SAGE UNIVERSITY, INDORE
Institute Name: Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE
CHOICE BASED CREDIT SYSTEM (CBCS)
Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)
Admission Batch: 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	1st Year/ I Semester

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	Theory Mid Sem. Test (MST)	Theory Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Studio/Practical Lab Work/ WPR	Studio/Practical Attendance/Assignment/ Viva/Lab Manual	Total Marks	L	T	P	SM	NTCC Studio/ Assignment /Field Work	Credits	Hours
1	ACTDCLIA001T	DC	Linear Algebra	60	20	20	-	-	-	100	4	0	0			4	4
2	ACTDCAPY002T	DC	Applied Physics	60	20	20	-	-	-	100	3	0	0			3	3
3	ACTDCIAD003T	DC	Introduction to AI, Data Science, Ethics and Foundation of Data Analytics using SQL	60	20	20	-	-	-	100	3	0	0			3	3
4	ACTDCIPR004T	DC	Introduction to Problem Solving & Reasoning	60	20	20	-	-	-	100	4	0	0			4	4
5	To be selected *	GE	General Elective -1*	60	20	20				100	2	0	0	4		4	6
6	AECACCOS001T	AECC	Communication Skills	60	20	20	-	-	-	100	3	0	0			3	3
7	ACTDCAPY002P	DC	Applied Physics Lab	-	-	-	30	10	10	50	0	0	2			1	2
8	ACTDCIAD003P	DC	Introduction to AI, Data Science, Ethics and Foundation of Data Analytics using SQL Lab	-	-	-	30	10	10	50	0	0	2			1	2
9	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course -1	-	-	-	30	10	10	50	0	0	4			2	4
10	AECACCOS001P	AECC	Communication Skills Lab	-	-	-	30	10	10	50	0	0	2			1	2
	Total			360	120	120	120	40	40	800	19	0	10	4	0	26	33

	Departmental Skill Enhancement Elective Course (DSEEC- 1)	
1	ACTDSPIC001P	Programming in C
2	ACTDSPYT002P	Programming in PYTHON
3	ACTDSWEP003P	Web Programming

General Elective (GE – 1)(Offered by IAC for the students of other institutes)	
ACTGECOE001B**	Computer Basics & Office Essentials

Note: Industrial Internship I to be completed before start of V Semester, i.e. evaluation and credit to be added in V Semester.
*Students required to opt general elective from the Courses offered by other institutes under group 1 in GE category

HOD, IAC

SAGE UNIVERSITY, INDORE
Institute Name: Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE   Program Code: B Tech (CT-DS)
CHOICE BASED CREDIT SYSTEM (CBCS)   Admission Batch: 2024-25
Effective for: ACADEMIC SESSION: 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	1st Year /II Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	Theory - Mid Sem. Test (MST)	Theory - Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Studio/Practical - Lab Work/W PR	Studio/Practical - Attendance/Assignment/ Viva/Lab Manual	Total Marks	L	T	P	SM	NTCC Studio/ Assignment /Field Work	Credits	Hours
1	ACTDCCLE005T	DC	Calculus for Engineers	60	20	20	-	-	-	100	4	0	0		-	4	4
2	ACTDCDSS006T	DC	Data Structure and Complexity	60	20	20	-	-	-	100	3	0	0		-	3	3
3	ACTDCBEX007T	DC	Basic Electronics	60	20	20	-	-	-	100	4	0	0		-	4	4
4	ACTDCDAP008T	DC	Data Analysis Using Python	60	20	20	-	-	-	100	3	0	0		-	3	3
5	To be selected *	GE	General Elective -2*	60	20	20				100	2	0	0	4	-	4	6
6	AECACUHV001T	AECC	Universal Human Values and Professional Ethics	60	20	20	-	-	-	100	2	0	0		-	2	2
7	ACTDCDSS006P	DC	Data Structure and Complexity Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
8	ACTDCDAP008P	DC	Data Analysis Using Python Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
9	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course -2	-	-	-	30	10	10	50	0	0	4		-	2	4
10	AECACUHV001N	AECC	Universal Human Values and Professional Ethics	-	-	-		20	30	50	0	0	0		4	2	0
11	ACTDPMIP001N	DAP	Micro Project- I	-	-	-	-	20	30	50	0	0	0		4	2	0
	Total:			360	120	120	90	70	90	850	18	0	8	4	8	28	30

