Program Code & Name**:P132::B.Tech. (Computer Science and Engineering)**

System: **Semester** Year of Admission: **2022** Duration in Years: **4**

Term 1									**P132-1-2022**
S.No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**	**Type**	**Nature**
1		CORE ELECTIVE 1	2	1	0	3.0	3.0	CE	ESC
2		CORE ELECTIVE 2	3	0	0	3.0	3.0	CE	BSC
3		CORE ELECTIVE 3	0	0	2	1.0	2.0	CE	BSC
4	CSE111	ORIENTATION TO COMPUTING-I	2	0	0	2.0	2.0	CR	DSC
5	CSE326	INTERNET PROGRAMMING LABORATORY	0	0	3	2.0	3.0	CR	DSC
6	INT108	PYTHON PROGRAMMING	3	0	2	4.0	5.0	CR	DSC
7	MTH174	ENGINEERING MATHEMATICS	3	1	0	4.0	4.0	CR	BSC
8	PES318	SOFT SKILLS-I	1	2	0	3.0	3.0	CR	LCS
TOTAL			14.0	4.0	7.0	22.0	25.0		

CORE ELECTIVE 1 BASKET

S. No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**
1	ECE249	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	3	1	0	4.0	4.0
2	MEC135	BASICS OF MECHANICAL ENGINEERING	2	1	0	3.0	3.0

CORE ELECTIVE 2 BASKET

S. No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**
1	CHE110	ENVIRONMENTAL STUDIES	2	2	0	4.0	4.0
2	PHY110	ENGINEERING PHYSICS	3	0	0	3.0	3.0

CORE ELECTIVE 3 BASKET

S. No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**
1	ECE279	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY	0	0	2	1.0	2.0

Term 2									**P132-2-2022**
S.No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**	**Type**	**Nature**
1		CORE ELECTIVE 1	2	1	0	3.0	3.0	CE	ESC
2		CORE ELECTIVE 2	3	0	0	3.0	3.0	CE	BSC
3		CORE ELECTIVE 3	0	0	2	1.0	2.0	CE	BSC
4		LANGUAGE ELECTIVE 1	1	0	3	3.0	4.0	LE	LCS
5	CSE101	COMPUTER PROGRAMMING	2	0	2	3.0	4.0	CR	DSC
6	CSE121	ORIENTATION TO COMPUTING-II	1	0	0	1.0	1.0	CR	DSC
7	CSE320	SOFTWARE ENGINEERING	3	0	0	3.0	3.0	CR	DSC
8	INT306	DATABASE MANAGEMENT SYSTEMS	3	0	2	4.0	5.0	CR	DSC
9	MTH401	DISCRETE MATHEMATICS	3	0	0	3.0	3.0	CR	BSC
TOTAL			18.0	1.0	9.0	24.0	28.0		

CORE ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	ECE249	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	3	1	0	4.0	4.0
2	MEC135	BASICS OF MECHANICAL ENGINEERING	2	1	0	3.0	3.0

CORE ELECTIVE 2 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	CHE110	ENVIRONMENTAL STUDIES	2	2	0	4.0	4.0
2	PHY110	ENGINEERING PHYSICS	3	0	0	3.0	3.0

CORE ELECTIVE 3 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	ECE279	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY	0	0	2	1.0	2.0

LANGUAGE ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	PEL125	UPPER INTERMEDIATE COMMUNICATION SKILLS-I	1	0	3	3.0	4.0
2	PEL121	COMMUNICATION SKILLS-I	1	0	3	3.0	4.0
3	PEL130	ADVANCED COMMUNICATION SKILLS-I	1	0	3	3.0	4.0

Term 3 — P132-3-2022

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
1		CORE ELECTIVE 4	3	0	0	3.0	3.0	CE	DSC
2		CORE ELECTIVE 5	0	0	2	1.0	2.0	CE	DSC
3		LANGUAGE ELECTIVE 2	1	0	3	3.0	4.0	LE	LCS
4	CSE202	OBJECT ORIENTED PROGRAMMING	3	0	2	4.0	5.0	CR	DSC
5	CSE205	DATA STRUCTURES AND ALGORITHMS	3	0	2	4.0	5.0	CR1	DSC
6	CSE211	COMPUTER ORGANIZATION AND DESIGN	3	1	0	4.0	4.0	CR	DSC
7	CSE306	COMPUTER NETWORKS	3	0	0	3.0	3.0	CR1	DSC
8	CSE307	INTERNETWORKING ESSENTIALS	0	0	2	1.0	2.0	CR1	DSC
9	GEN231	COMMUNITY DEVELOPMENT PROJECT	0	0	4	2.0	4.0	CR3	PRC
TOTAL			16.0	1.0	15.0	25.0	32.0		

