

**Study Scheme for B.Tech – CSE(Cyber Security) (Batch 2022)**

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

<b>S. No.</b>	<b>Certification Type</b>	<b>Stage of Exit</b>	<b>Programme duration</b>	<b>Mandatory credits to be secured for the certification</b>
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	48
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	95
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	135
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	171
<b>Multiple Entry</b>				
	<b>Entry Level</b>	<b>Eligibility</b>		
1	Second Year (3 <sup>rd</sup> Semester)	<ul style="list-style-type: none"> <li>• Subject to availability of seats in respective category and programme.</li> <li>• Student must have earned required number of credits defined in the respective programme.</li> <li>• Subject to the equivalence verification of credits from the department admission committee.</li> <li>• Admission will be on the basis of merit in the last qualified exam.</li> <li>• Any other criteria decided by the department from time to time.</li> </ul>		

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

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

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**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		0
BECCS1C001	Engineering Mathematics – I	4	0	3	1	0	20		20		50		10		100
BECCS1C002	Engineering Physics – I	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECCS1C003	English for Technical Communication	4	0	3	1	0	20		20		50		10		100
BECCS1C004	Data Structure using C Programming	4	2	3	1	4	20	10	20	10	50	20	10	10	150
BECCS1C005	Problem Solving and Computer Programming in C	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECCS1C006	Environment Studies (Audit Course)*	0	0								50				50*
<b>Total</b>		<b>24</b>		<b>15</b>	<b>5</b>	<b>8</b>	<b>100</b>	<b>20</b>	<b>100</b>	<b>20</b>	<b>250</b>	<b>40</b>	<b>50</b>	<b>20</b>	<b>600</b>

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**Semester –II**

Course Code	Course Title	Credits		L	T	P	M1		M2		MJ		CIA		Total
		L	P				L	P	L	P	L	P			
BECCS1C007	Engineering Mathematics - II	4		3	1	0	20		20		50		10		100
BECCS1C008	Data Science	4		3	1	0	20		20		50		10		100
BECCS1C009	Basic Electronics	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECCS1C010	Object Oriented Programming using C++	4	2	3	1	4	20	10	20	10	50	20	10	10	150
BECCS1C011	Professional Communication	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECCS1C012	Rights, Responsibilities, Law and Constitution (Audit Course)*	0	0								50				50*
<b>Total</b>		<b>24</b>		<b>15</b>	<b>5</b>	<b>8</b>	<b>100</b>	<b>20</b>	<b>100</b>	<b>20</b>	<b>250</b>	<b>40</b>	<b>50</b>	<b>20</b>	<b>600</b>

**Mandatory Internship/Apprenticeship:** Students will have to take up summer/training/MOOC Course of 4-6 weeks (40/60 hrs) at industry/organizations of repute/online platforms after 2<sup>nd</sup> semester that will be accredited in 3<sup>rd</sup> semester.

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**Semester –III**

Course Code	Course Title	Credits		L	T	P	M1		M2		MJ		CIA		Total
		L	P				L	P	L	P	L	P			
BECCS2C001	Discrete Mathematics	4		3	1	0	20		20		50		10		100
BECCS2C002	Introduction to Cyber Security	4		3	1	0	20		20		50		10		100
BECCS2C003	Computer Architecture	4		3	1	0	20		20		50		10		100
BECCS2C004	Design and Analysis of Algorithms	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECCS2C005	Python Programming	2	3	2	0	6	10	15	10	15	25	30	5	15	125
BECCS2C006	Professional Ethics	2		2	0	0	10		10		25		5		50
BECCS2C007	Indian Knowledge System (Audit Course)*	0	0								50*				50*
BECCS2I001	Internship/Apprenticeship		3	0	0	6						75			75
<b>Total</b>		<b>27</b>		<b>16</b>	<b>4</b>	<b>14</b>	<b>100</b>	<b>20</b>	<b>100</b>	<b>20</b>	<b>250</b>	<b>115</b>	<b>50</b>	<b>20</b>	<b>675</b>

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**SEMESTER IV**

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS2C008	DBMS	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C009	Cyber Security Risk & Incident Management	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C010	Data Communication & Computer Networks	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C011	Operating Systems	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS2C012	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*
<b>Total</b>		<b>20</b>	<b>15</b>	<b>0</b>	<b>10</b>	<b>112.5</b>	<b>37.5</b>	<b>187.5</b>	<b>62.5</b>	<b>75</b>	<b>25</b>	<b>500</b>	

**Mandatory Internship/Apprenticeship:** Students will have to take up summer/training/MOOC Course of 4-6 weeks (40/60 hrs) at industry/organizations of repute/online platforms after 4<sup>th</sup> semester that will be accredited in 5<sup>th</sup> semester.