	Departmental Skill Enhancement Elective Course (DSEEC- 2)
1	ACTDSOPC004P — Object Oriented Programming using C++
2	ACTDSOPJ005P — Object Oriented Programming using JAVA
3	ACTDSPHP006P — PHP Programming

General Elective (GE - 2) (Offered by IAC for the students of other institutes)	
ACTGEPYP002B**	PYTHON Programming

Note: Industrial Internship I to be completed before start of V Semester, i.e. evaluation and credit to be added in V Semester.

*Students required to opt general elective from the Courses offered by other institutes under group 2 in GE category

HOD, IAC

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE
CHOICE BASED CREDIT SYSTEM (CBCS)
Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)
Admission Batch: 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	2nd Year / III Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	Continuous Internal Evaluation (CIE) Mid Sem. Test (MST)	Continuous Internal Evaluation (CIE) Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Continuous Internal Evaluation (CIE) Lab Work/ WPR	Continuous Internal Evaluation (CIE) Attendance /Assignment/ Viva/Lab Manual	Total Total Marks	Hours / Week. L	Hours / Week. T	Hours / Week. P	NTCC SM	NTCC Studio/Assignment /Field Work	Credits	Hours
1	ACTDCOSS009T	DC	Operating System & Security	60	20	20	-	-	-	100	3	0	0			3	3
2	ACTDCCLT010T	DC	Computation & Logical Thinking	60	20	20	-	-	-	100	4	0	0			4	4
3	ACTDEXXXXXXT	DE	Departmental Elective -1	60	20	20	-	-	-	100	3	0	0			3	3
4	ACTDEXXXXXXT	DE	DE-2	60	20	20	-	-	-	100	4	0	0			4	4
5	AECACEVS001T	AECC	Environmental Science & Disaster Management	60	20	20	-	-	-	100	3	0	0		-	3	3
6	To be selected *	GE	General Elective - 3*	60	20	20				100	2	0	0	4		4	6
7	ACTDCOSS009P	DC	Operating System & Security Lab				30	10	10	50	0	0	2			1	2
8	ACTDEXXXXXXP	DE	Departmental Elective -1 Lab	-	-	-	30	10	10	50	0	0	2			1	2
9	AECACEVS001N	AECC	Environmental Science & Disaster Management Lab	-	-	-	20	30		50	0	0	0		2	1	0
10	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course - 3	-	-	-	30	10	10	50	0	0	4			2	4
	Total:			360	120	120	90	50	60	800	19	0	8	4	2	26	31

	Departmental Elective Course (DE-1)			Departmental Elective Course (DE-2)	
1	ACTDEJSA001T/P	Java Scripting with AJAX		ACTDECAS003T	Cloud Architecture & Services
2	ACTDEPMR002T/P	Probabilistic Modeling and Reasoning with Python		ACTDEBCG004T	Bioinformatics & Computational Genomics

	Departmental Skill Enhancement Elective Course (DSEEC-3)			General Elective (GE-3) (Offered by IAC)	
1	ACTDSJAV007P	Advance JAVA		ACTGEFCC003B**	Fundamentals of Cloud Computing
2	ACTDSRPG008P	R programming for Data Science and Data Analysis			

Note: Industrial Internship I to be completed before start of V Semester, i.e. evaluation and credit to be added in V Semester.

