

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 BlockChain & IoT in association with IBM
[w. e. f. 2021-2022]

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 & ENGINEERING) SPECIALIZATION: BLOCKCHAIN & IOT

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
21CAM1001	Software Foundation using C	PC	3	0	0	3	3
21CS103	Discrete Structures	PC	3	1	0	4	4
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
21CAM1111	Software Foundation 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			17	3	10	30	25

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PROGRAMME COURSES SRUCTURE SEMESTER WISE

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
21CAM1004	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
21CAM1114	Programming with Java Lab	P	0	0	2	2	1
TOTAL			16	2	12	30	24

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PROGRAMME COURSES SRUCTURE SEMESTER WISE

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
21CS2001	Data Structures Using C	PC	3	0	0	3	3
21CAM2009	Python Programming	PC	2	0	0	2	2
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
21CS2111	Database Management Systems Lab	P	0	0	2	2	1
21CS2113	Data Structures Using C lab	P	0	0	2	2	1
21CAM2115	Python Programming Lab	P	0	0	2	2	1
21CBM2117	Industry Session : BlockChain Essentials	P	0	0	2	2	1
21CS0201	Essentials of BlockChain and IoT-Level-I	SEC	0	0	2	2	1
TOTAL			16	2	12	30	24

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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DEGREE COURSE

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
21CAM2004	Cloud Application Development	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
21CAF2006	Agile Development Methodology	PC	3	0	0	3	3
21SS452	Teamwork & Interpersonal Skills	SEC	0	0	2	2	1
21CAM2120	Cloud Application Development Lab	P	0	0	2	2	1
21CS2114	Operating Systems Lab	P	0	0	2	2	1
21CAF2118	Agile Development 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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PROGRAMME COURSES SRUCTURE SEMESTER WISE

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
21CS3001	Compiler Design	PC	3	1	0	4	4
21CS3003	Computer Networks	ES	3	1	0	4	4
21CMF4003	Application & Cloud Security	PC	3	0	0	3	3
21CBM3001	Dockers and Kubernates	PC	2	0	0	2	2
21SS553	Presentation & Speaking Skills	SEC	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
21CMF4007	Application & Cloud Security Lab	P	0	0	2	2	1
21CBM3115	Dockers and Kubernates Lab	P	0	0	2	2	1
21CS0301	Design Thinking and Augmented Virtual Reality-Level-II &III	SEC	0	0	2	2	1
21CS0303	Live Project-II and 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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PROGRAMME COURSES SRUCTURE SEMESTER WISE

SEMESTER – VI

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
21CBM3002	IoT Based Application	PC	2	0	0	2	2
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
21CAF3010	NoSQL and MongoDB	PC	3	0	0	3	3
21CBM3014	Identity and Access Management	PC	2	0	0	2	2
21SS655	Professional Writing Skills	SEC	0	0	2	2	1
21CBM3116	IoT Based Application Lab	P	0	0	2	2	1
21CBM3120	Identity and Access Management Lab	P	0	0	2	2	1
CS3118	Software Engineering lab	P	0	0	2	2	1
21CAF3012	NoSQL and MongoDB Lab	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 and Industrial Visit	LP**	0	0	2	2	1
TOTAL			16	1	14	31	24

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	
21CBF4003	Analytics Using IoT Data (Predictive Analytics)	PC	3	1	0	4	4
21CBM4005	Blockchain Development	PC	3	1	0	4	4
21CS4xxx	Professional Elective Course – II	PE	3	1	0	4	4
21CBF4007	Analytics Using IoT Data (Predictive Analytics) Lab	P	0	0	2	2	1
21CBM4009	Blockchain Development Lab	P	0	0	2	2	1
21CBM4011	Industry Session -Security Governance And Law	P	0	0	2	2	1
21SS756	Interpersonal Skills : Strategies	SEC	0	0	2	2	1
21CS4115	Live-Project IV and Industrial Visit	LP**	0	0	2	2	1
21CS4117	Minor Project	LP	0	0	8	8	4
TOTAL			9	3	18	30	21

NOTE: ** To be evaluated in current semester.

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PROGRAMME COURSES STRUCTURE SEMESTER WISE

SEMESTER – VIII

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
21CS 4114	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

**LIST OF OPEN ELECTIVE COURSES –
COURSES FROM OTHER TECHNICAL AREA & EMERGING FIELDS**

Course Code	Course	Category	L	T	P	C
Open Elective-I(OPEC-I)						
21FLGR301	German Language Phase-I	OE	2	0	0	2
21FLFR301	French Language Phase-I	OE	2	0	0	2
Open Elective-II (OPEC-II)						
21FLGR401	German Language Phase-II	OE	2	0	0	2
21FLFR401	French Language Phase-II	OE	2	0	0	2
Open Elective-III (OPEC-III)						
SEC-FT-01	Entrepreneurship and New Venture Management	OE	3	0	0	3
21ESUG202	Sustainable Growth and Development	OE	3	0	0	3
21ESUG203	Waste Management	OE	3	0	0	3
21EC390	Microprocessor and Interfacing	OE	3	0	0	3

LIST OF PROFESSIONAL ELECTIVE COURSES

Course Code	Course	Category	L	T	P	C
Professional Elective-I						
21CS3020	Distributed Operating System	PE	3	1	0	4
21CS3024	Software Project Management	PE	3	1	0	4
21CS3026	Grid Computing	PE	3	1	0	4
21CS3028	Object Oriented Analysis & Design	PE	3	1	0	4
21CS3030	Neural Networks & Fuzzy Logic	PE	3	1	0	4
21CS3032	Cyber Security	PE	3	1	0	4
21CS3034	Design Thinking	PE	3	1	0	4
21CS3038	Business Intelligence	PE	3	1	0	4
Professional Elective-II						
21CS4019	Network Security & Cryptography	PE	3	1	0	4
21CS4033	Software Testing	PE	3	1	0	4
21CS4023	Wireless Adhoc and Sensor Network	PE	3	1	0	4
21CS4035	Advanced Java Programming	PE	3	1	0	4
21CS4037	NASSCOM Associate Analytics – II	PE	3	1	0	4
21CS4025	Data Warehousing & Data Mining	PE	3	1	0	4
21CS4027	Mobile Computing	PE	3	1	0	4
21CS4029	Machine Learning using R	PE	3	1	0	4
21CS4031	Open Source Software	PE	3	1	0	4
21CS4039	NASSCOM Associate Analytics – III	PE	3	1	0	4