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**SEMESTER V**

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
		BECCS3C001	Introduction to Information & Network Security				3	1	3	0	2	22.5	
BECCS3C002	Machine Learning	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS3C003	Cyber Security Laws and Ethics	3		3	0	0	22.5		37.5		15		75
BECCS3C004	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*
BECCS3I001	Internship/ Training**		2	0	0	4				50			50
<b>Total</b>		<b>20</b>		<b>16</b>	<b>0</b>	<b>8</b>	120	15	200	75	80	10	<b>500</b>

# Students has to choose any one Elective from Course-1(BECSE00001) to Course-6 (BECSE00006) from the list of Elective Courses.

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

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**SEMESTER VI**

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS3C007	Cyber Policy & Governance	3		3	0	0	22.5		37.5		15		75
BECCS3C008	Deep Learning	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECCS3C009	Cyber Physical Systems	3		3	0	0	22.5		37.5		15		75
BECCS3C010	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
***	Human Resource Management In-house/MOOC course from Swayam/NPTEL (Audit Course)*	0	0						50				50*
BECCS3C013	Project – I		2	0	0	4		15		25		10	50
<b>Total</b>		<b>20</b>		<b>16</b>	<b>0</b>	<b>8</b>	120	30	200	50	80	20	<b>500</b>

# Student shall be offered the Elective-II as per Elective-I selected earlier i.e. Course code of Elective-I + 6

For Example: If a candidate has selected BECCS00001 then Elective-II offered to the student shall be BECCS00007.

If a candidate has selected BECCS00004 then Elective-II offered to the student shall be BECCS00010.

**Mandatory Internship/Apprenticeship:** Students will have to take up summer/training/MOOC Course of 4-6 weeks (40/60 hrs) at industry/organizations of repute/online platforms after 6<sup>th</sup> semester that will be accredited in 7<sup>th</sup> semester.



Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**SEMESTER VII**

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECCS4C001	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
BECCS4C004	Project – II		5	0	0	10		37.5		62.5		25	125
***	MOOC course from Swayam/NPTEL (Audit Course)*	0	0						50*				50*
BECCS4I001	Internship/ Training **		4	0	0	8				100			100
<b>Total</b>		<b>20</b>		<b>11</b>	<b>0</b>	<b>18</b>	82.5	37.5	137.5	162.5	55	25	<b>500</b>

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

# Student shall be offered the Elective-III and Elective-IV as per Elective-I selected earlier i.e.

Course code of Elective-III shall be Elective-I + 12 and Course code of Elective-IV shall be Elective-I + 18

For Example: If a candidate has selected BECCS0O001 then Elective-III offered to the student shall be BECCS0O013 and Elective-IV offered to the student shall be BECCS0O019.

If a candidate has selected BECCS0O004 then Elective-III offered to the student shall be BECCS0O016 and Elective-IV offered to the student shall be BECCS0O022.

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

**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
<b>Total</b>		<b>16</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>120</b>	<b>200</b>	<b>80</b>	<b>400</b>

<b># List of Elective Course: Pool-I (For Elective-I)</b>						
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
<b># List of Elective Course: Pool-II (For Elective-II)</b>						
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
<b># List of Elective Course: Pool-III (For Elective-III)</b>						
BECCS0O013	Game Design & Development	4	-	4	0	0
BECCS0O014	Cyber Forensics	4	-	4	0	0

Annexure – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

BECCS00015	Data Science Applications: NLP, Computer Vision and IOT	4	-	4	0	0
BECCS00016	Software Testing & Automation	4	-	4	0	0
BECCS00017	Natural Language Processing	4	-	4	0	0
BECCS00018	Embedded Vision	4	-	4	0	0
<b># List of Elective Course: Pool-IV (For Elective-IV)</b>						
BECCS00019	Augmented and Virtual Reality	4	-	4	0	0
BECCS00020	Blockchain Technology and Application	4	-	4	0	0
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 – IIA (B. Tech. CSE (Cyber Security), Admitted in 2022-23)

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

Category of Course	Semesters								Credit Breakup
	I	II	III	IV	V	VI	VII	VIII	
<b>Basic Sciences Courses</b>	9	4	4						17
<b>Humanities and Social Sciences including Management courses</b>	4	5	2						11
<b>Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.</b>		5		4					9
<b>Professional core courses</b>	11	10	18	16	14	14	3		86
<b>Professional Elective courses</b>					4	4	8		16
<b>Project Work &amp; Internship/Training</b>			3		2	2	9	16	32
<b>Audit Course</b>	24	24	27	20	20	20	20	16	171