*Students required to opt general elective from the Courses offered by other institutes under group 3 in GE category

HOD, IAC

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE

CHOICE BASED CREDIT SYSTEM (CBCS)

Program Code: B Tech (CT-DS)

Admission Batch: 2023-24

Effective for: ACADEMIC SESSION: 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	2nd Year / III Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	Theory CIE Mid Sem. Test (MST)	Theory CIE Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Studio/Practical CIE Lab Work/ WPR	Studio/Practical CIE Attendance/Assignment/ Viva/Lab Manual	Total Total Marks	Hours/Week L	T	P	NTCC SM	NTCC Studio/Assignment /Field Work	Credits	Hours
1	ACTDCOSS009T	DC	Operating System & Security	60	20	20	-	-	-	100	3	0	0			3	3
2	ACTDCCLT010T	DC	Computation & Logical Thinking	60	20	20	-	-	-	100	4	0	0			4	4
3	ACTDEXXXXXXT	DE	Departmental Elective -1	60	20	20	-	-	-	100	3	0	0			3	3
4	ACTDEXXXXXXT	DE	DE-2	60	20	20	-	-	-	100	4	0	0			4	4
5	To be selected *	GE	General Elective - 3*	60	20	20				100	2	0	0	4		4	6
6	ACTDCOSS009P	DC	Operating System & Security Lab				30	10	10	50	0	0	2			1	2
7	ACTDEXXXXXXP	DE	Departmental Elective -1 Lab	-	-	-	30	10	10	50	0	0	2			1	2
8	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course - 3	-	-	-	30	10	10	50	0	0	4			2	4
	Total:			300	100	100	90	30	30	650	16	0	8	4	0	22	28

Departmental Elective Course (DE-1)			Departmental Elective Course (DE-2)	
1	ACTDEJSA001T/P	Java Scripting with AJAX	ACTDECAS003T	Cloud Architecture & Services
2	ACTDEPMR002T/P	Probabilistic Modeling and Reasoning with Python	ACTDEBCG004T	Bioinformatics & Computational Genomics
Departmental Skill Enhancement Elective Course (DSEEC-3)			General Elective (GE-3) (Offered by IAC)	
1	ACTDSJAV007P	Advance JAVA	ACTGEFCC003B**	Fundamentals of Cloud Computing
2	ACTDSRPG008P	R programming for Data Science and Data Analysis		

Note: Industrial Internship I to be completed before start of V Semester, i.e. evaluation and credit to be added in V Semester.

*Students required to opt general elective from the Courses offered by other institutes under group 3 in GE category

HOD, IAC

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE
CHOICE BASED CREDIT SYSTEM (CBCS)
Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)
Admission Batch: 2023-24, 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	2nd Year / IV Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	CIE Mid Sem. Test (MST)	CIE Attendance/Quiz/Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	CIE Lab Work/WPR	CIE Attendance/Assignment/Viva/Lab Manual	Total Marks	L	T	P	SM	NTCC Studio/Assignment/Field Work	Credits	Hours
1	ACTDCDBS011T	DC	Relational Database Management System	60	20	20	-	-	-	100	3	0	0			3	3
2	ACTDCATC012T	DC	Automata Theory & Computability	60	20	20	-	-	-	100	4	0	0			4	4
3	ACTDEXXXXXXT	DE	Departmental Elective -3	60	20	20	-	-	-	100	3	0	0			3	3
4	ACTDEXXXXXXT	DE	Departmental Elective -4	60	20	20	-	-	-	100	4	0	0			4	4
5	To be selected *	GE	General Elective - 4*	60	20	20				100	2	0	0	4		4	6
6	ACTDCDBS011P	DC	Relational Database Management System Lab	-	-	-	30	10	10	50	0	0	2			1	2
7	ACTDEXXXXXXP	DE	Departmental Elective- 3 Lab	-	-	-	30	10	10	50	0	0	2			1	2
8	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course - 4	-	-	-	30	10	10	50	0	0	4			2	4
9	ACTDPXXX002N	DAP	Micro Project- II	-	-	-	-	20	30	50	0	0	0		4	2	0
	Total:			300	100	100	90	50	60	700	16	0	8	4	4	24	28

Departmental Elective Course (DE-3)		
1	ACTDEMIF005T/P	Microprocessor and Interfacing
2	ACTDEMLP006T/P	Machine Learning and Pattern Recognition

Departmental Elective Course (DE-4)		
1	ACTDESFE007T	Software Engineering
2	ACTDEDAV008T	Data Visualization I

General Elective (GE-4) (Offered by IAC)	
ACTGEFAI004B**	Fundamentals of Artificial Intelligence

Departmental Skill Enhancement Elective Course (DSEEC-4)	
ACTDSMLT009P	Machine Learning Tools & Technique
ACTDSDCS010P	Digital Circuits & System

Note: Industrial Internship I to be completed before start of V Semester, i.e. evaluation and credit to be added in V Semester.

