

DAYANANDA SAGAR UNIVERSITY
SHAVIGE MALLESHWARA HILLS, KUMARASWAMY LAYOUT
BENGALURU – 560 111, KARNATAKA.

SCHOOL OF ENGINEERING



SCHEME & SYLLABUS
FOR
BACHELOR OF TECHNOLOGY (B.Tech) – I YEAR
COMMON TO ALL BRANCHES
(With effect from 2020-21)

SCHEME - B.TECH - 2020-21 ONWARDS

I SEM - CHEMISTRY CYCLE

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	101-105 & 121-123	20EN1101	ENGINEERING MATHEMATICS – I	CR	03	01	--	--	04	*	***
2	101-105 & 121-123	20EN1102	ENGINEERING CHEMISTRY	CR	03	--	02	--	04	*	***
3	101-105 & 121-123	20EN1103	FUNDAMENTALS OF PROGRAMMING	CR	03	--	04	--	05	*	***
4	101-105 & 121-123	20EN1104	BASIC ELECTRICAL ENGINEERING	CR	03	--	--	--	03	*	***
5	101-105 & 121-123	20EN1105	ENVIRONMENTAL STUDIES	CR	02	--	--	--	02	*	***
6	101-105 & 121-123	20EN1106	ELEMENTS OF MECHANICAL ENGINEERING	CR	02	--	02	--	03	*	***
					16	01	08	--	21		
7	101-105 & 121-123	20AU0004	CONSTITUTION OF INDIA AND PROFESSIONAL ETHICS	AU	02	--	--	--	--	*	***

CR – Credit, AU – Audit, L – Lecture, T – Tutorial, P – Practical, S/P – Seminar/Project, C – No. of Credits

SCHEME - B.TECH - 2020-21 ONWARDS
I SEM - PHYSICS CYCLE

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	101-105 & 121-123	20EN1101	ENGINEERING MATHEMATICS – I	CR	03	01	--	--	04	*	***
2	101-105 & 121-123	20EN1107	ENGINEERING PHYSICS	CR	03	--	02	--	04	*	***
3	101-105 & 121-123	20EN1108	BASIC ELECTRONICS	CR	03	--	02	--	04	*	***
4	101-105 & 121-123	20EN1109	BIOLOGICAL SCIENCES	CR	02	--	--	--	02	*	***
5	101-105 & 121-123	20EN1110	TECHNICAL COMMUNICATION	CR	02	--	02	--	03	*	***
6	101-105 & 121-123	20EN1111	ENGINEERING GRAPHICS & DESIGN	CR	01	--	04	--	03	*	***
7	101-105 & 121-123	20EN1112	DESIGN THINKING & INNOVATION	CR	--	--	02	--	01	*	***
					14	01	12	--	21		
8	101-105 & 121-123	20AU0021	KANNADA KALI – II	AU	02	--	--	--	--	*	***
		20AU0025	KANNADA MANASU – II	AU	02	--	--	--	--	*	***

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SCHEME - B.TECH - 2020-21 ONWARDS
II SEM - PHYSICS CYCLE

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	101-105 & 121-123	20EN1201	ENGINEERING MATHEMATICS – II	CR	03	01	--	--	04	*	***
2	101-105 & 121-123	20EN1107	ENGINEERING PHYSICS	CR	03	--	02	--	04	*	***
3	101-105 & 121-123	20EN1108	BASIC ELECTRONICS	CR	03	--	02	--	04	*	***
4	101-105 & 121-123	20EN1109	BIOLOGICAL SCIENCES	CR	02	--	--	--	02	*	***
5	101-105 & 121-123	20EN1110	TECHNICAL COMMUNICATION	CR	02	--	02	--	03	*	***
6	101-105 & 121-123	20EN1111	ENGINEERING GRAPHICS & DESIGN	CR	01	--	04	--	03	*	***
7	101-105 & 121-123	20EN1112	DESIGN THINKING & INNOVATION	CR	--	--	02	--	01	*	***
					14	01	12	--	21		
9	101-105 & 121-123	20AU0021	KANNADA KALI	AU	02	--	--	--	--	*	***
		20AU0025	KANNADA MANASU	AU	02	--	--	--	--	*	***

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SCHEME - B.TECH - 2019 -20 ONWARDS

