

Study Scheme for B.Tech – CSE (Cyber Security) (Batch 2023)

NEP 2020 Implementation in B.Tech – CSE (Cyber Security)

S. No.	Certification Type	Stage of Exit	Programme duration	Mandatory credits to be secured for the certification
1	Undergraduate Certificate in Computer Science & Engineering	For those who exit after the first year (2 semesters) of the undergraduate programme.	First year or 2 semesters of the undergraduate programme	44
2	Undergraduate Diploma in Computer Science & Engineering	For those who exit after two years (4 semesters) of the undergraduate programme	First two years or 4 semesters of the undergraduate programme	84
3	Bachelor of Science in Computer Science & Engineering	For those who exit after three years (6 semesters) of the undergraduate programme	First three years or 6 semesters of the undergraduate programme	124
4	Bachelor of Technology in Computer Science and Engineering	For those who exit after four years (8 semesters) of the undergraduate programme	First four years or 8 semesters of the undergraduate programme	160
Multiple Entry				
	Entry Level	Eligibility		
1	Second Year (3 rd Semester)	<ul style="list-style-type: none"> • Subject to availability of seats in respective category and programme. • Student must have earned required number of credits defined in the respective programme. • Subject to the equivalence verification of credits from the department admission committee. • Admission will be on the basis of merit in the last qualified exam. • Any other criteria decided by the department from time to time. 		

Annexure – IVA (B. Tech. CSE (Cyber Security), Admitted in 2023-24)

2	Third Year (5 th Semester)	<ul style="list-style-type: none">• Subject to availability of seats in respective category and programme.• Student must have earned required number of credits defined in the respective programme.• Subject to the equivalence verification of credits from the department admission committee.• Admission will be on the basis of merit in the last qualified exam.• Any other criteria decided by the department from time to time.
3	Fourth Year (7 th Semester)	<ul style="list-style-type: none">• Subject to availability of seats in respective category and programme.• Student must have earned required number of credits defined in the respective programme.• Subject to the equivalence verification of credits from the department admission committee.• Admission will be on the basis of merit in the last qualified exam.• Any other criteria decided by the department from time to time.

Annexure – IVA (B. Tech. CSE (Cyber Security), Admitted in 2023-24)

Semester –I

Course Code	Course Title	Credits		L	T	P	M1		M2		MJ		CIA		Total
		L	P				L	P	L	P	L	P			
	Induction Program	0		0	0	0	0		0		0		0		0
BECCS1C014	Engineering Mathematics - I	4		3	1	0	20		20		50		10		100
BECCS1C015	Engineering Physics - I	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECCS1C016	English for Technical Communication	4		3	1	0	20		20		50		10		100
BECCS1C017	Data Structure using C Programming	4	2	3	1	4	20	10	20	10	50	20	10	10	150
BECCS1C018	Problem Solving and Computer Programming in C	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECCS1C019	Environment Studies (Audit Course)*	0	0								50*				50*
Total		24		15	5	8	100	20	100	20	250	40	50	20	600

* **Audit Course: Course without credit and qualifying in nature**

Semester –II

Course Code	Course Title	Credits		L	T	P	M1D		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS1C020	Engineering Mathematics – II	3		3	0	0	22.5		37.5		15		75
BECCS1C021	Data Science	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS1C022	Basic Electronics	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS1C023	Computer Architecture	3		3	0	0	22.5		37.5		15		75
BECCS1C024	Professional Communication	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS1C025	Introduction to Biology	2		2	0	0	15		25		10		50
***	MOOC course from Swayam/NPTEL/Open Elective course offered by other Department related to Rights, Responsibilities, Law and Constitution (Audit Course)*	0	0						50*				50*
Total		20		17	0	6	127.5	22.5	212.5	37.5	85	15	500

* Audit Course: Course without credit and qualifying in nature

Mandatory Internship/Apprenticeship

Students will have to take up summer internship/training/MOOC Course of 4-6 weeks (40/60 Hrs.) at industry/organizations of repute/online platforms after 2th semester, that will be accredited in 3th semester.

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Semester –III

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS2C015	Discrete Mathematics	3		3	0	0	22.5		37.5		15		75
BECCS2C016	Artificial Intelligence	3		3	0	0	22.5		37.5		15		75
BECCS2C017	Design and Analysis of Algorithms	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C018	Data Communication & Computer Networks	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C019	Object Oriented Programming using C++	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
***	MOOC course from Swayam/NPTEL/Open Elective course offered by other Department related to Professional Ethics (Audit Course)*	0	0						50*				50*
***	MOOC course from Swayam/NPTEL/Open Elective course offered by other Department related to Indian Knowledge Systems (Audit Course)*	0	0						50*				50*
BECCS2I002	Internship /Apprenticeship**		2	0	0	4				50			50
Total		20		15	0	10	112.5	22.5	187.5	87.5	75	15	500

* **Audit Course: Course without credit and qualifying in nature**

****4-6 weeks Mandatory Internship/Training undertaken after 2nd semester during summer vacations.**

SEMESTER IV

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS2C022	DBMS	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C023	Cyber Security Risk & Incident Management	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C024	Operating System	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C025	Software Engineering	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C026	Digital Electronics	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
***	MOOC course from Swayam/NPTEL/Open Elective course offered by other Department related to Universal Human Value (Audit Course)*	0	0						50*				50*
Total		20	15	0	10	112.5	37.5	187.5	62.5	75	25	500	

*Audit Course: Course without credit and qualifying in nature

Mandatory Internship/Training

Students will have to take up summer internship/training/MOOC Course of 4 - 6 weeks (40/60 Hrs.) at industry/organizations of repute/online platforms after 4th semester, that will be accredited in 5th semester.

