Program Code & Name:**P132-NNK::B.Tech. (CSE - AI and Data Engineering)**

System: **Semester**   Year of Admission: **2023**   Duration in Years: **4**

		Term 1							P132-NNK-1-2023
S.No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**	**Type**	**Nature**
1	CHE110	ENVIRONMENTAL STUDIES	2	0	0	2.0	2.0	CR	EVS
2	CSE326	INTERNET PROGRAMMING LABORATORY	0	0	3	2.0	3.0	CR	DSC
3	CSR101	PYTHON PROGRAMMING	3	0	2	4.0	5.0	CR	DSC
4	CSR102	DESIGN THINKING AND COMPLEX PROBLEM SOLVING	3	0	0	3.0	3.0	CR	DSC
5	ECE249	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	3	1	0	4.0	4.0	CR	ESC
6	ECE279	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY	0	0	2	1.0	2.0	CR	ESC
7	MTH176	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			15.0	4.0	7.0	23.0	26.0		

		Term 2							P132-NNK-2-2023
S.No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**	**Type**	**Nature**
1		LANGUAGE ELECTIVE 1	1	0	3	3.0	4.0	LE	LCS
2	CSE320	SOFTWARE ENGINEERING	3	0	0	3.0	3.0	CR	DSC
3	CSR121	DATA COMMUNICATION AND COMPUTER NETWORKS	3	0	2	4.0	5.0	CR	DSC
4	CSR122	DATABASE DESIGN AND MODELLING (SQL)	3	0	2	4.0	5.0	CR	DSC
5	CSR123	DATA STRUCTURES AND ALGORITHMS	3	0	2	4.0	5.0	CR	DSC
6	MTH178	MATHEMATICS FOR CONTINUOUS SYSTEMS	3	1	0	4.0	4.0	CR	DSC
TOTAL			16.0	1.0	9.0	22.0	26.0		

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	PEL130	ADVANCED COMMUNICATION SKILLS-I	1	0	3	3.0	4.0
3	PEL121	COMMUNICATION SKILLS-I	1	0	3	3.0	4.0

		Term 3							P132-NNK-3-2023
S.No	**Course Code**	**Course Title**	**L**	**T**	**P**	**Credit**	**Contact Hours**	**Type**	**Nature**
1		LANGUAGE ELECTIVE 2	1	0	3	3.0	4.0	LE	LCS
2	CSE211	COMPUTER ORGANIZATION AND DESIGN	3	1	0	4.0	4.0	CR	DSC
3	CSE316	OPERATING SYSTEMS	3	0	0	3.0	3.0	CR	DSC
4	CSE325	OPERATING SYSTEMS LABORATORY	0	0	2	1.0	2.0	CR	DSC
5	CSR201	STATISTICS AND EDA	2	0	2	3.0	4.0	CR	DSC
6	CSR202	DESIGN AND ANALYSIS OF ALGORITHMS	3	0	0	3.0	3.0	CR	DSC
7	CSR203	ENTERPRISE DATA WAREHOUSE AND DATA MINING	3	0	2	4.0	5.0	CR	DSC
8	CSR204	DISTRIBUTED AND CLOUD COMPUTING	3	0	2	4.0	5.0	CR	DSC
9	GEN231	COMMUNITY DEVELOPMENT PROJECT	0	0	4	2.0	4.0	CR	PRC
TOTAL			18.0	1.0	15.0	27.0	34.0		

LANGUAGE ELECTIVE 2 BASKET

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

Term 4										P132-NNK-4-2023
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	LCS	
2	CSE310	PROGRAMMING IN JAVA	3	0	2	4.0	5.0	CR	DSC	
3	CSR221	NUMERICAL OPTIMIZATION	3	0	0	3.0	3.0	CR	DSC	
4	CSR222	DATA VISUALIZATION AND STORYTELLING	2	0	2	3.0	4.0	CR	DSC	
5	CSR223	INRODUCTION TO BIG DATA	3	0	2	4.0	5.0	CR	DSC	
6	CSR224	CLOUD COMPUTING PLATFORMS (AWS, AZURE, GCP)	2	0	2	3.0	4.0	CR	DSC	
7	CSR225	DATA CENTERS	2	0	0	2.0	2.0	CR	DSC	
TOTAL			17.0	1.0	8.0	22.0	26.0			

