

CURRICULUM & SYLLABUS



SRM
UNIVERSITY
DELHI-NCR, SONEPAT

CHOICE BASED CREDIT SYSTEM (CBCS)
FOR
BACHELOR OF TECHNOLOGY (B.Tech.)
(4 Year Undergraduate Degree Programme)
IN
COMPUTER SCIENCE AND ENGINEERING

In Big Data Analytics
[w. e. f. 2022-2023]

FACULTY OF ENGINEERING AND TECHNOLOGY
SRM UNIVERSITY DELHI-NCR, SONEPAT
39, Rajiv Gandhi Education City, Sonapat
Haryana-131029

COURSE CURRICULUM

BACHELOR OF TECHNOLOGY (COMPUTER SCIENCE AND ENGINEERING) SPECIALIZATION: BIG DATA ANALYTICS

DEGREE COURSE

PROGRAMME COURSES STRUCTURE SEMESTER WISE

SEMESTER – I

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
21AS101	Engineering Mathematics-I	BAS	3	1	0	4	4
21AS102/ 21AS103	Engineering Physics/ Engineering Chemistry	BAS	3	1	0	4	4
21EE101/ 21EC101	Basic Electrical Engineering / Basic Electronics Engineering	ES	3	0	0	3	3
21CS101	Fundamentals of Computer & C Programming	PC	3	0	0	3	3
21HS101/ 21HS102	Communicative English/ Indian Constitution & Polity	HSS	2	0	0	2	2
21AS152/ 21AS153	Engineering Physics Lab/ Engineering Chemistry Lab	BAS	0	0	2	2	1
21EE151/ 21EC151	Basic Electrical Engineering Lab / Basic Electronics Engineering Lab	ES	0	0	2	2	1
21CS151	Fundamentals of Computer & C Programming Lab	P/W	0	0	2	2	1
21HS151/ 21SE151	Communicative English Lab/ NSS-Yoga-NCC	HSS	0	0	2	2	1
21ME152/ 21ME153	Mechanical Workshop Lab/Engineering Graphics & Design Lab	ES	0	0	2	2	1
TOTAL			14	2	10	26	21

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SEMESTER – II

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
21AS201	Engineering Mathematics-II	BAS	3	1	0	4	4
21AS202/ 21AS203	Engineering Physics/ Engineering Chemistry	BAS	3	1	0	4	4
21EE201/ 21EC201	Basic Electrical Engineering / Basic Electronics Engineering	ES	3	0	0	3	3
21ME201	Basic Mechanical Engineering	ES	3	0	0	3	3
21CS1010	Programming With Java	PC	2	0	0	2	2
21HS201/ 21HS202	Communicative English/ Indian Constitution & Polity	HSS	2	0	0	2	2
21AS252/ 21AS253	Engineering Physics Lab/ Engineering Chemistry Lab	BAS	0	0	2	2	1
21EE251/ 21EC251	Basic Electrical Engineering Lab / Basic Electronics Engineering Lab	ES	0	0	2	2	1
21ME251	Basic Mechanical Engineering Lab	ES	0	0	2	2	1
21HS251/ 21SE251	Communicative English Lab/ NSS-Yoga-NCC	HSS	0	0	2	2	1
21ME252/ 21ME253	Mechanical Workshop Lab/Engineering Graphics & Design Lab	ES	0	0	2	2	1
21CS1114	Programming with Java Lab	P	0	0	2	2	1
TOTAL			16	2	12	30	24

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SEMESTER – III

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
xxx	Open Elective Course – I	OE	2	0	0	2	2
21AS301	Engineering Mathematics-III	BAS	3	1	0	4	4
22CBDA2009	Big Data Overview and Ingestion	PC	2	0	0	2	2
21CS2001	Data Structures Using C	PC	3	0	0	3	3
21CS2003	Discrete Structures	PC	3	1	0	4	4
21CS2005	Database Management Systems	PC	3	0	0	3	3
21CS2007	Computer Architecture & Organization	PC	3	1	0	4	4
21SS351	Effective Communication Skills	SEC	0	0	2	2	1
22CBDA2115	Big Data Overview and Ingestion Lab	P	0	0	2	2	1
21CS2113	Data Structures Using C lab	P	0	0	2	2	1
21CS2111	Database Management Systems Lab	P	0	0	2	2	1
22CS2117	Python Programming Lab	P	0	0	2	2	1
21CS0201	Essentials of BlockChain and IoT - Level I	SEC	0	0	2	2	1
TOTAL			19	3	12	34	28

NOTE: At the end of the semester, students will undergo a training and create a project which will be evaluated in the next semester (Live Project-I)

