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

NEP 2020 Implementation in B.Tech - CSE

S. No.	Certification Type	Stage of Exit	Programme duration	Mandatory creditsto be secured forthe 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 (3rd Semester)	• 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.		

2	Third Year (5th Semester)	- 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 (7th Semester)	- 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.

Semester –I

Course Code	Course Title	Credits		L	T	P	M1		M2		MJ		CIA		Total
		L	P				L	P	L	P	L	P	L	P	
	Induction Program	0		0	0	0	0		0		0		0		0
BECSE1C014	Engineering Mathematics - I	4		3	1	0	20		20		50		10		100
BECSE1C015	Engineering Physics - I	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECSE1C016	English for Technical Communication	4		3	1	0	20		20		50		10		100
BECSE1C017	Data Structure using C Programming	4	2	3	1	4	20	10	20	10	50	20	10	10	150
BECSE1C018	Problem Solving and Computer Programming in C	4	1	3	1	2	20	5	20	5	50	10	10	5	125
BECSE1C019	Environment Studies (Audit Course)*	0	0								50				50
Total		24		15	5	8	100	20	100	20	250	40	50	20	600

Note: 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 2nd semester, that will be accredited in 3rd semester.

Semester –II

Course Code	Course Title	Credits		L	T	P	M1D		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECSE1C020	Engineering Mathematics - II	3		3	0	0	22.5		37.5		15		75
BECSE1C021	Data Science	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE1C022	Basic Electronics	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE1C023	Computer Architecture	3		3	0	0	22.5		37.5		15		75
BECSE1C024	Professional Communication	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE1C025	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**

Semester –III

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECSE2C015	Discrete Mathematics	3		3	0	0	22.5		37.5		15		75
BECSE2C016	Artificial Intelligence	3		3	0	0	22.5		37.5		15		75
BECSE2C017	Design and Analysis of Algorithms	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE2C018	Data Communication & Computer Networks	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE2C019	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*
BECSE2I002	Internship /Apprenticeship**		2	0	0	4				50	-		50
Total		**20**		**15**	**0**	**10**	**112.5**	**22.5**	**187.5**	**87.5**	**75**	**15**	**500**

SEMESTER IV

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECSE2C022	DBMS	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE2C023	Machine Learning	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE2C024	Operating Systems	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE2C025	Software Engineering	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE2C026	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**

Note: 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 4th semester, that will be accredited in 5th semester

SEMESTER V

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECSE3C015	Introduction to Information & Network Security	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE3C016	Theory of Computation	3		3	0	0	22.5		37.5		15		75
BECSE3C017	Internet of Things (IoT)	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE3C018	Cloud Computing	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 (Open Elective)	0	0						50*				50*
BECSE3I002	Internship/ Training**		2	0	0	4				50			50
Total		**20**		**16**	**0**	**8**	**120**	**15**	**200**	**75**	**80**	**10**	**500**

Students has to choose any one Elective from Course-1 (BECSE0O001) to Course-6 (BECSE0O006) from the list of Elective Courses
**4 - 6 weeks Mandatory Internship/Training undertaken after 4th semester during summer vacations.

SEMESTER VI

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECSE3C021	Big Data Analytics	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE3C022	Deep Learning	3	1	3	0	2	22.5	7.5	37.5	12.5	15	5	100
BECSE3C023	Block Chain	3		3	0	0	22.5		37.5		15		75
BECSE3C024	Cyber Physical Systems	3		3	0	0	22.5		37.5		15		75
#	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 Mangaement (Audit Course)*	0	0						50				50*
BECSE3C027	Project – I		2	0	0	4		15		25		10	50
Total		**20**		**16**	**0**	**8**	**120**	**30**	**200**	**50**	**80**	**20**	**500**

\# 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 BECSE0O001 then Elective-II offered to the student shall be BECSE0O007

If a candidate has selected BECSE04O004 the Elective-II offered to thestudent shall be BECSE0O010.

Note: 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 4th semester, that will be accredited in 5th semester

SEMESTER VII

Course Code	Course Title	Credits		L	T	P	MID		END		CIA		Total
		L	P				L	P	L	P	L	P	
BECSE4C007	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
BECSE4C010	Project – II		5	0	0	10		37.5		62.5		25	125
***	MOOC course from Swayam/NPTEL (Audit Course)*	0	0						50*				50*
BECSE3C027	Internship/ Training**		4	0	0	8				100			100
Total		**20**		**11**	**0**	**18**	**82.5**	**37.5**	**137.5**	**162.5**	**55**	**25**	**500**

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

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 BECSE0O001 then Elective-III offered to the student shall be BECSE0O013 and Elective-IV offered to the student shall be BECSE0O019.

If a candidate has selected BECSE04O004 the Elective-III offered to the student shall be BECSE0O016 and Elective-IV offered to the student shall be BECSE0O022.

SEMESTER VIII

Course Code	Course Title	Credits	L	T	P	MID	END	CIA	Total
BECSE4P002	Industrial Training/Major Project	16	0	0	32	120	200	80	400
Total		**16**	**0**	**0**	**32**	**120**	**200**	**80**	**400**

Annexure – IIIA (B. Tech. CSE, Admitted in 2023-24)

List of Elective Course: Pool-I (For Elective-I)						
Course Code	**Course Title**	**Credits**		**L**	**T**	**P**
		L	**P**			
BECSE0O001	Computer Vision	4	-	4	0	0
BECSE0O002	Computer & Network Security	4	-	4	0	0
BECSE0O003	Foundations of Data Science	4	-	4	0	0
BECSE0O004	UI & UX Design	4	-	4	0	0
BECSE0O005	Accelerated Data Science	4	-	4	0	0
BECSE0O006	Basics of Robotics and AI	4	-	4	0	0
# List of Elective Course: Pool-II (For Elective-II)						
BECSE0O007	3D Modelling and Animation	4	-	4	0	0
BECSE0O008	Secure Coding	4	-	4	0	0
BECSE0O009	Predictive Analytics Using Statistics	4	-	4	0	0
BECSE0O010	NoSQL Databases	4	-	4	0	0
BECSE0O011	Data Mining and Warehousing	4	-	4	0	0
BECSE0O012	Edge Computing Fundamentals	4	-	4	0	0
# List of Elective Course: Pool-III (For Elective-III)						
BECSE0O013	Game Design & Development	4	-	4	0	0
BECSE0O014	Cyber Forensics	4	-	4	0	0
BECSE0O015	Data Science Applications: NLP, Computer Vision and IOT	4	-	4	0	0
BECSE0O016	Software Testing & Automation	4	-	4	0	0
BECSE0O017	Natural Language Processing	4	-	4	0	0
BECSE0O018	Embedded Vision	4	-	4	0	0
# List of Elective Course: Pool-IV (For Elective-IV)						
BECSE0O019	Augmented and Virtual Reality	4	-	4	0	0

BECSE0O020	Blockchain Technology and Applications	4	-	4	0	0
BECSE0O021	Building Innovative Systems	4	-	4	0	0
BECSE0O022	Cloud & DevOps	4	-	4	0	0
BECSE0O023	Speech Processing & Synthesis	4	-	4	0	0
BECSE0O024	Reinforcment Learning	4	-	4	0	0

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	6	3						18
Humanities and Social Sciences including Management courses	4	2							6
Engineering Science courses including workshop, drawing, basics of electrical/ mechanical/computer etc.		4		4					8
Professional core courses	11	8	15	16	14	14	3		81
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