II SEM - CHEMISTRY CYCLE

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	101-105 & 121-123	20EN1201	ENGINEERING MATHEMATICS – II	CR	03	01	--	--	04	*	***
2	101-105 & 121-123	20EN1102	ENGINEERING CHEMISTRY	CR	03	--	02	--	04	*	***
3	101-105 & 121-123	20EN1103	FUNDAMENTALS OF PROGRAMMING	CR	03	--	04	--	05	*	***
4	101-105 & 121-123	20EN1104	BASIC ELECTRICAL ENGINEERING	CR	03	--	--	--	03	*	***
5	101-105 & 121-123	20EN1105	ENVIRONMENTAL STUDIES	CR	02	--	--	--	02	*	***
6	101-105 & 121-123	20EN1106	ELEMENTS OF MECHANICAL ENGINEERING	CR	02	--	02	--	03	*	***
					16	01	08	--	21		
7	101-105 & 121-123	20AU0004	CONSTITUTION OF INDIA AND PROFESSIONAL ETHICS	AU	02	--	--	--	--	*	***

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DAYANANDA SAGAR UNIVERSITY

SCHOOL OF ENGINEERING



SCHEME & SYLLABUS
FOR
BACHELOR OF TECHNOLOGY (B.Tech.) – 2020
COMPUTER SCIENCE & ENGINEERING
(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)
(CSE – AI & ML)
(WITH EFFECT FROM 2020-21)
(III & VI SEMESTERS)

SCHEME - B.TECH - 2020-21 ONWARDS

III SEM - COMPUTER SCIENCE & ENGINEERING (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	121	20CS2301	DISCRETE MATHEMATICAL STRUCTURES	CR	3	-	-	-	3	*	***
2	121	20CS2302	DATA STRUCTURES	CR	3	-	-	-	3	I/II	20EN1103
3	121	20CS2303	DIGITAL ELECTRONICS & LOGIC DESIGN	CR	3	-	-	2	4	*	***
4	121	20CS2304	DATABASE MANAGEMENT SYSTEMS	CR	3	-	-	-	3	*	***
5	121	20CS2305	COMPUTATIONAL THINKING WITH PYTHON	CR	3	-	-	-	3	*	***
6	121	20CS2306	AGILE SOFTWARE ENGINEERING	CR	2	-	-	2	3	*	***
7	121	20CS2307	DATA STRUCTURES LAB	CR	-	-	2	-	1	*	***
8	121	20CS2308	DATABASE MANAGEMENT SYSTEMS LAB	CR	-	-	2	-	1	*	***
9	121	20CS2309	MANAGEMENT AND ENTREPRENEURSHIP	CR	2	-	-	-	2	*	***
10	121	20CS2310	LIBERAL STUDIES - I	CR	1	-	-	-	1	*	***
					20	-	04	04	24		

CR - CREDIT, AU - AUDIT, L - LECTURE, T - TUTORIAL, P - PRACTICAL, S/P - SEMINAR/PROJECT, C - NO. OF CREDITS

SCHEME - B.TECH - 2020-21 ONWARDS

IV SEM - COMPUTER SCIENCE & ENGINEERING (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	121	20CS2401	PROBABILITY AND STATISTICS	CR	3	-	-	-	3	*	***
2	121	20CS2402	OBJECT ORIENTED DESIGN AND PROGRAMMING	CR	3	-	-	-	3	*	***
3	121	20CS2403	PRINCIPLES OF MICROPROCESSORS AND COMPUTER ORGANIZATION	CR	4	-	-	-	4	*	***
4	121	20CS2404	FINITE AUTOMATA & FORMAL LANGUAGES	CR	3	-	-	2	4	*	***
5	121	20CS2405	INTRODUCTION TO NETWORKS & CYBERSECURITY	CR	3	-	-	-	3	*	***
6	121	20AM2401	ARTIFICIAL INTELLIGENCE - I	CR	3	-	-	-	3	*	***
7	121	20CS2407	OBJECT ORIENTED PROGRAMMING LAB	CR	-	-	2	-	1	*	***
8	121	20CS2408	MICROPROCESSORS LABORATORY	CR	-	-	2	-	1	*	***
9	121	20CS2409	SPECIAL TOPICS - I	CR	-	-	-	4	2	*	***
10	121	20CS2410	LIBERAL STUDIES - II	CR	1	-	-	-	1	*	***
					20	-	04	06	25		

