

CURRICULUM & SYLLABUS



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

In Cyber Security

(In Alignment with National Education Policy, 2020)
[w. e. f. 2023-2024]

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: CYBER SECURITY

DEGREE COURSE

PROGRAMME COURSES STRUCTURE SEMESTER WISE

SEMESTER – I

SL.No	Code	Category	Course Name	Hours per week				Credits
				L	T	P	Total Hours	
Theory								
1	23AS101	(BAS)	Engineering Mathematics-I	3	1	0	4	4
2	23AS102/23AS103	(BAS)	Engineering Physics/Engineering Chemistry	3	1	0	4	4
3	23EE101/23EC101	(ES)	Basic Electrical Engineering /Basic Electronics Engineering	3	0	0	3	3
4	23ME101/23CS101	(ES)	Engineering Mechanics / Fundamentals of Computer & C Programming	3	0	0	3	3
5	23AEC101	(AEC)	Professional English (*50% of students will be offered)	2*	0	0	2*	2*
6	23AEC102/23AEC103/23AEC104	(AEC)	Hindi-I/German-I/French-I	2	0	0	2	2
7	23VAC101/23VAC102	(VAC)	Environmental Bioengineering / Indian Constitution and Polity	2	0	0	2	2
Total Credits (Theory)				16/18	2	0	18/20	18/20
Practical								
8	23AS152/23AS153	(BAS)	Engineering Physics Lab/Engineering Chemistry Lab	0	0	2	2	1
9	23EE151/23EC151	(ES)	Basic Electrical Engineering Lab /Basic Electronics Engineering Lab	0	0	2	2	1
10	23ME151/23CS151	(ES)	Basic Mechanical Engineering Lab/ C Programming Lab	0	0	2	2	1
11	23ME152/23ME153	(ES)	Mechanical Workshop Lab/Engineering Graphics & Design Lab	0	0	2	2	1
12	23AEC151*	(AEC)	Communication English Lab (50% of students will be offered)	0	0	2*	2*	1*
Total Credits (Practical)				0	0	8/10	8/10	4/5
	Total Credits (Theory + Practical)			16/18	2	8/10	26/30	22/25

SEMESTER – II

SL.No	Code	Category	Course Name	Hours per week				Credits
				L	T	P	Total Hours	
Theory								
1	23AS0201	(BAS)	Engineering Mathematics-II	3	1	0	4	4
2	23AS0202/ 23AS0203	(BAS)	Engineering Physics/Engineering Chemistry	3	1	0	4	4
3	23EE0201/2 3EC0201	(ES)	Basic Electrical Engineering /Basic Electronics Engineering	3	0	0	3	3
4	23ME0201/2 3CS0201	(ES)	Engineering mechanics / Fundamentals of Computer & C Programming	3	0	0	3	3
5	23AEC0201	(AEC)	Professional English (*50% of students will be offered)	2*	0	0	2*	2*
6	23AEC 202/23AEC203/AEC204	(AEC)	Hindi-II/German-II/French-II	2	0	0	2	2
7	23VAC201/2 3VAC 202	(VAC)	Environmental Bioengineering / Indian Constitution and Polity	2	0	0	2	2
Total Credits (Theory)				16/18	2	0	18/20	18/20
Practical								
8	23AS0252/23 AS0253	(BAS)	Engineering Physics Lab/Engineering Chemistry Lab	0	0	2	2	1
9	23EE0251/2 3EC0251	(ES)	Basic Electrical Engineering Lab /Basic Electronics Engineering Lab	0	0	2	2	1
10	23ME251/23 CS251	(ES)	Basic Mechanical Engineering Lab/ C Programming Language Lab	0	0	2	2	1
11	23ME0251/2 1ME0252	(ES)	Mechanical Workshop Lab/Engineering Graphics & Design Lab	0	0	2	2	1
12	23AEC151*	(AEC)	Communication English Lab (50% of students will be offered)	0	0	2*	2*	1*
Total Credits (Practical)				0	0	8/10	8/10	4/5
Total Credits (Theory + Practical)				16/18	2	8/10	26/30	22/25