*Students required to opt general elective from the Courses offered by other institutes under group 4 in GE category

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SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE
CHOICE BASED CREDIT SYSTEM (CBCS)
Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)
Admission Batch: 2022-23, 2023-24, 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	3rd Year / V Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	Theory CIE Mid Sem. Test (MST)	Theory CIE Attendance/Quiz/Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Studio/Practical CIE Lab Work/WPR	Studio/Practical CIE Attendance/Assignment/Viva/Lab Manual	Total Marks	L	T	P	SM	NTCC Studio/Assignment/Field Work	Credits	Hours
1	ACTDCNND013T	DC	Neural Networks and Deep Learning	60	20	20	-	-	-	100	4	0	0			4	4
2	ACTDEXXXXXXT	DE	Departmental Elective -5	60	20	20	-	-	-	100	3	0	0			3	3
3	ACTDEXXXXXXT	DE	Departmental Elective -6	60	20	20	-	-	-	100	3	0	0			3	3
4	ACTDEXXXXXXT	DE	Departmental Elective -7	60	20	20	-	-	-	100	4	0	0			4	4
5	ACTDEXXXXXXT	DE	Departmental Elective -8	60	20	20	-	-	-	100	3	0	0		-	3	3
6	ACTDCESI001T	DC	Emotion and Sentiment Intelligence	60	20	20				100	4	0	0			4	4
7	ACTDEXXXXXXP	DE	Departmental Elective -5 Lab	-	-	-	30	10	10	50	0	0	2			1	2
8	ACTDEXXXXXXP	DE	Departmental Elective -6 Lab				30	10	10	50	0	0	2			1	2
9	ACTDEXXXXXXP	DE	Departmental Elective -8 Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
10	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course - 5	-	-	-	30	10	10	50	0	0	4			2	4
11	ACTDSIIN001N	DSEEC	Internship- 1**	-	-	-	-	20	30	50	-	-	-		4	2	0
	Total:			360	120	120	120	60	70	850	21	0	10	0	4	28	31

Departmental Elective Course (DE-5)		
1	ACTDEDTK009T/P	Deep Learning with TensorFlow and Keras
2	ACTDEHDB010T/P	Heterogeneous Database

Departmental Skill Enhancement Elective Course (DSEEC-5)		
ACTDSNET011P		.Net Programming
ACTDSWRP012P		Working with Raspberry Pi and Arduino

Departmental Elective Course (DE-6)		
1	ACTDEDBC011T/P	Distributed Computing
2	ACTDECNC012T/P	Computer Network & Communication

Departmental Elective Course (DE-8)		
1	ACTDEIMP027T/P	Image Processing
2	ACTDEGTA028T/P	Game Theory with Artificial Intelligence

Departmental Elective Course (DE-7)		
1	ACTDEEVC013T	Evolutionary Computing
2	ACTDESQL014T	Advance SQL

**Certification Program from the industry will be considered

Note: Industrial Internship II to be completed after VI semester and before start of VII Semester, i.e. evaluation and credit to be added in VII Semester.