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V. SEM COMPUTER SCIENCE & ENGINEERING(AI & ML)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR/AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/ P	C	SEM	COURSE CODE
1	121	20CS3501	COMPUTER NETWORKS	CR	3	-	2	-	4	*	***
2	121	20CS3502	DESIGN AND ANALYSIS OF ALGORITHMS	CR	3	-	-	-	3	*	***
3	121	20CS3503	OPERATING SYSTEMS	CR	3	1	-	-	4	*	***
4	121	20CS3504	MACHINE LEARNING	CR	3	-	2	-	4	*	***
5	121	20CS35XX	PROFESSIONAL ELECTIVE-1	CR	3	-	-	-	3	*	***
6	121	20OE00XX	OPEN ELECTIVE-1	CR	3	-	-	-	3	*	***
7	121	20CS3505	DESIGN AND ANALYSIS OF ALGORITHMS LAB	CR	-	-	2	-	1	*	***
8	121	20CS3506	OPERATING SYSTEMS LAB	CR	-	-	2	-	1	*	***
9	121	20CS3507	SPECIAL TOPICS -II	CR		-	-	4	2	*	***
					18	1	8	4	25		

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PROFESSIONAL ELECTIVE – I

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					PREREQUISITE	
			L	T	P	S/ P	C	SEM	COURSE CODE
1	20AM3501	MACHINE LEARNING FOR PATTERN RECOGNITION	03	-	-	-	03	*	***
2	20AM3502	PRINCIPLES OF ROBOTICS	03	-	-	-	03	*	***

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VI SEM - COMPUTER SCIENCE & ENGINEERING-AIML

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR/AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	121	20CS3601	COMPILER DESIGN AND SYSTEM SOFTWARE	CR	3	1	-	-	4	*	***
2	121	20AM3601	DEEP LEARNING	CR	3	-	-	-	3	I/II	20CS2401
3	121	20AM3602	ARTIFICIAL INTELLIGENCE -II	CR	3	-	-	-	3	*	***
4	121	20AM36XX	PROFESSIONAL ELECTIVE-2	CR	3	-	-	-	3	*	***
5	121	20AM36XX	PROFESSIONAL ELECTIVE-3	CR	3	-	-	-	3	*	***
6	121	20OE00XX	OPEN ELECTIVE-2	CR	3	-	-	-	3	*	***
7	121	20CS3604	COMPILER DESIGN AND SYSTEM SOFTWARE LAB	CR	-	-	2	-	1	*	***
8	121	20AM3603	ARTIFICIAL INTELLIGENCE -LAB	CR	-	-	2	-	1	*	***
					17	01	06	-	21		

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VI SEM-PROFESSIONAL ELECTIVE – II & III

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					PREREQUISITE	
			L	T	P	S/P	C	SEM	COURSE CODE
1	20AM3604	INTRODUCTION TO COMPUTER VISION	3	-	-	-	03	*	***
2	20AM3605	REINFORCEMENT LEARNING	3	-	-	-	03	*	***
3	20AM3606	INDUSTRIAL ROBOTICS	3	-	-	-	03	*	***
4	20AM3607	EXPLAINABLE AI	3	-	-	-	03	I/II	20CS2401
5	20AM3608	NATURAL LANGUAGE MODELS	3	-	-	-	03	*	***
6	20AM3609	DATA SCIENCE	3	-	-	-	03	*	***
7	20AM3610	INTRODUCTION TO IOT AND EMBEDDED COMPUTING	3	-	-	-	03	*	***

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OPEN ELECTIVES LIST - B.TECH PROGRAMME – 2020-21 Batch

