	IPCC	24AM2302	Data Structures	3	0	2	0	60	40	100	04
3	IPCC	24AM2303	Computer Networks	3	0	2	0	60	40	100	04
4	PCC	24AM2304	Discrete Mathematics and Graph Theory	3	0	0	0	60	40	100	03
5	PCC	24AM2305	Computer Organization and Architecture	3	0	0	0	60	40	100	03
6	PCC	24AM2306	Embedded Systems Design	3	0	0	0	60	40	100	03
7	SEC	24AM2307	Skill Enhancement Course – I (Java Programming)	1	0	2	0	100	--	100	02
8	PCC	24AM2308	AI for Renewable Energy Systems	1	0	0	0	100	--	100	01
9	AEC	24AM2309	Cognitive and Technical Skills-III	--	--	--	--	--	--	--	Pass/Fail
			Total	20	0	06	0				23

IPCC-Integrated Professional Core Course, PCC-Professional Core Courses, SEC-Skill Enhancement Courses, BSC-Basic Science, L – Lecture, T – Tutorial, P – Practical, J –Project, C – No. Of Credits, AEC-Ability Enhancement Course



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IV SEM – CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

SL	Course Type	Course Code	Course Name	Teaching Hours / Week				Examination			
				Lecture	Tutorial	Practical	Project	CIE Marks	SEE Marks	Total Marks	Credit
				L	T	P	J				
1	BSC	24AM2401	Transform and Numerical Techniques	3	0	0	0	60	40	100	03
2	IPCC	24AM2402	Design and Analysis of Algorithms	3	0	2	0	60	40	100	04
3	IPCC	24AM2403	Database Management System	3	0	2	0	60	40	100	04
4	PCC	24AM2404	Theory of Computation and System Software	3	1	0	0	60	40	100	04
5	PCC	24AM2405	Artificial Intelligence	3	0	0	0	60	40	100	03
6	PCC	24AM2406	Full Stack Development	3	0	0	0	60	40	100	03
7	SEC	24AM2407	Skill Enhancement Course –II (Unix and Shell Programming)	1	0	2	0	100	--	100	02
8	AEC	24AM2408	Cognitive and Technical Skills-IV	--	--	--	-	--	--	--	Pass/Fail
			Total	19	1	06	0				23

IPCC-Integrated Professional Core Course, PCC-Professional Core Courses, SEC-Skill Enhancement Courses, PEC-Professional Elective Courses, BSC-Basic Science, L – Lecture, T – Tutorial, P – Practical, J– Project, C – No. Of Credits, AEC-Ability Enhancement Course



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V SEM – CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

SL	Course Type	Course Code	Course Name	Teaching Hours / Week				Examination			
				Lecture	Tutorial	Practical	Project	CIE Marks	SEE Marks	Total Marks	Credit
				L	T	P	J				
1	IPCC	24AM3501	Machine Learning	3	0	2	0	60	40	100	04
2	IPCC	24AM3502	Operating Systems	3	0	2	0	60	40	100	04
3	PCC	24AM3503	Natural Language Models	3	1	0	0	60	40	100	04
4	PCC	24AM3504	Image Processing and Computer Vision	3	0	0	0	60	40	100	03
5	HSMC	24AM3505	Innovation and Entrepreneurship	2	0	0	0	60	40	100	02
6	SEC	24AM3506	Skill Enhancement Course –III (Cloud Computing)	1	0	2	0	100	--	100	02
7	PEC	24AM35X X	Professional Elective Course -I	3	0	0	0	60	40	100	03
8	AEC	24AM3507	Cognitive and Technical Skills-V	-	-	-	-	--	--	--	Pass/Fail
			Total	18	1	6	0				22

HSMC- Humanities and Social Sciences including Management Courses, IPCC-Integrated Professional Core Course, PCC-Professional Core Courses, SEC-Skill Enhancement Courses, PEC-Professional Elective Courses, L – Lecture, T – Tutorial, P – Practical, J-Project, C – No. Of Credits, AEC-Ability Enhancement Course



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VI SEM – CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