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PROGRAMME COURSES STRUCTURE SEMESTER WISE

SEMESTER – IV

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
Xxx	Open Elective Course – II	OE	2	0	0	2	2
22CBDA2004	Big Data Tools and Techniques	PC	3	0	0	3	3
22CBDA2006	Predictive and Planning Analytics	PC	3	0	0	3	3
21CS2004	Theory of Computation	PC	3	1	0	4	4
21CS2006	Operating Systems	PC	3	0	0	3	3
21CS2008	Analysis and Design of Algorithms	PC	3	0	0	3	3
21SS452	Teamwork & Interpersonal Skills	SEC	0	0	2	2	1
22CBDA2120	Big Data Tools and Techniques Lab	P	0	0	2	2	1
22BDA2118	Predictive and Planning Analytics Lab	P	0	0	2	2	1
21CS2114	Operating Systems Lab	P	0	0	2	2	1
21CS2118	Analysis and Design of Algorithms Lab	P	0	0	2	2	1
21CS0202	Artificial Intelligence and Machine Learning – Level-II	SEC	0	0	2	2	1
21CS0204	Live Project-I and Industrial Visit	LP**	0	0	2	2	1
TOTAL			17	1	14	32	25

NOTE: At the end of the semester, students will undergo a training and create a project which will be evaluated in the next semester (Live Project-II)

**** To be evaluated in current semester.**

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SEMESTER – V

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
21XXX	Open Elective Course-III	OE	3	0	0	3	3
22CBDA3001	Machine Learning Application in Big Data	PC	3	0	0	3	3
21CFS3005	Essentials of Hadoop	PC	2	0	0	2	2
21CS3001	Compiler Design	PC	3	1	0	4	4
21CS3003	Computer Networks	ES	3	1	0	4	4
21SS553	Presentation & Speaking Skills	SEC	0	0	2	2	1
22CBDA3115	Machine Learning Application in Big Data Lab	P	0	0	2	2	1
21CFS3113	Hadoop Lab	P	0	0	2	2	1
21CS3113	Computer Network Lab	P	0	0	2	2	1
21CS3117	Compiler Design Lab	P	0	0	2	2	1
21CS0301	Design Thinking and Augmented Virtual Reality- Level-II & Level-III	SEC	0	0	2	2	1
21CS0303	Live Project-II & Industrial Visit	LP**	0	0	2	2	1
TOTAL			14	2	14	30	23

NOTE: At the end of the semester, students will undergo a training and create a project which will be evaluated in the next semester (Live Project-III)

**** To be evaluated in current semester.**

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SEMESTER – VI

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
22CBDA3002	Stream Processing and Analytics	PC	3	0	0	3	3
22CBDA3010	Big Data Visualization	PC	3	0	0	3	3
21CS3004	Software Engineering	PC	3	0	0	3	3
21CS3xxx	Professional Elective Course– I	PE	3	1	0	4	4
21BS301	Management and Organizational Behavior	HSS	3	0	0	3	3
21SS655	Professional Writing Skills	SEC	0	0	2	2	1
22CBDA3116	Stream Processing and Analytics Lab	P	0	0	2	2	1
22CBDA3012	Big Data Visualization Lab	P	0	0	2	2	1
21CS3118	Software Engineering lab	P	0	0	2	2	1
22CBDA3014	Data Analytics for Entrepreneures	P	0	0	2	2	1
21CS0302	Big Data Analytics, Tools and Techniques- Level-III	SEC	0	0	2	2	1
21CS0304	Live Project-III & Industrial Visit	LP**	0	0	2	2	1
TOTAL			15	1	14	30	23

NOTE: At the end of the semester, students will undergo a training and create a project which will be evaluated in the next semester (Live Project-IV)

**** To be evaluated in current semester.**

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PROGRAMME COURSES SRUCTURE SEMESTER WISE

SEMESTER – VII

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
22CBDA4003	Business Intelligence	PC	3	1	0	4	4
22CBDA4005	Blockchain	PC	3	1	0	4	4
21CS4xxx	Professional Elective Course– II	PE	3	1	0	4	4
22CBDA4007	Business Intelligence Lab	P	0	0	2	2	1
22CBDA4009	Blockchain Lab	P	0	0	2	2	1
22CBDA4011	Introduction to MongoDB	P	0	0	2	2	1
21SS756	Interpersonal Skills : Strategies	SEC	0	0	2	2	1
21CS4115	Live Project-IV & Industrial Visit	LP**	0	0	2	2	1
21CS4117	Minor Project	LP	0	0	8	8	4
TOTAL			9	3	18	30	21

** To be evaluated in current semester.

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SEMESTER – VIII

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
21CS4114	Major Project	LP	0	0	24	24	12

* *To be monitored at the Institute Level*

** *Teaching Load*

LIST OF SKILL ENHANCEMENT COURSES

Course Code	Course	Category	L	T	P	Credits
TECHNICAL TRAINING						
21CS0201	Essentials of Blockchain and IoT-Level - I	SEC	0	0	2	1
21CS0202	Artificial Intelligence and Machine Learning – Level- II	SEC	0	0	2	1
21CS0301	Design Thinking and Augmented Virtual Reality –Level-II&III	SEC	0	0	2	1
21CS0302	Big Data Analytics, Tools and Technique-Level –III	SEC	0	0	2	1
SOFT SKILL						
21SS351	Effective Communication Skills	SEC	0	0	2	1
21SS452	Teamwork & Interpersonal Skills	SEC	0	0	2	1
21SS553	Presentation & Speaking Skills	SEC	0	0	2	1
21SS655	Professional Writing Skills	SEC	0	0	2	1
21SS756	Interpersonal Skills : Strategies	SEC	0	0	2	1