SL.No	COURSE CODE	COURSE TITLE	OFFERING DEPARTMENT
1	20OE0001	ARTIFICIAL INTELLIGENCE	CSE
2	20OE0002	DATA STRUCTURES & ALGORITHMS	CSE
3	20OE0003	WEB TECHNOLOGIES	CSE
4	20OE0004	SOCIAL NETWORKS & ANALYTICS	CSE
5	20OE0005	MANAGEMENT INFORMATION SYSTEM	CSE
6	20OE0006	FUNDAMENTALS OF CLOUD COMPUTING	CSE
7	20OE0007	MACHINE LEARNING WITH PYTHON	CSE
8	20OE0008	BUSINESS INTELLIGENCE	CSE
9	20OE0009	EVOLUTION OF TELECOM	ECE
10	20OE0010	SENSORS AND TRANSDUCERS	ECE
11	20OE0011	DIGITAL SYSTEM DESIGN	ECE
12	20OE0012	SENSORS, NETWORKS AND PROTOCOLS	ECE
13	20OE0013	IMAGE PROCESSING AND COMPUTER VISION	ECE
14	20OE0014	AUTOMOTIVE EMBEDDED SYSTEMS	ECE
15	20OE0015	AUTOMOBILE ENGINEERING	MECH
16	20OE0016	RAPID MANUFACTURING TECHNOLOGIES	MECH
17	20OE0017	ROBOTICS ENGINEERING	MECH
18	20OE0018	PRODUCT DESIGN & MANUFACTURING	MECH
19	20OE0019	RENEWABLE ENERGY SOURCES	MECH
20	20OE0020	MICRO ELECTRO MECHANICAL SYSTEMS (MEMS)	MECH
21	20OE0021	PRODUCT ENGINEERING AND ENTREPRENEURSHIP	CST

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22	200E0022	SMALL BUSINESS LAUNCH	CST
23	200E0023	INTRODUCTION TO AEROSPACE ENGINEERING	ASE
24	200E0024	AIRCRAFT SYSTEMS AND INSTRUMENTATION	ASE
25	200E0025	FOUNDATIONS OF DATA SCIENCE	CSE
26	200E0026	CALCULUS II	MATH
27	200E0027	IDEA GENERATION AND VALIDATION	CST

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
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SCHEME - B.TECH – 2020-21 ONWARDS

VII SEM - COMPUTER SCIENCE & ENGINEERING (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR/AU	SCHEME OF TEACHING					PRE-REQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	121	20AM47XX	PROFESSIONAL ELECTIVE – 4	CR	3	-	-	-	3	*	AS INDICATED IN THE ELECTIVE LIST
2	121	20AM47XX	PROFESSIONAL ELECTIVE – 5	CR	3	-	-	-	3	*	
3	121	20OEXXX	OPEN ELECTIVE-3	CR	3	-	-	-	3	*	***
4	121	20AM4701	MAJOR PROJECT PHASE-I	CR	-	-	-	4	2	*	***
					09			04	11		

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

VILSEM-PROFESSIONAL ELECTIVE – IV&V

S L	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					PRE-REQUISITE	
			L	T	P	S/ P	C	SEM	COURSE CODE
1	20AM4702	MACHINE LEARNING FOR HEALTHCARE	3			-	03	V	20CS3504
2	20AM4703	SPEECH AND NLP	3			-	03	-	-
3	20AM4704	ADVANCED DEEP LEARNING	3				03	VI	20AM3601
4	20AM4705	CLOUD COMPUTING	3				03		
5	20AM4706	GPU ARCHITECTURE AND PROGRAMMING	3				03	-	-
6	20AM4707	UG RESEARCH PROJECT-I	--			06	03	-	-

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SCHEME - B.TECH – 2020-21 ONWARDS

VIII SEM - COMPUTER SCIENCE & ENGINEERING (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR/AU	SCHEME OF TEACHING					PRE-REQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	121	20AM48XX	PROFESSIONAL ELECTIVE – 6	CR	3	-	-	-	3	*	AS INDICATED IN THE ELECTIVE LIST
2	121	20AM4801	MAJOR PROJECT PHASE – II	CR	-	-	-	12	6	*	***
3	121	20AM4802	INTERNSHIP	CR				6	3		
					03	-	-	18	12		

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
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VIII SEM-PROFESSIONAL ELECTIVE – VI

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					PREREQUISITE	
			L	T	P	S / P	C	SEM	COURSE CODE
1	20AM4803	MOBILE COMPUTING AND ANDROID APPLICATION DEVELOPMENT	3			-	03	IV	20CS2402
2	20AM4804	RESPONSIBLE AI AND ETHICS	3			-	03	-	-
3	20AM4805	HUMAN-COMPUTER INTERACTION	3			-	03	-	-
4	20AM4806	UG RESEARCH PROJECT-II	--	--		06	03	-	-