CORE ELECTIVE 4 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	CSE316	OPERATING SYSTEMS	3	0	0	3.0	3.0
2	MTH302	PROBABILITY AND STATISTICS	3	0	0	3.0	3.0

CORE ELECTIVE 5 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	CSE325	OPERATING SYSTEMS LABORATORY	0	0	2	1.0	2.0

LANGUAGE ELECTIVE 2 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	PEL132	COMMUNICATION SKILLS-II	1	0	3	3.0	4.0
2	PEL136	ADVANCED COMMUNICATION SKILLS-II	1	0	3	3.0	4.0
3	PEL134	UPPER INTERMEDIATE COMMUNICATION SKILLS-II	1	0	3	3.0	4.0

Term 4 — P132-4-2022

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
1		APTITUDE ELECTIVE 1	2	1	0	3.0	3.0	APE	EEA
2		CORE ELECTIVE 4	3	0	0	3.0	3.0	CE	DSC
3		CORE ELECTIVE 5	0	0	2	1.0	2.0	CE	DSC
4		ENGINEERING MINOR ELECTIVE 1	3	0	0	3.0	3.0	EM	DSC
5		ENGINEERING MINOR ELECTIVE 2	3	0	0	3.0	3.0	EM	DSC
6	CSE310	PROGRAMMING IN JAVA	3	0	2	4.0	5.0	CR	DSC
7	CSE408	DESIGN AND ANALYSIS OF ALGORITHMS	3	0	0	3.0	3.0	CR	DSC
8	INT426	GENERATIVE AI	2	0	2	3.0	4.0	CR	DSC
TOTAL			19.0	1.0	6.0	23.0	26.0		

APTITUDE ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	PEA305	ANALYTICAL SKILLS-I	2	1	0	3.0	3.0	
2	PEA307	ADVANCED ANALYTICAL SKILLS-I	2	1	0	3.0	3.0	

CORE ELECTIVE 4 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE316	OPERATING SYSTEMS	3	0	0	3.0	3.0	
2	MTH302	PROBABILITY AND STATISTICS	3	0	0	3.0	3.0	

CORE ELECTIVE 5 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE325	OPERATING SYSTEMS LABORATORY	0	0	2	1.0	2.0	

ENGINEERING MINOR ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	INT330	MANAGING CLOUD SOLUTIONS	2	0	2	3.0	4.0	CLOUD COMPUTING
2	INT242	CYBER SECURITY ESSENTIALS	2	0	2	3.0	4.0	CYBER SECURITY
3	INT217	INTRODUCTION TO DATA MANAGEMENT	2	0	2	3.0	4.0	DATA SCIENCE
4	INT219	FRONT END WEB DEVELOPER	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
5	ECE217	INTRODUCTION TO INTERNET OF THINGS (IOT)	3	0	0	3.0	3.0	INTERNET OF THINGS (IOT)
6	INT254	FUNDAMENTALS OF MACHINE LEARNING	2	0	2	3.0	4.0	MACHINE LEARNING
7	CSE374	ADVANCE SOFTWARE ENGINEERING	3	0	0	3.0	3.0	SOFTWARE METHODOLOGIES AND TESTING

ENGINEERING MINOR ELECTIVE 2 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	INT362	CLOUD ARCHITECTURE AND IMPLEMENTATION-I	2	0	2	3.0	4.0	CLOUD COMPUTING
2	INT249	SYSTEM ADMINISTRATION	2	0	2	3.0	4.0	CYBER SECURITY
3	INT232	DATA SCIENCE TOOLBOX : R PROGRAMMING	2	0	2	3.0	4.0	DATA SCIENCE
4	INT222	ADVANCED WEB DEVELOPMENT	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
5	ECE341	PROGRAMMING IOT	1	0	3	3.0	4.0	INTERNET OF THINGS (IOT)
6	INT354	MACHINE LEARNING-I	2	0	2	3.0	4.0	MACHINE LEARNING
7	CSE375	SOFTWARE TESTING	3	0	0	3.0	3.0	SOFTWARE METHODOLOGIES AND TESTING