Annexure – IVA (B. Tech. CSE (Cyber Security), Admitted in 2023-24)

SEMESTER V

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
		BECCS3C015	Introduction to Information & Network Security				3	1	3	0	2	22.5	
BECCS3C016	Machine Learning	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS3C017	Cyber Security Laws and Ethics	3		3	0	0	22.5		37.5		15		75
BECCS3C018	Cyber Security Project Management	3		3	0	0	22.5		37.5		15		75
#	Elective – I	4		4	0	0	30		50		20		100
***	MOOC course from Swayam/NPTEL/Open Elective course offered by other Department related to Industrial Economics (Audit Course)*	0	0						50				50*
BECCS3I002	Internship/ Training**		2	0	0	4				50			50
Total		20		16	0	8	120	15	200	75	80	10	500

* **Audit Course: Course without credit and qualifying in nature**

4 - 6 weeks **Mandatory Internship/Training undertaken after 4th semester during summer vacations.

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SEMESTER VI

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS3C021	Cyber Policy & Governance	3		3	0	0	22.5		37.5		15		75
BECCS3C022	Deep Learning	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS3C023	Cyber Physical Systems	3		3	0	0	22.5		37.5		15		75
BECCS3C024	Internet of Things	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
#	Elective – II	4		4	0	0	30		50		20		100
***	MOOC course from Swayam/NPTEL/Open Elective course offered by other Department related to Human Resource Management (Audit Course)*	0	0						50				50*
BECCS3C027	Project – I		2	0	0	4		15		25		10	50
Total		20		16	0	8	120	30	200	50	80	20	500

* Audit Course: Course without credit and qualifying in nature

Mandatory Internship/Training

Students will have to take up summer internship/training/MOOC Course of 4 - 6 weeks (40/60 Hrs.) at industry/organizations of repute/online platforms after 6th semester, that will be accredited in 7th semester.

Annexure – IVA (B. Tech. CSE (Cyber Security), Admitted in 2023-24)

SEMESTER VII

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS4C007	Digital Forensics & Cyber Security	3		3	0	0	22.5		37.5		15		75
#	Elective – III	4		4	0	0	30		50		20		100
#	Elective – IV	4		4	0	0	30		50		20		100
BECCS4C010	Project – II		5	0	0	10		37.5		62.5		25	125
***	MOOC course from Swayam/NPTEL (Audit Course)*	0	0						50				50*
BECCS3C028	Internship/ Training **		4	0	0	8				100			100
Total		20		11	0	18	82.5	37.5	137.5	162.5	55	25	500

*Audit Course: Course without credit and qualifying in nature

**4-6 weeks Mandatory Internship/Training undertaken after 6th semester during summer vacations.

SEMESTER VIII

Course Code	Course Title	Credits	L	T	P	MID	END	CIA	Total
BECCS4P001	Industrial Training/Major Project	16	0	0	32	120	200	80	400
Total		16	0	0	32	120	200	80	400

Annexure – IVA (B. Tech. CSE (Cyber Security), Admitted in 2023-24)

List of Elective Course: Pool-I (For Elective-I)						
Course Code	Course Title	Credits		L	T	P
		L	P			
BECCS0O001	Computer Vision	4	-	4	0	0
BECCS0O002	Computer & Network Security	4	-	4	0	0
BECCS0O003	Foundations of Data Science	4	-	4	0	0
BECCS0O004	UI & UX Design	4	-	4	0	0
BECCS0O005	Accelerated Data Science	4	-	4	0	0
BECCS0O006	Basics of Robotics and AI	4	-	4	0	0
# List of Elective Course: Pool-II (For Elective-II)						
BECCS0O007	3D Modelling and Animation	4	-	4	0	0
BECCS0O008	Secure Coding	4	-	4	0	0
BECCS0O009	Predictive Analytics Using Statistics	4	-	4	0	0
BECCS0O010	NoSQL Databases	4	-	4	0	0
BECCS0O011	Data Mining and Warehousing	4	-	4	0	0
BECCS0O012	Edge Computing Fundamentals	4	-	4	0	0
# List of Elective Course: Pool-III (For Elective-III)						
BECCS0O013	Game Design & Development	4	-	4	0	0
BECCS0O014	Psychology of Cyber Criminal	4	-	4	0	0
BECCS0O015	Data Science Applications: NLP, Computer Vision and IOT	4	-	4	0	0
BECCS0O016	Software Testing & Automation	4	-	4	0	0
BECCS0O017	Natural Language Processing	4	-	4	0	0
BECCS0O018	Embedded Vision	4	-	4	0	0
# List of Elective Course: Pool-IV (For Elective-IV)						
BECCS0O019	Augmented and Virtual Reality	4	-	4	0	0
BECCS0O020	Blockchain Technology and Applications	4	-	4	0	0

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BECCS00021	Building Innovative Systems	4	-	4	0	0
BECCS00022	Cloud & DevOps	4	-	4	0	0
BECCS00023	Speech Processing & Synthesis	4	-	4	0	0
BECCS00024	Reinforcement Learning	4	-	4	0	0

Annexure – IVA (B. Tech. CSE (Cyber Security), Admitted in 2023-24)

Semester Wise Credits for B.Tech.(Computer Science and Engineering)

Category of Course	Semesters								Credit Breakup
	I	II	III	IV	V	VI	VII	VIII	
Basic Sciences Courses	9	5	3						17
Humanities and Social Sciences including Management courses	4	4							8
Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.		4		4					8
Professional core courses	11	7	15	16	14	14	3		80
Professional Elective courses					4	4	8		16
Project Work & Internship/Training			2		2	2	9	16	31
Audit Course									
	24	20	20	20	20	20	20	16	160