HOD IAC

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE
CHOICE BASED CREDIT SYSTEM (CBCS)
Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)
Admission Batch: 2022-23, 2023-24, 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	3rd Year / V Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	CIE Mid Sem. Test (MST)	CIE Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	CIE Lab Work/WPR	CIE Attendance/Assignment/ Viva/Lab Manual	Total Marks	L	T	P	SM	NTCC Studio/ Assignment /Field Work	Credits	Hours
1	ACTDAML013T	DC	Advance Machine Learning	60	20	20	-	-	-	100	4	0	0			4	4
2	ACTDEXXXXXXT	DE	Departmental Elective -5	60	20	20	-	-	-	100	3	0	0			3	3
3	ACTDEXXXXXXT	DE	Departmental Elective -6	60	20	20	-	-	-	100	3	0	0			3	3
4	ACTDEXXXXXXT	DE	Departmental Elective -7	60	20	20	-	-	-	100	4	0	0			4	4
5	ACTDEXXXXXXT	DE	Departmental Elective -8	60	20	20	-	-	-	100	3	0	0		-	3	3
6	ACTDCESI001T	DC	Emotion and Sentiment Intelligence	60	20	20				100	4	0	0			4	4
7	ACTDEXXXXXXP	DE	Departmental Elective -5 Lab	-	-	-	30	10	10	50	0	0	2			1	2
8	ACTDEXXXXXXP	DE	Departmental Elective -6 Lab	-	-	-	30	10	10	50	0	0	2			1	2
9	ACTDEXXXXXXP	DE	Departmental Elective -8 Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
10	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course - 5	-	-	-	30	10	10	50	0	0	4			2	4
11	ACTDSIIN001N	DSEEC	Internship- 1**	-	-	-	-	20	30	50	-	-	-		4	2	0
	Total:			360	120	120	120	60	70	850	21	0	10	0	4	28	31

Departmental Elective Course (DE-5)	
1	ACTDEDST009T/P	Scala for Data Science-Tools and Techniques
2	ACTDEHDB010T/P	Heterogeneous Database

Departmental Skill Enhancement Elective Course (DSEEC-5)	
ACTDSNET011P	.Net Programming
ACTDSWRP012P	Working with Raspberry Pi and Arduino

Departmental Elective Course (DE-6)	
1	ACTDEDBC011T/P	Distributed Computing
2	ACTDECNC012T/P	Computer Network & Communication

Departmental Elective Course (DE-8)	
1	ACTDEIMP027T/P	Image Processing
2	ACTDEGTA028T/P	Game Theory with Artificial Intelligence

Departmental Elective Course (DE-7)	
1	ACTDEEVC013T	Evolutionary Computing
2	ACTDESQL014T	Advance SQL

**Certification Program from the industry will be considered

Note: Industrial Internship II to be completed after VI semester and before start of VII Semester, i.e. evaluation and credit to be added in VII Semester.

HOD IAC

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE
CHOICE BASED CREDIT SYSTEM (CBCS)
Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)
Admission Batch: 2022-23, 2023-24, 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	3rd Year / VI Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Name & Title	Theory (100 Marks) End Sem. Exam (ESE)	Continuous Internal Evaluation Mid Sem. Test (MST)	Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Continuous Internal Evaluation (CIE) Lab Work/ WPR	Attendance/Assignment/ Viva/Lab Manual	Total Total Marks	L	T	P	SM	NTCC/ Studio/ Assignment/Field Work	Credits	Hours
1	ACTDCNND014T	DC	Deep Learning and Neural Network	60	20	20	-	-	-	100	3	0	0		-	3	3
2	ACTDEXXXXXXT	DE	Departmental Elective -9	60	20	20	-	-	-	100	3	0	0		-	3	3
3	ACTDEXXXXXXT	DE	Departmental Elective -10	60	20	20	-	-	-	100	4	0	0		-	4	4
4	ACTDEXXXXXXT	DE	Departmental Elective -11	60	20	20	-	-	-	100	4	0	0		-	4	4
5	ACTDEXXXXXXT	DE	Departmental Elective -12	60	20	20	-	-	-	100	4	0	0		-	4	4
6	ACTDCNND014P	DC	Deep Learning and Neural Network Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
7	ACTDEXXXXXXP	DE	Departmental Elective -9 Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
8	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course -	-	-	-	30	10	10	50	0	0	4		-	2	4
9	ACTDPMNP001N	DAP	Minor Project	-	-			40	60	100	0	0	0		12	6	0
	Total:			300	100	100	90	70	90	750	18	0	8	0	12	28	26

Departmental Elective Course (DE-9)		
1	ACTDEDVT015T/P	Advance Data Visualization using Tools and Techniques
2	ACTDERIL016T/P	Reinforcement Learning

Departmental Elective Course (DE-10)		
1	ACTDEBDA017T	Big Data Analytics
2	ACTDEINR018T	Information Retrieval

Departmental Elective Course (DE-11)		
1	ACTDEHCI019T	Human Computer Interaction
2	ACTDEHPC020T	High Performance Computing

Departmental Elective Course (DE-12)		
1	ACTDERPR021T	Reasoning, Problem Solving and Robotics
2	ACTDECSM022T	Cloud Security & Management

Departmental Skill Enhancement Elective Course (DSEEC-6)		
1	ACTDSIJN013P	IOT with Jetson Nano-Kit
2	ACTDSNDB014P	NoSQL Databases

Note: Industrial Internship II to be completed after VI semester and before start of VII Semester, i.e. evaluation and credit to be added in VII Semester.