Term 5 P132-5-2022

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
1		ENGINEERING MINOR ELECTIVE 3	2	0	2	3.0	4.0	EM	DSC
2		ENGINEERING MINOR ELECTIVE 4	2	0	2	3.0	4.0	EM	DSC
3		OPEN MINOR 1	3	0	0	3.0	3.0	OM	OEM
4		PATHWAY ELECTIVE 1	2	0	1	3.0	3.0	PW	PWE

5		PATHWAY ELECTIVE 2	2	0	1	3.0	3.0	PW	PWE
6		TRAINING ELECTIVE 1	0	0	6	3.0	6.0	TE	TCS
7	CSE322	FORMAL LANGUAGES AND AUTOMATION THEORY	3	0	0	3.0	3.0	CR	DSC
TOTAL			14.0	0.0	12.0	21.0	26.0		

ENGINEERING MINOR ELECTIVE 3 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	INT363	CLOUD MICROSERVICES	2	0	2	3.0	4.0	CLOUD COMPUTING
2	INT250	DIGITAL EVIDENCE ANALYSIS	2	0	2	3.0	4.0	CYBER SECURITY
3	INT233	DATA VISUALIZATION	2	0	2	3.0	4.0	DATA SCIENCE
4	INT252	WEB APP DEVELOPMENT WITH REACTJS	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
5	ECE128	INTRODUCTION TO IOT NETWORKING PROTOCOLS	3	0	0	3.0	3.0	INTERNET OF THINGS (IOT)
6	INT344	NATURAL LANGUAGE PROCESSING	2	0	1	3.0	3.0	MACHINE LEARNING
7	CSE376	AUTOMATED TESTING	2	0	2	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING

ENGINEERING MINOR ELECTIVE 4 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	INT364	CLOUD ARCHITECTURE AND IMPLEMENTATION-II	2	0	2	3.0	4.0	CLOUD COMPUTING
2	INT244	SECURING COMPUTING SYSTEMS	2	0	2	3.0	4.0	CYBER SECURITY
3	INT234	PREDICTIVE ANALYTICS	2	0	2	3.0	4.0	DATA SCIENCE
4	INT220	SERVER SIDE SCRIPTING	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
5	ECE237	ARCHITECTING SMART IOT DEVICES	1	0	3	3.0	4.0	INTERNET OF THINGS (IOT)
6	INT423	MACHINE LEARNING-II	2	0	2	3.0	4.0	MACHINE LEARNING
7	CSE377	ADVANCE TESTING TECHNOLOGIES	2	0	2	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING

PATHWAY ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	PEA308	ADVANCED ANALYTICAL SKILLS-II	2	1	0	3.0	3.0	GOVERNMENT JOBS
2	PEA306	ANALYTICAL SKILLS-II	2	1	0	3.0	3.0	GOVERNMENT JOBS
3	PEA306	ANALYTICAL SKILLS-II	2	1	0	3.0	3.0	HIGHER STUDIES
4	PEA308	ADVANCED ANALYTICAL SKILLS-II	2	1	0	3.0	3.0	HIGHER STUDIES
5	CSE329	PRELUDE TO COMPETITIVE CODING	2	0	1	3.0	3.0	PRODUCT BASED
6	PEA306	ANALYTICAL SKILLS-II	2	1	0	3.0	3.0	SERVICE BASED
7	PEA308	ADVANCED ANALYTICAL SKILLS-II	2	1	0	3.0	3.0	SERVICE BASED

PATHWAY ELECTIVE 2 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE333	COMBINATORIAL STUDIES-I	2	0	2	3.0	4.0	GOVERNMENT JOBS
2	CSE333	COMBINATORIAL STUDIES-I	2	0	2	3.0	4.0	HIGHER STUDIES

