

DAYANANDA SAGAR UNIVERSITY

SCHOOL OF ENGINEERING



**SCHEME & SYLLABUS
FOR
BACHELOR OF TECHNOLOGY (B.Tech)
COMPUTER SCIENCE & ENGINEERING
(DATA SCIENCE)
(CSE – DS)**

(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 – 2020 -21 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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SCHEME - B.TECH - 2021-22 ONWARDS

III SEM - COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	122	20CS2301	DISCRETE MATHEMATICAL STRUCTURES	CR	3	-	-	-	3	*	***
2	122	20CS2302	DATA STRUCTURES	CR	3	-	-	-	3	I/I I	20EN1103
3	122	20CS2303	DIGITAL ELECTRONICS & LOGIC DESIGN	CR	3	-	-	2	4	*	***
4	122	20CS2304	DATABASE MANAGEMENT SYSTEMS	CR	3	-	-	-	3	*	***
5	122	20CS2305	COMPUTATIONAL THINKING WITH PYTHON	CR	3	-	-	-	3	*	***
6	122	20CS2306	AGILE SOFTWARE ENGINEERING	CR	2	-	-	2	3	*	***
7	122	20CS2307	DATA STRUCTURES LAB	CR	-	-	2	-	1	*	***
8	122	20CS2308	DATABASE MANAGEMENT SYSTEMS LAB	CR	-	-	2	-	1	*	***
9	122	20CS2309	MANAGEMENT AND ENTREPRENEURSHIP	CR	2	-	-	-	2	*	***
10	122	20CS2310	LIBERAL STUDIES – I	CR	1	-	-	-	1	*	***
					20	-	04	04	24		

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SCHEME - B.TECH - 2021-22 ONWARDS

IV SEM - COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	122	20CS2401	PROBABILITY AND STATISTICS	CR	3	-	-	-	3	*	***
2	122	20CS2402	OBJECT ORIENTED DESIGN AND PROGRAMMING	CR	3	-	-	-	3	*	***
3	122	20CS2403	PRINCIPLES OF MICROPROCESSORS AND COMPUTER ORGANIZATION	CR	4	-	-	-	4	*	***
4	122	20CS2404	FINITE AUTOMATA & FORMAL LANGUAGES	CR	3	-	-	2	4	*	***
5	122	20CS2405	INTRODUCTION TO NETWORKS & CYBERSECURITY	CR	3	-	-	-	3	*	***
6	122	20DS2401	DATA SCIENCE – I	CR	3	-	-	-	3	*	***
7	122	20CS2407	OBJECT ORIENTED PROGRAMMING LAB	CR	-	-	2	-	1	*	***
8	122	20CS2408	MICROPROCESSORS LABORATORY	CR	-	-	2	-	1	*	***
9	122	20CS2409	SPECIAL TOPICS - I	CR	-	-	-	4	2	*	***
10	122	20CS2410	LIBERAL STUDIES – II	CR	1	-	-	-	1	*	***
					20	-	04	06	25		

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SCHEME - B.TECH - 2022-23 ONWARDS
V SEM - COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR/AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	122	20CS3501	COMPUTER NETWORKS	CR	3	-	2	-	4	*	***
2	122	20CS3502	DESIGN AND ANALYSIS OF ALGORITHMS	CR	3	-	-	-	3	*	***
3	122	20CS3503	OPERATING SYSTEMS	CR	3	1	-	-	4	*	***
4	122	20CS3504	MACHINE LEARNING	CR	3	-	2	-	4	*	***
5	122	20DS35XX	PROFESSIONAL ELECTIVE-1	CR	3	-	-	-	3	*	As Indicated in Elective List
6	122	20OE00XX	OPEN ELECTIVE-1	CR	3	-	-	-	3	*	As Indicated in open List
7	122	20CS3505	DESIGN AND ANALYSIS OF ALGORITHMS LAB	CR	-	-	2	-	1	*	***
8	122	20CS3506	OPERATING SYSTEMS LAB	CR	-	-	2	-	1	*	***
9	122	20CS3507	SPECIAL TOPICS -II	CR		-	-	4	2	*	***
					18	1	8	4	25		

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V SEM-PROFESSIONAL ELECTIVE – I

S L	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					PREREQUISITE	
			L	T	P	S/ P	C	SEM	COURSE CODE
1	20DS3501	DATA WAREHOUSE AND KNOWLEDGE MINING	0 3	-	-	-	03		
2	20DS3502	FULL STACK DEVELOPMENT	0 3	-	-	-	03		

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SCHEME - B.TECH – 2022-23 ONWARDS
VI SEM - COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

SL	PROGRAM CODE	COURSE CODE	COURSE TITLE	CR/AU	SCHEME OF TEACHING					PREREQUISITE	
					L	T	P	S/P	C	SEM	COURSE CODE
1	122	20CS3601	COMPILER DESIGN AND SYSTEM SOFTWARE	CR	3	1	-	-	4	*	***
2	122	20DS3601	DATA ANALYTICS WITH HADOOP	CR	3	-	-	-	3	*	***
3	122	20DS3602	DATA SCIENCE II	CR	3	-	-	-	3	IV	Data Science I
4	122	20DS3603	PROFESSIONAL ELECTIVE-2	CR	3	-	-	-	3	*	AS INDICATED IN ELECTIVE LIST
5	122	20DS3604	PROFESSIONAL ELECTIVE-3	CR	3	-	-	-	3	*	
6	122	200E00XX	OPEN ELECTIVE-2	CR	3	-	-	-	3	*	***
7	122	20CS3604	COMPILER DESIGN AND SYSTEM SOFTWARE LAB	CR	-	-	2	-	1	*	***
8	122	20DS3605	DATA SCIENCE LAB	CR	-	-	2	-	1		
					17	01	06	-	21		

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VI SEM-PROFESSIONAL ELECTIVE – II

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					PREREQUISITE	
			L	T	P	S/P	C	SEM	COURSE CODE
1	20DS3606	PATTERN ANALYSIS IN DATA SCIENCE	03	-	-	-	03		
2	20DS3607	BUSINESS INTELLIGENCE	03	-	-	-	03		

VI SEM-PROFESSIONAL ELECTIVE – III

SL	COURSE CODE	COURSE TITLE	SCHEME OF TEACHING					PREREQUISITE	
			L	T	P	S/P	C	SEM	COURSE CODE
1	20CS3606	SOFT COMPUTING	03	-	-	-	03		
2	20DS3608	NATURAL LANGUAGE PROCESSING TOOLS & TECHNIQUES	03	-	-	-	03		

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