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE
CHOICE BASED CREDIT SYSTEM (CBCS)
Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)
Admission Batch: 2022-23, 2023-24, 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	4th Year / VII Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	Continuous Internal Evaluation (CIE) Mid Sem. Test (MST)	Continuous Internal Evaluation (CIE) Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Continuous Internal Evaluation (CIE) Lab Work/ WPR	Continuous Internal Evaluation (CIE) Attendance/Assignment/ Viva/Lab Manual	Total Marks	L	T	P	SM	NTCC/ Studio/ Assignment /Field Work	Credits	Hours
1	ACTDCDMM015T	DC	Data Mining & Predictive Modelling	60	20	20	-	-	-	100	3	0	0		-	3	3
2	ACTDEXXXXXXT	DE	Departmental Elective -13	60	20	20	-	-	-	100	3	0	0		-	3	3
3	ACTDEXXXXXXT	DE	Departmental Elective -14	60	20	20	-	-	-	100	4	0	0		-	4	4
4	ACTDEXXXXXXT	DE	Departmental Elective -15	60	20	20				100	4	0	0		-	4	4
5	ACTDCDMM015P	DC	Data Mining & Predictive Modelling Lab	-	-	-	30	10	10	50	0	0	2			1	2
6	ACTDEXXXXXXP	DE	Departmental Elective -13 Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
7	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course -7	-	-	-	30	10	10	50	0	0	4		-	2	4
8	ACTDSINT002N	DSEC	Internship - II	-	-	-		20	30	50	0	0	0		8	4	-
	Total:			240	80	80	90	50	60	600	14	0	8	0	8	22	22

Departmental Elective Course (DE-13)		
1	ACTDEDVS023T/P	Data Visualization
2	ACTDEHDC024T/P	Hadoop Components
Departmental Elective Course (DE-14)		
1	ACTDEPRG025T	Pattern Recognition
2	ACTDEGPU026T	GPU Programming

Departmental Elective Course (DE-15)		
1	ACTDECGC029T	Cognitive Computing
2	ACTDEAPS030T	Apache Spark
Departmental Skill Enhancement Elective Course (DSEEC-7)		
1	ACTDSSDS015P	Scala for Data Science
2	ACTDSISS016P	IOT System & Security

*Certification Program from the industry will be considered for internship- II

HOD, IAC

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE

CHOICE BASED CREDIT SYSTEM (CBCS)

Effective for: ACADEMIC SESSION: 2024-25

Program Code: B Tech (CT-DS)

Admission Batch: 2021-22

	Course		B. Tech. (Computer Technology in Data Science)														
	Year / Semester		4th Year / VII Sem														