3	CSE330	COMPETITIVE CODING APPROACHES-TECHNIQUES	2	0	1	3.0	3.0	PRODUCT BASED
4	PEV112	VERBAL ABILITY	2	0	2	3.0	4.0	SERVICE BASED
5	PEV113	UPPERINTERMEDIATE VERBAL ABILITY	2	0	2	3.0	4.0	SERVICE BASED
6	PEV114	ADVANCED -VERBAL ABILITY	2	0	2	3.0	4.0	SERVICE BASED

TRAINING ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE343	TRAINING IN PROGRAMMING	0	0	6	3.0	6.0	
2	CSE443	SEMINAR ON SUMMER TRAINING	0	0	6	3.0	6.0	

Term 6 P132-6-2022

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
1		ENGINEERING MINOR ELECTIVE 5	2	0	2	3.0	4.0	EM	DSC
2		OPEN MINOR 2	3	0	0	3.0	3.0	OM	OEM
3		PATHWAY ELECTIVE 3	2	0	1	3.0	3.0	PW	PWE
4		PATHWAY ELECTIVE 4	1	2	0	3.0	3.0	PW	PWE
5	CSE332	INDUSTRY ETHICS AND LEGAL ISSUES	2	0	0	2.0	2.0	CR	DSC
6	CSE393	ONLINE ACADEMIC COURSE	3	0	0	3.0	3.0	CR	DSC
TOTAL			13.0	2.0	3.0	17.0	18.0		

ENGINEERING MINOR ELECTIVE 5 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	INT327	CLOUD INFRASTRUCTURE AND RESOURCE MANAGEMENT	2	0	2	3.0	4.0	CLOUD COMPUTING
2	INT245	PENETRATION TESTING	2	0	2	3.0	4.0	CYBER SECURITY
3	INT312	BIG DATA FUNDAMENTALS	2	0	2	3.0	4.0	DATA SCIENCE
4	INT221	MVC PROGRAMMING	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
5	ECE129	IOT FOR DIGITAL SOCIETY	3	0	0	3.0	3.0	INTERNET OF THINGS (IOT)
6	INT345	COMPUTER VISION	2	0	2	3.0	4.0	MACHINE LEARNING
7	CSE378	WEBSERVICES API AUTOMATION TESTING	2	0	2	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING

PATHWAY ELECTIVE 3 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE334	COMBINATORIAL STUDIES-II	2	0	2	3.0	4.0	GOVERNMENT JOBS
2	CSE334	COMBINATORIAL STUDIES-II	2	0	2	3.0	4.0	HIGHER STUDIES
3	CSE331	CODING PEARLS	2	0	1	3.0	3.0	PRODUCT BASED
4	CSE357	COMBINATORIAL STUDIES	2	0	2	3.0	4.0	SERVICE BASED

PATHWAY ELECTIVE 4 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	PES319	SOFT SKILLS-II	1	2	0	3.0	3.0	PRODUCT BASED
2	PES319	SOFT SKILLS-II	1	2	0	3.0	3.0	SERVICE BASED

Term 7 (For those students who opt for course work)									P132-7-2022
S.No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**	**Type**	**Nature**
1		DEPARTMENT ELECTIVE 1	3	0	0	3.0	3.0	DE	DSC
2		DEPARTMENT ELECTIVE 1 LAB	0	0	2	1.0	2.0	DE	DSC
3		ENGINEERING MINOR ELECTIVE 6	0	0	4	3.0	4.0	EM	DSC
4		OPEN MINOR 3	3	0	0	3.0	3.0	OM	OEM
5		PATHWAY ELECTIVE 4	2	0	2	3.0	4.0	PW	PWE
6	CSE339	CAPSTONE PROJECT-I	0	0	4	2.0	4.0	CR	PRJ
TOTAL			8.0	0.0	12.0	15.0	20.0		

DEPARTMENT ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE304	COMPUTER GRAPHICS AND VISUALIZATION	3	1	0	4.0	4.0	
2	CSE327	SIMULATION AND MODELLING	3	0	0	3.0	3.0	
3	CSE406	ADVANCED JAVA PROGRAMMING	3	0	2	4.0	5.0	
4	CSE434	GAME DEVELOPMENT IN 3D	3	0	2	4.0	5.0	
5	CSE436	BLOCKCHAIN	3	0	2	4.0	5.0	
6	INT301	OPEN SOURCE TECHNOLOGIES	3	0	2	4.0	5.0	
7	INT402	MODERN WEB PROGRAMMING TOOLS AND TECHNIQUES	3	0	2	4.0	5.0	