APTITUDE ELECTIVE 1 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
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

Term 5										P132-NNK-5-2023
S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature	
1		APTITUDE ELECTIVE 2	2	1	0	3.0	3.0	APE	EEA	
2		LANGUAGE ELECTIVE 3	2	0	2	3.0	4.0	LE	LCS	
3		OPEN MINOR 1	3	0	0	3.0	3.0	OM	OEM	
4	CSE322	FORMAL LANGUAGES AND AUTOMATION THEORY	3	0	0	3.0	3.0	CR	DSC	
5	CSR301	BIG DATA ANALYTICS (HADOOP, PIG, HIVE, YARN)	2	0	2	3.0	4.0	CR	DSC	
6	CSR302	DATA EXPLORATION AND PREPARATION	2	0	2	3.0	4.0	CR	DSC	
7	CSR303	MICROSERVICE ARCHITECTURE	2	0	2	3.0	4.0	CR	DSC	
8	CSR304	INTRODUCTION TO AI AND ML	3	0	2	4.0	5.0	CR	DSC	
9	CSR340	INTERNSHIP I	0	0	6	3.0	6.0	CR	TCF	
TOTAL			19.0	1.0	16.0	28.0	36.0			

APTITUDE ELECTIVE 2 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	PEA306	ANALYTICAL SKILLS-II	2	1	0	3.0	3.0
2	PEA308	ADVANCED ANALYTICAL SKILLS-II	2	1	0	3.0	3.0

LANGUAGE ELECTIVE 3 BASKET

S. No	Course Code	Course Title	L	T	P	Credit	Contact Hours
1	PEV112	VERBAL ABILITY	2	0	2	3.0	4.0
2	PEV113	UPPERINTERMEDIATE VERBAL ABILITY	2	0	2	3.0	4.0
3	PEV114	ADVANCED -VERBAL ABILITY	2	0	2	3.0	4.0

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
		Term 6							
1		OPEN MINOR 2	3	0	0	3.0	3.0	OM	OEM
2	CSE332	INDUSTRY ETHICS AND LEGAL ISSUES	2	0	0	2.0	2.0	CR	DSC
3	CSR321	DEEP LEARNING AND NEURAL NETWORK	2	0	2	3.0	4.0	CR	DSC
4	CSR322	NATURAL LANGUAGE PROCESSING	2	0	2	3.0	4.0	CR	DSC
5	CSR323	SCALA PROGRAMMING	2	0	2	3.0	4.0	CR	DSC
6	CSR324	COMPUTER VISION AND IMAGE PROCESSING	2	0	2	3.0	4.0	CR	DSC
7	PES319	SOFT SKILLS-II	1	2	0	3.0	3.0	CR	PWE
TOTAL			14.0	2.0	8.0	20.0	24.0		

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
		Term 7 (For those students who opt for course work)							
1		OPEN MINOR 3	3	0	0	3.0	3.0	OM	OEM
2	CSE339	CAPSTONE PROJECT-I	0	0	4	2.0	4.0	CR	PRJ
3	CSR401	EDGE COMPUTING	2	0	2	3.0	4.0	CR	DSC
4	CSR402	DATA STREAMING AND ANALYSIS (APACHE KAFKA)	2	0	2	3.0	4.0	CR	DSC
5	CSR440	INTERNSHIP II	0	0	6	3.0	6.0	CR	TCF
TOTAL			7.0	0.0	14.0	14.0	21.0		

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
		Term 7 (For those students who opt for industrial internship)							
1	CSR441	INTERNSHIP III	0	0	32	16.0	32.0	CR	TCF
TOTAL			0.0	0.0	32.0	16.0	32.0		