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Title	Theory (100 Marks) End Sem. Exam (ESE)	Continuous Internal Evaluation (CIE) Mid Sem. Test (MST)	Continuous Internal Evaluation (CIE) Attendance/ Quiz/ Assignment	Studio/Practical (50 Marks) End Sem. Exam (ESE) For Practical and Viva	Continuous Internal Evaluation (CIE) Lab Work/ WPR	Continuous Internal Evaluation (CIE) Attendance/Assignment/ Viva/Lab Manual	Total Total Marks	L	T	P	SM	NTCC/ Studio/ Assignment /Field Work	Credits	Hours
1	ACTDCDMM015T	DC	Data Mining & Predictive Modelling	60	20	20	-	-	-	100	3	0	0		-	3	3
2	ACTDEXXXXXXT	DE	Departmental Elective -12	60	20	20	-	-	-	100	3	0	0		-	3	3
3	ACTDEXXXXXXT	DE	Departmental Elective -13	60	20	20	-	-	-	100	4	0	0		-	4	4
4	ACTDEXXXXXXT	DE	Departmental Elective -14	60	20	20				100	4	0	0		-	4	4
5	ACTDCDMM015P	DC	Data Mining & Predictive Modelling Lab	-	-	-	30	10	10	50	0	0	2			1	2
6	ACTDEXXXXXXP	DE	Departmental Elective -12 Lab	-	-	-	30	10	10	50	0	0	2		-	1	2
7	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course -7	-	-	-	30	10	10	50	0	0	4			2	4
7	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course -	-	-	-	30	10	10	50	0	0	4		-	2	4
7	ACTDSXXXXXXP	DSEEC	Departmental Skill Enhancement Elective Course -	-	-	-	30	10	10	50	0	0	4		-	2	4
8	ACTDSINT002N	DSEC	Internship - II	-	-	-		20	30	50	0	0	0		8	4	-
	Total:			240	80	80	150	70	80	700	14	0	16	0	8	26	30

Departmental Elective Course (DE-12)		
1	ACTDEDVS023T/P	Data Visualization
2	ACTDEHDC024T/P	Hadoop Components

Departmental Elective Course (DE-13)		
1	ACTDEPRG025T	Pattern Recognition
2	ACTDEGPU026T	GPU Programming

Departmental Elective Course (DE-14)		
1	ACTDECGC029T	Cognitive Computing
2	ACTDEAPS030T	Apache Spark

Departmental Skill Enhancement Elective Course (DSEEC-7)		
1	ACTDSSDS015P	Scala for Data Science
2	ACTDSISS016P	IOT System & Security

Departmental Skill Enhancement Elective Course (DSEEC-8)		
1	ACTDSPDM017P	CAP Stone Projects on Deep Learning & Machine Learning
2	ACTDSIAD018P	IOT Application Development

Departmental Skill Enhancement Elective Course (DSEEC-9)		
1	ACTDSIDS019P	Intrusion Detection and Prevention Lab
2	ACTDSIAM020P	Information Security Audit & Monitoring Lab

*Certification Program from the industry will be considered for internship- II

SAGE UNIVERSITY, INDORE
Institute of Advance Computing
Department Name: Advance Computing (Specialization)
PROGRAM STRUCTURE   **Program Code: B Tech (CT-DS)**

CHOICE BASED CREDIT SYSTEM (CBCS)   **Admission Batch: 2021-22, 2022-23, 2023-24, 2024-2**

Effective for: ACADEMIC SESSION: 2024-25

Course	B. Tech. (Computer Technology in Data Science)
Year / Semester	4th Year / VIII Sem

Subject wise Distribution of Marks and corresponding Credits

S. No.	Subject Code	Category	Subject Name & Title	Theory (0 Marks) End Sem. Exam (ESE)	CIE Mid Sem. Test (MST)	CIE Attendance/ Quiz/ Assignment	Studio/Practical (100 Marks) End Sem. Exam (ESE) For Practical and Viva / Lab Work/ WPR	CIE Attendance/Assignment/Viva/Lab Manual	Total Total Marks	L	T	P	SM	NTCC/ Studio/ Assignment /Field Work	Credits	Hours
2	ACTDPMJP001N	DAP	Major Project	-	-	-	40	60	100	0	0	0		24	12	0
	Total:			-	-	-	40	60	100	-	-	0	-	24	12	0

Legends		
L= Lecture	**1 Hr**	**1 CR**
T= Tutorial	**1 Hr**	**1 CR**
P= Practical	**2 Hr**	**1 CR**
S= Studio	**1 Hr**	**1.5 CR**
NTCC = Non Teaching Credit Course	**2 Hr**	**1 CR**
M= MOOC	**SWAYAM/NPTEL**	**Certificate**
BM = Blended MOOC	**1 Hr**	**1 CR**

Offered Credit Summary	
Semester	**B.Tech. CT (Hons.)**
I	26
II	28
III	26
IV	24
V	28
VI	28
VII	22
VIII	12
Total	**194**

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