DEPARTMENT ELECTIVE 1 LAB BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE328	SIMULATION AND MODELLING LABORATORY	0	0	2	1.0	2.0	

ENGINEERING MINOR ELECTIVE 6 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	INT328	NETWORK VIRTUALIZATION AND CLOUD SECURITY	2	0	2	3.0	4.0	CLOUD COMPUTING
2	INT251	MALWARE ANALYSIS AND CYBER DEFENCE	2	0	2	3.0	4.0	CYBER SECURITY
3	INT315	CLUSTER COMPUTING	2	0	2	3.0	4.0	DATA SCIENCE
4	INT253	WEB DEVELOPMENT IN PYTHON USING DJANGO	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
5	ECE140	WORKSHOP ON IOT FOR DIGITAL SOCIETY	1	0	3	3.0	4.0	INTERNET OF THINGS (IOT)
6	INT422	DEEP LEARNING	2	0	2	3.0	4.0	MACHINE LEARNING
7	CSE379	MOBILE AUTOMATED TESTING	0	0	4	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING

PATHWAY ELECTIVE 4 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	CSE335	COMBINATORIAL STUDIES-III	2	0	2	3.0	4.0	GOVERNMENT JOBS
2	CSE335	COMBINATORIAL STUDIES-III	2	0	2	3.0	4.0	HIGHER STUDIES

Term 7 (For those students who opt for industrial internship)									P132A-7-2022
S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
1	CSE447	INDUSTRY CO-OP PROJECT-I	0	0	32	16.0	32.0	CR	TCF
TOTAL			0.0	0.0	32.0	16.0	32.0		

Term 8 (For those students who opt for course work)									P132-8-2022
S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
1		DEPARTMENT ELECTIVE 2	3	0	0	3.0	3.0	DE	DSC
2		DEPARTMENT ELECTIVE 2 LAB	0	0	2	1.0	2.0	DE	DSC
3		OPEN MINOR 4	3	0	0	3.0	3.0	OM	OEM
4	CSE435	COMPREHENSIVE SEMINAR	0	0	2	1.0	2.0	CR	SMN
5	CSE439	CAPSTONE PROJECT-II	0	0	16	8.0	16.0	CR	PRJ
TOTAL			6.0	0.0	20.0	16.0	26.0		

DEPARTMENT ELECTIVE 2 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	CSE493	LINUX SYSTEM ADMINISTRATION	3	0	2	4.0	5.0
2	CSE403	NETWORK SECURITY AND CRYPTOGRAPHY	3	0	2	4.0	5.0
3	CSE504	STORAGE TECHNOLOGY FOUNDATION	3	0	0	3.0	3.0
4	INT411	SOFTWARE PROJECT MANAGEMENT	3	0	0	3.0	3.0

DEPARTMENT ELECTIVE 2 LAB BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	CSE507	STORAGE TECHNOLOGY FOUNDATION LABORATORY	0	0	2	1.0	2.0
2	INT416	SOFTWARE PROJECT MANAGEMENT LABORATORY	0	0	3	2.0	3.0

Term 8 (For those students who opt for industrial internship)									P132A-8-2022
S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
1		TRAINING ELECTIVE 2	0	0	32	16.0	32.0	TE	TCF
TOTAL			0.0	0.0	32.0	16.0	32.0		

TRAINING ELECTIVE 2 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	CSE441	INDUSTRY INTERNSHIP PROJECT	0	0	32	16.0	32.0
2	CSE448	INDUSTRY CO-OP PROJECT-II	0	0	32	16.0	32.0

Open Minor Elective (OM) Basket								
S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Elective Area
1	INT327	CLOUD INFRASTRUCTURE AND RESOURCE MANAGEMENT	2	0	2	3.0	4.0	CLOUD COMPUTING
2	INT328	NETWORK VIRTUALIZATION AND CLOUD SECURITY	2	0	2	3.0	4.0	CLOUD COMPUTING
3	INT330	MANAGING CLOUD SOLUTIONS	2	0	2	3.0	4.0	CLOUD COMPUTING
4	INT362	CLOUD ARCHITECTURE AND IMPLEMENTATION-I	2	0	2	3.0	4.0	CLOUD COMPUTING
5	INT363	CLOUD MICROSERVICES	2	0	2	3.0	4.0	CLOUD COMPUTING