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
		Term 8 (For those students who opt for course work)							
1		OPEN MINOR 4	3	0	0	3.0	3.0	OM	OEM
2	CSE439	CAPSTONE PROJECT-II	0	0	16	8.0	16.0	CR	PRJ
3	CSR421	NOSQL DATABASES (MONGO DB, CASSANDRA AND NEO4J)	2	0	2	3.0	4.0	CR	DSC
TOTAL			5.0	0.0	18.0	14.0	23.0		

S.No	Course Code	Course Title	L	T	P	Credit	Contact Hours	Type	Nature
		Term 8 (For those students who opt for industrial internship)							
1	CSR442	INTERNSHIP IV	0	0	32	16.0	32.0	CR	TCF
TOTAL			0.0	0.0	32.0	16.0	32.0		

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

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)	*4T 3B*	12
B1	Basic Science(BSC)	*Maths*	*1T*	4
C1	Discipline Core(DSC)	*Maths*	*1T*	4
		Discipline Core(DSC)	*31T 2P 22B*	104
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
	Training Compulsory – Full term(TCF)	*Training Compulsory – Full term(TCF)*	*2P*	6
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)*	*1T 1P*	5
	Environmental Studies (EVS)	*Chemistry*	*1T*	2
	Pathway Elective(PWE)	*PES (Soft Skills)*	*1T*	3
		Total	*46T 8P 25B*	170

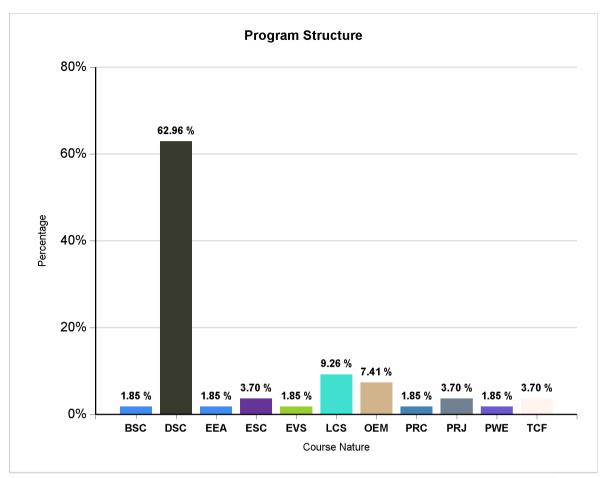| Note	
1	For applicable programs, students can graduate with 2 Minors (1 within discipline and 1 outside discipline and as depicted in the structure under the headings Discipline Minors and Open Elective/Minors respectively).
2	Discipline Core (DSC) are be mapped with GATE/UGCNET/CSIRNET/IES/AMCAT/ICAR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

Term-wise Credits

Term	Semester	Path	Credit (without rounding)	Credit(with rounding)
1	Term 1	Common	22.5	23.0
2	Term 2	Common	21.5	22.0
3	Term 3	Common	26.5	27.0
4	Term 4	Common	22	22.0
5	Term 5	Common	28	28.0
6	Term 6	Common	20	20.0
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	14.0
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	14	14.0

Term path wise Credits (Including Common Term)

Path	Credit (without rounding)	Credit(with rounding)
A	172.5	174.0
B	168.5	170.0

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
CR	Core Course
LE	Language Elective
OM	Open/Minor

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

Program Structure

Sr No	NAME	Nature Name	Total
1	BSC	Basic Science	1
2	DSC	Discipline Core	34
3	EEA	Employability Enhancement Activities	1
4	ESC	Engineering Science	2
5	EVS	Environmental Studies	1
6	LCS	Language & Communication Skills	5
7	OEM	Open Minor/Open Elective	4
8	PRC	Community Development Project	1
9	PRJ	Project (including Capstone Project and Research Project)	2
10	PWE	Pathway Elective	1
11	TCF	Training Compulsory – Full term	2