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SEMESTER – III

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
Theory							
23AS301	Engineering Mathematics-III	BAS	3	0	0	3	3
23CCS2009	Cryptography Fundamentals	PC	3	1	0	4	4
23CS2001	Data Structures Using C	PC	3	0	0	3	3
23CSPEXXX	Professional Elective -I	PE	3	1	0	4	4
23CS2005	Database Management Systems	PC	3	0	0	3	3
Total Credits(Theory)			15	2	0	17	17
Practical							
23CS2113	Data Structures Using C lab	P	0	0	2	2	1
23CS2111	Database Management Systems Lab	P	0	0	2	2	1
23CCS 2117	Cryptography Lab	P	0	0	2	2	1
23VACXX X	Sports, Yoga & Fitness	VAC	1	0	2	3	2
Total Credits (Practical)			1	0	8	9	5
Skill Enhancement							
	Digital Marketing	SEC	0	0	2	2	1
23SS351	Effective Communication Skills	SEC	0	0	2	2	1
Total Credits (Skill Enhancement)			0	0	4	4	2
Total credits(Theory+ Practical+ Skill Enhancement)			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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SEMESTER – IV

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
Theory							
23MDCXXX	Multi-Disciplinary Elective - I	MDC	3	0	0	3	3
23CS2004	Discrete Structures	PC	3	1	0	4	4
23CCS2006	Database Security	PC	3	0	0	3	3
23CS2006	Operating Systems	PC	3	0	0	3	3
23CSPE _{xxx}	Professional Elective -II	PE	3	1	0	4	4
23CSPE _{xxx}	Professional Elective -III	PE	3	0	0	3	3
Total Credits(Theory)			18	2	0	20	20
Practical							
23CCS2118	Database Security Lab	P	0	0	2	2	1
23CS2114	Operating Systems Lab	P	0	0	2	2	1
23CSPE _{xxx}	Professional Elective –III Lab	PE	0	0	2	2	1
23CS0204	Live Project-I and Industrial Visit	LP**	0	0	2	2*	1
Total Credits (Practical)			0	0	8	8*	4
Skill Enhancement							
	Introduction to SPSS	SEC	0	0	2	2	1
23SS452	Teamwork & Interpersonal Skills	SEC	0	0	2	2*	1
Total Credits (Skill Enhancement)			0	0	4	4*	2
Total credits(Theory+ Practical+ Skill Enhancement)			18	2	12	30*	26

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	
Theory							
23MDCXXX	Multi-Disciplinary Elective - II	MDC	3	0	0	3	3
23CCS3001	Network Security	PC	3	0	0	3	3
23CCS3005	Kali Linux	PC	3	1	0	4	4
23CSPExxx	Professional Elective -IV	PE	3	1	0	4	4
23CSPExxx	Professional Elective - V	PE	3	1	0	4	4
Total Credits(Theory)			15	3	0	18	18
Practical							
23CCS3115	Network Security Lab	P	0	0	2	2	1
23CSPExxx	Professional Elective –V Lab	PE	0	0	2	2	1
23CSPExxx	Professional Elective – IV Lab	PE	0	0	2	2	1
23CS0303	Live Project-II & Industrial Visit	LP**	0	0	2	2	1
Total Credits (Practical)			0	0	10	8	4
Skill Enhancement							
	Introduction to Hardware Description Language	SEC	0	0	2	2	1
23SS553	Presentation Skills	SEC	0	0	2	2	1
Total Credits (Skill Enhancement)			0	0	4	4	2
Total credits(Theory+ Practical+ Skill Enhancement)			15	3	14	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-III)