6	INT364	CLOUD ARCHITECTURE AND IMPLEMENTATION-II	2	0	2	3.0	4.0	CLOUD COMPUTING
7	INT242	CYBER SECURITY ESSENTIALS	2	0	2	3.0	4.0	CYBER SECURITY
8	INT244	SECURING COMPUTING SYSTEMS	2	0	2	3.0	4.0	CYBER SECURITY
9	INT245	PENETRATION TESTING	2	0	2	3.0	4.0	CYBER SECURITY
10	INT249	SYSTEM ADMINISTRATION	2	0	2	3.0	4.0	CYBER SECURITY
11	INT250	DIGITAL EVIDENCE ANALYSIS	2	0	2	3.0	4.0	CYBER SECURITY
12	INT251	MALWARE ANALYSIS AND CYBER DEFENCE	2	0	2	3.0	4.0	CYBER SECURITY
13	INT217	INTRODUCTION TO DATA MANAGEMENT	2	0	2	3.0	4.0	DATA SCIENCE
14	INT232	DATA SCIENCE TOOLBOX : R PROGRAMMING	2	0	2	3.0	4.0	DATA SCIENCE
15	INT233	DATA VISUALIZATION	2	0	2	3.0	4.0	DATA SCIENCE
16	INT234	PREDICTIVE ANALYTICS	2	0	2	3.0	4.0	DATA SCIENCE
17	INT312	BIG DATA FUNDAMENTALS	2	0	2	3.0	4.0	DATA SCIENCE
18	INT315	CLUSTER COMPUTING	2	0	2	3.0	4.0	DATA SCIENCE
19	INT219	FRONT END WEB DEVELOPER	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
20	INT220	SERVER SIDE SCRIPTING	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
21	INT221	MVC PROGRAMMING	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
22	INT222	ADVANCED WEB DEVELOPMENT	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
23	INT252	WEB APP DEVELOPMENT WITH REACTJS	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
24	INT253	WEB DEVELOPMENT IN PYTHON USING DJANGO	2	0	2	3.0	4.0	FULL STACK WEB DEVELOPMENT
25	ECE128	INTRODUCTION TO IOT NETWORKING PROTOCOLS	3	0	0	3.0	3.0	INTERNET OF THINGS (IOT)
26	ECE129	IOT FOR DIGITAL SOCIETY	3	0	0	3.0	3.0	INTERNET OF THINGS (IOT)
27	ECE140	WORKSHOP ON IOT FOR DIGITAL SOCIETY	1	0	3	3.0	4.0	INTERNET OF THINGS (IOT)
28	ECE217	INTRODUCTION TO INTERNET OF THINGS (IOT)	3	0	0	3.0	3.0	INTERNET OF THINGS (IOT)
29	ECE237	ARCHITECTING SMART IOT DEVICES	1	0	3	3.0	4.0	INTERNET OF THINGS (IOT)
30	ECE341	PROGRAMMING IOT	1	0	3	3.0	4.0	INTERNET OF THINGS (IOT)
31	INT254	FUNDAMENTALS OF MACHINE LEARNING	2	0	2	3.0	4.0	MACHINE LEARNING
32	INT344	NATURAL LANGUAGE PROCESSING	2	0	1	3.0	3.0	MACHINE LEARNING
33	INT345	COMPUTER VISION	2	0	2	3.0	4.0	MACHINE LEARNING
34	INT354	MACHINE LEARNING-I	2	0	2	3.0	4.0	MACHINE LEARNING
35	INT422	DEEP LEARNING	2	0	2	3.0	4.0	MACHINE LEARNING
36	INT423	MACHINE LEARNING-II	2	0	2	3.0	4.0	MACHINE LEARNING
37	CSE374	ADVANCE SOFTWARE ENGINEERING	3	0	0	3.0	3.0	SOFTWARE METHODOLOGIES AND TESTING
38	CSE375	SOFTWARE TESTING	3	0	0	3.0	3.0	SOFTWARE METHODOLOGIES AND TESTING
39	CSE376	AUTOMATED TESTING	2	0	2	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING
40	CSE377	ADVANCE TESTING TECHNOLOGIES	2	0	2	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING
41	CSE378	WEBSERVICES API AUTOMATION TESTING	2	0	2	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING
42	CSE379	MOBILE AUTOMATED TESTING	0	0	4	3.0	4.0	SOFTWARE METHODOLOGIES AND TESTING

The list of Open Minor Elective courses to be offered in a term is subject to change from time to time.