SL	Course Type	Course Code	Course Name	Teaching Hours / Week				Examination			
				Lecture	Tutorial	Practical	Project	CIE Marks	SEE Marks	Total Marks	Credit
				L	T	P	J				
1	IPCC	24AM3601	Deep Learning	3	0	2	0	60	40	100	04
2	IPCC	24AM3602	Gen AI and Prompt Engineering	3	0	2	0	60	40	100	04
3	PCC	24AM3603	Designing MLOps for Enterprises	3	0	0	0	60	40	100	03
4	PEC	24AM36XX	Professional Elective Course – II	3	0	0	0	60	40	100	03
5	PEC	24AM36XX	Professional Elective Course – III	3	0	0	0	60	40	100	03
6	OEC	24OEXXXX	Open Elective – I	3	0	0	0	60	40	100	03
7	PROJ	24AM3604	Minor Project	0	0	0	4	--	100	100	02
8	AEC	24AM3605	Cognitive and Technical Skills- VI	-	-	-	-	--	--	--	P/F
			Total	18	0	4	4				22

IPCC-Integrated Professional Core Course, PCC-Professional Core Courses, PEC-Professional Elective Courses, OEC-Open Elective Courses, PROJ-Project Work, L – Lecture, T – Tutorial, P – Practical, J– Project, C – No. Of Credits, AEC-Ability Enhancement Course



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VII SEM –CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

SL	Course Type	Course Code	Course Name	Teaching Hours / Week				Examination			
				Lecture	Tutorial	Practical	Project	CIE Marks	SEE Marks	Total Marks	Credit
				L	T	P	J				
1	PROJ	24AM4701	Capstone Project Phase-I	0	0	0	8	100	--	100	04
2	PEC	24AM47XX	Professional Elective Course – IV	3	0	0	0	60	40	100	03
3	PEC	24AM47XX	Professional Elective Course – V/ MOOC	3	0	0	0	60	40	100	03
4	OEC	24OEXXXX	Open Elective – II	3	0	0	0	60	40	100	03
			Total	9	0	0	8				13

CID* - NPTEL COURSE ID

IPCC-Integrated Professional Core Course, PCC-Professional Core Courses, SEC-Skill Enhancement Courses, PEC-Professional Elective Courses, OEC-Open Elective Courses, PROJ-Project Work, L – Lecture, T – Tutorial, P – Practical, J–Project, C – No. Of Credits



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VIII SEM –CSE (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

SL	Course Type	Course Code	Course Name	Teaching Hours / Week				Examination			
				Lecture	Tutorial	Practical	Project	CIE Marks	SEE Marks	Total Marks	Credit
				L	T	P	J				
1	PROJ	24AM4801	Capstone Project Phase-II	0	0	0	24	100	--	100	12
2	INT	24AM4802	Internship	0	0	0	6	100	--	100	03
			Total	0	0	0	30				15

PROJ-Project Work, INT-Internship, L – Lecture, T – Tutorial, P – Practical, J – Project, C – No. Of Credits



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PROFESSIONAL ELECTIVE COURSES DOMAIN-WISE

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			
			Course Code	Course Name	Course Code	Course Name	Course Code	CourseName	Cours e Code	Course Name	Course Code	Course Name
1	Domain-1	AI and Language Perceptions	24AM3508	Optimization Techniques	24AM3606	Explainabl e AI	24AM3610	Quantum Machine Learning	24AM4702	AI Ethics	24AM4706	Human Computer Interface
2	Domain-2	Robotics and Automation	24AM3509	Fundamental s of Robotics	24AM3607	Reinforce ment Learning	24AM3611	Robot Operating System (ROS)	24AM4703	Industry 5.0	24AM4707	Robotics and Automation Application
3	Domain-3	Architecture and Security	24AM3510	Fundamental s of IoT	24AM3608	Cryptograp hy & Network Security	24AM3612	Advanced Computer Architecture	24AM4704	GPU Architecture	24AM4708	Blockchain Technology
4	Domain-4	Data Analytics	24AM3511	Data Science & Analytics	24AM3609	Predictive Analytics	24AM3613	Financial Technology (FinTech)	24AM4705	Big Data Analytics	24AM4709	UG Research Project



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OPEN ELECTIVE COURSES

Sl. No	Open Elective Courses		
	6 th Semester		7 th Semester
	OEC-I	OEC-I	OEC-II
1	Industrial Robotics 24OE0016	Machine Learning for Health Care 24OE0017	Responsible AI & Ethics 24OE0018