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

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DEGREE COURSE
PROGRAMME COURSES STRUCTURE SEMESTER WISE

SEMESTER – VI

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
Theory							
XXX	Multi-Disciplinary Elective - III	MDC	3	0	0	3	3
23CCS3002	Penetration Testing	PC	3	0	0	3	3
23CCS3010	Android Security	PC	3	1	0	4	4
23CSPExxx	Professional Elective – VI	PE	3	1	0	4	4
23CSPExxx	Professional Elective – VII	PE	3	1	0	4	4
Total Credits(Theory)			15	3	0	18	18
Practical							
23CCS3116	Penetration Testing Lab	P	0	0	2	2	1
23CSPExxx	Professional Elective – VI Lab	PE	0	0	2	2	1
23CCS3014	Network Programming Lab	P	0	0	2	2	1
23CS0304	Live Project-III & Industrial Visit	LP**	0	0	2	2	1
Total Credits (Practical)			0	0	8	8	4
Skill Enhancement							
	Wearable Technologies	SEC	0	0	2	2	1
23SS654	Professional Skills	SEC	0	0	2	2	1
Total Credits (Skill Enhancement)			0	0	4	4	2
Total credits(Theory+ Practical+ Skill Enhancement)			15	3	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-IV)

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

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DEGREE COURSE
PROGRAMME COURSES SRUCTURE SEMESTER WISE

SEMESTER – VII

COURSE CODE	COURSE	CATEGORY	HOURS PER WEEK				CREDITS
			L	T	P	TOTAL HOURS	
Theory							
23CCS4003	Cloud Security	PC	3	1	0	4	4
23CCS4005	Quantum Cryptography	PC	3	1	0	4	4
23CCS4011	Hardware Security	PC	3	0	0	3	3
23CSPExxx	Professional Elective – VIII	PE	3	1	0	4	4
Total Credits(Theory)			11	3	0	15	15
Practical							
23CCS4007	Cloud Security Lab	P	0	0	2	2	1
23CCS4009	Quantum Cryptography Lab	P	0	0	2	2	1
23CS4115	Live Project-IV & Industrial Visit	LP**	0	0	2	2	1
23CS4117	Minor Project	LP	0	0	8	8	4
Total Credits (Practical)			0	0	14	14	7
Skill Enhancement							
23AR755	Aptitude and Reasoning	SEC	0	0	2	2	1
Total Credits (Skill Enhancement)			0	0	2	2	1
Total credits(Theory+ Practical+ Skill Enhancement)			11	3	16	30	23

**** 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	
23CS4114	Major Project	LP	0	0	24	24	12
Total credits(Theory+ Practical+ Skill Enhancement)			0	0	24	24	12

* To be monitored at the Institute Level

**Teaching Load

LIST OF ABILITY ENHANCEMENT COURSES

Course Code	Course	Category	L	T	P	Credits
23AEC101/23AEC151	Professional English/Communicative English Lab	AEC	2	0	2	3
23AEC102/ 23AEC103/ 23AEC104	Hindi-I/FRENCH-I/GERMAN-I	AEC	2	0	0	2
23AEC202/ 23AEC203/ 23AEC204	Hindi-II/ FRENCH-II/GERMAN-II	AEC	2	0	0	2

LIST OF SKILL ENHANCEMENT COURSES

Course Code	Course	Category	L	T	P	Credits
TECHNICAL TRAINING						
	Digital Marketing	SEC	0	0	2	1
	Introduction to SPSS	SEC	0	0	2	1
	Introduction to Hardware Description Language	SEC	0	0	2	1
	Wearable Technologies	SEC	0	0	2	1
SOFT SKILL						
23SS351	Effective Communication Skills	SEC	0	0	2	1
23SS452	Teamwork & Interpersonal Skills	SEC	0	0	2	1
23SS553	Presentation Skills	SEC	0	0	2	1
23SS654	Professional Skills	SEC	0	0	2	1
23AR755	Aptitude and Reasoning	SEC	0	0	2	1

LIST OF VALUE ADDED COURSES

Course Code	Course	Category	L	T	P	C
23VACXX	Environment Bioengineering	VAC	2	0	0	2
23VACXX	Indian Constitution and Polity	VAC	2	0	0	2
23VACXX	Sports, Yoga and Fitness	VAC	2	0	0	2

LIST OF MULTIDISCIPLINARY COURSES (HUMANITIES & SOCIAL SCIENCES COURSES) (HSS)