Important Points

• The calculation of Total Contact hours in Lecture (L), Tutorial (T) and Practical (P) for Elective Course slots reflecting the minimum L, T and P of a course in Elective Basket.
• Every Course has a ‘Type’ and ‘Nature’ which defines its character.

Program Structure

Program Code: P132::B.Tech. (Computer Science and Engineering)
Program Batch: 2022

Category	Category Description	Sub Category	Number of Theory (T)/Practical (P) BYOD (B)	Total Credits
A1	Language & Communication Skills (LCS)	*PES (Soft Skills)*	*1T*	3
		Language & Communication Skills(LCS)	*2T 2B*	6
B1	Basic Science(BSC)	*Maths*	*2T*	7
		Basic Science(BSC)	*2T 2P*	8
C1	Discipline Core(DSC)	*Discipline Core(DSC)*	*25T 7P 10B*	87
D	Open Minor/Open Elective(OEM)	*Open Minor/Open Elective(OEM)*	*4T*	12
E	Project (including Capstone Project and Research Project)(PRJ)	*Project (including Capstone Project and Research Project)(PRJ)*	*2P*	10
F	Community Development Project (PRC)	*Community Development Project(PRC)*	*1P*	2
	Employability Enhancement Activities (EEA)	*Employability Enhancement Activities (EEA)*	*1T*	3
	Engineering Science (ESC)	*Engineering Science(ESC)*	*2T*	6
	Pathway Elective(PWE)	*Pathway Elective(PWE)*	*5T 4B*	15
	Seminar(SMN)	*Seminar(SMN)*	*1P*	1
	Training Compulsory - Summer (TCS)	*Training Compulsory - Summer (TCS)*	*1P*	3
		Total	*44T 14P 16B*	163

Note	
1	For applicable programs, students can graduate with 2 Minors (1 within discipline and 1 outside discipline and as depicted in the structure under the headings Discipline Minors and Open Elective/Minors respectively).
2	Discipline Core (DSC) are be mapped with GATE/UGCNET/CSIRNET/IES/AMCAT/ICAR as per applicability.

Term-wise Credits

Term	Semester	Path	Credit (without rounding)	Credit(with rounding)
1	Term 1	Common	21.5	22.0
2	Term 2	Common	23.5	24.0
3	Term 3	Common	24.5	25.0
4	Term 4	Common	23	23.0
5	Term 5	Common	20	21.0
6	Term 6	Common	16.5	17.0
7	Term 7 (For students who opt for industrial internship)	A	16	16.0

7	Term 7 (For students who opt for course work)	B	14	15.0
8	Term 8 (For students who opt for industrial internship)	A	16	16.0
8	Term 8 (For students who opt for course work)	B	16	16.0

Term path wise Credits (Including Common Term)		
Path	**Credit (without rounding)**	**Credit(with rounding)**
A	161	164.0
B	159	163.0

Course Prerequisites

Term 8 (For students who opt for course work)

CSE439-CAPSTONE PROJECT-II

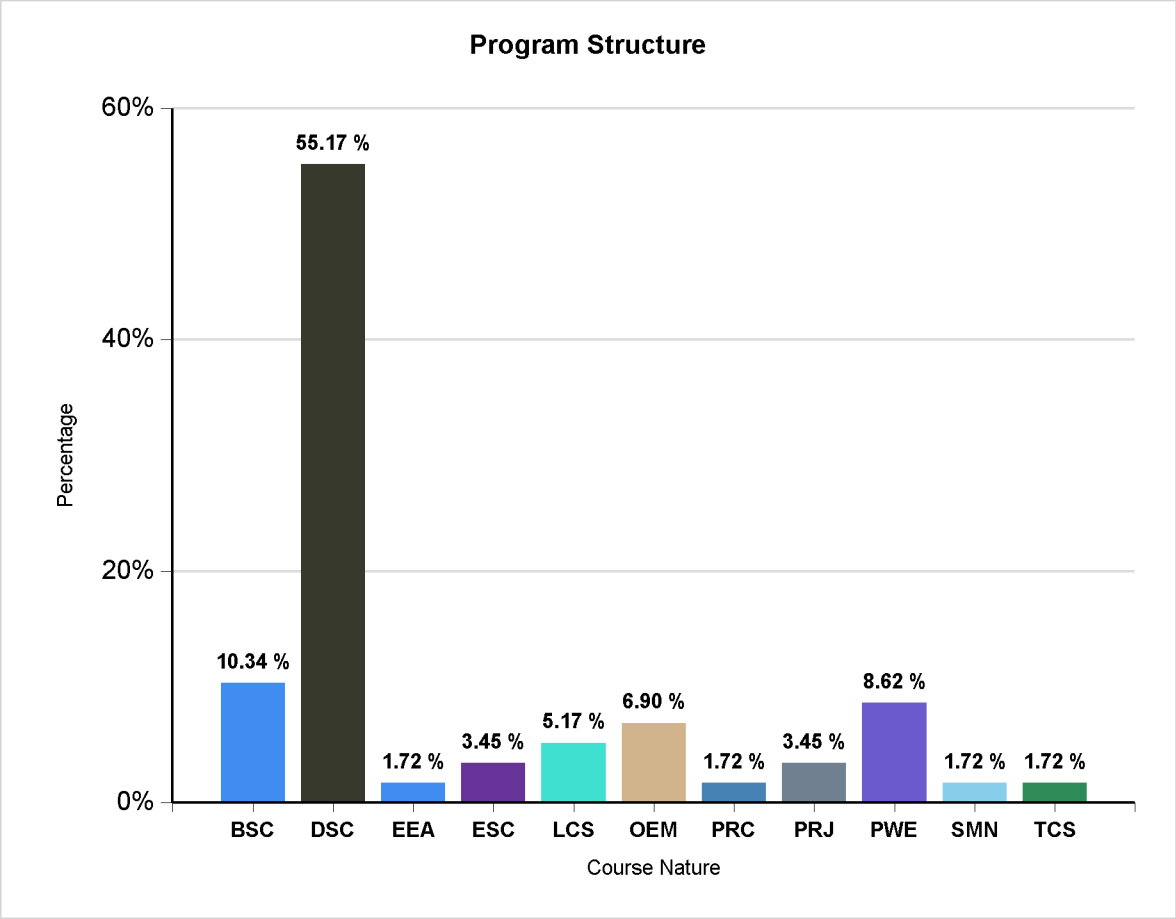
Course Code	Course Title	L	T	P	Credit	Type	Nature
CSE439	CAPSTONE PROJECT-II	0.0	0.0	16.0	8.0	CR	PRJ

Term-8 Course Prerequisite Data

Course Code	Course Name	L	T	P	Credit
CSE339	CAPSTONE PROJECT-I	0.0	0.0	4.0	2.0

Course Type	
APE	Aptitude Elective
CE	Core Elective
CR	Core Course
CR1	CORE-I
CR3	
DE	Departmental Elective
EM	Engineering Minor
LE	Language Elective
OM	Open/Minor
PW	Pathway Elective
TE	Training Elective

Course Nature	
BSC	Basic Science
DSC	Discipline Core
EEA	Employability Enhancement Activities
ESC	Engineering Science
LCS	Language & Communication Skills
OEM	Open Minor/Open Elective
PRC	Community Development Project
PRJ	Project (including Capstone Project and Research Project)
PWE	Pathway Elective
SMN	Seminar
TCF	Training Compulsory – Full term
TCS	Training Compulsory - Summer



Sr No	NAME	Nature Name	Total
1	BSC	Basic Science	6
2	DSC	Discipline Core	32
3	EEA	Employability Enhancement Activities	1
4	ESC	Engineering Science	2
5	LCS	Language & Communication Skills	3
6	OEM	Open Minor/Open Elective	4
7	PRC	Community Development Project	1
8	PRJ	Project (including Capstone Project and Research Project)	2
9	PWE	Pathway Elective	5
10	SMN	Seminar	1
11	TCS	Training Compulsory - Summer	1