Code	Category	Course	L	T	P	C
23MDCXXX/ 23MDCXXX/ 23MDCXXX/ 23MDCXXX/ 23MDCXXX	MDC-I	Statistical Methods Environment Geoscience & Disaster Management IPR in Business Library Information Science & Media Literacy Management Process & Organizational Behaviour	 3 3	 0 0	 0 0	 3
23MDCXXX/ 23MDCXXX/ 23MDCXXX/ 23MDCXXX/ 23MDCXXX	MDC-II	Photonics Chemistry & Society Psychology and Emotional Intelligence Indian Economy Creating an Entrepreneurial Mind	 3 3	 0 0	 0 0	 3
23MDCXXX/ 23MDCXXX/ 23MDCXXX/ 23MDCXXX	MDC-III	Life Sciences & Public Health Electoral Literacy in India Personal Financial Planning Interior Design	 3 3	 0 0	 0 0	 3

LIST OF DEPERTMENTAL ELECTIVE COURSES

1. Specialization-I

Elective	Course Code	Course	Category	L	T	P	C
I	23CSPE2007	Computer Architecture & Organization	PE	3	1	0	4
II	23CSPE2004	Theory of Computation	PE	3	1	0	4
III	23CSPE2008/ 23CSPE2118	Analysis and Design of Algorithms /Lab	PE	3	0	1	4
IV	23CSPE3001/ 23CSPE3117	Compiler Design/Lab	PE	3	1	1	5
V	23CSPE3003/ 23CSPE3113	Computer Networks/Lab	PE	3	1	1	5
VI	23CSPE3004/ 23CSPE3118	Software Engineering/Lab	PE	3	0	1	4
VII	23CSPE3030	Neural Networks & Fuzzy Logic	PE	3	1	0	4
	23CSPE3038	Business Intelligence	PE	3	1	0	4
	23CSPE4037	NASSCOM Associate Analytics – II	PE	3	1	0	4
	23CSPE3032	Cyber Security	PE	3	1	0	4
VIII	23CSPE4025	Data Warehousing & Data Mining	PE	3	1	0	4
	23CSPE4039	NASSCOM Associate Analytics – III	PE	3	1	0	4
	23CSPE4019	Network Security & Cryptography	PE	3	1	0	4

2. Specialization-II

Elective	Course Code	Course	Category	L	T	P	C
I	23CSPE2007	Computer Architecture & Organization	PE	3	1	0	4
II	23CSPE2004	Theory of Computation	PE	3	1	0	4
III	23CSPE2008/ 23CSPE2118	Analysis and Design of Algorithms /Lab	PE	3	0	1	4
IV	23CSPE3001/ 23CSPE3117	Compiler Design/Lab	PE	3	1	1	5
V	23CSPE3003/ 23CSPE3113	Computer Networks/Lab	PE	3	1	1	5
VI	23CSPE3004/ 23CSPE3118	Software Engineering/Lab	PE	3	0	1	4
VII	23CSPE3024	Software Project Management	PE	3	1	0	4

VIII	23CSPE3028	Object Oriented Analysis & Design	PE	3	1	0	4
	23CSPE3034	Design Thinking	PE	3	1	0	4
	23CSPE4033	Software Testing	PE	3	1	0	4
	23CSPE4031	Open Source Software	PE	3	1	0	4

3. Specialization-III

Elective	Course Code	Course	Category	L	T	P	C
I	23CSPE2007	Computer Architecture & Organization	PE	3	1	0	4
II	23CSPE2004	Theory of Computation	PE	3	1	0	4
III	23CSPE2008/23CSPE2118	Analysis and Design of Algorithms /Lab	PE	3	0	1	4
IV	23CSPE3001/23CSPE3117	Compiler Design/Lab	PE	3	1	1	5
V	23CSPE3003/23CSPE3113	Computer Networks/Lab	PE	3	1	1	5
VI	23CSPE3004/ 23CSPE3118	Software Engineering/Lab	PE	3	0	1	4
VII	23CSPE3020	Distributed Operating System	PE	3	1	0	4
	23CSPE3026	Grid Computing	PE	3	1	0	4
	23CSPE3040	Internet of Things	PE	3	1	0	4
VIII	23CSPE4023	Wireless Adhoc and Sensor Network	PE	3	1	0	4
	23CSPE4035	Advanced Java Programming	PE	3	1	0	4
	23CSPE4027	Mobile Computing	PE	3	1	0	4