Graduation Requirement (Computer Engineering) Batch-2024

Sl. No.	Course Code	Course Title	Hours per week			Credits	Pre-requisite
			L	T	P		
1.	BPP-151	Waves and Optics and Introduction to Quantum Mechanics	3	1	2	5	NIL
2.	BPM-143	Calculus and Linear Algebra	3	1	0	4	NIL
3.	TEE-104	Basic Electrical Engineering	3	1	2	5	NIL
4.	TCE-114	Engineering Graphics & Design	1	0	2x2	3	NIL
5.	BHS-186	English	2	0	2	3	NIL
6.	BHS-188	Industrial Sociology	3	0	0	3	NIL
7.	BPC-102	Chemistry-I	3	0	3	4	NIL
8.	BPM-154	Multivariable Calculus, Transforms & Ordinary differential equations	3	1	0	4	NIL
9.	TIT-121	Programming for Problem Solving	3	0	2	4	NIL
10.	TIP-103	Workshop Practices	1	0	2x2	3	NIL
11.	BHS-286	Effective Technical Communication	3	0	0	3	NIL
12.	TID/ TSW/ TCE/ TME-109	Environmental Science and Disaster Management	3	0	0	3	NIL
13.	TWP-101	Work Programme	0	0	3	1	NIL
14.	TEC-301	Analog Electronic Circuits	3	0	2	4	NIL
15.	TCT-201	Data structures	3	0	2	4	NIL
16.	TCT-202	Digital Electronics	3	0	2	4	NIL

17.	BPS-228	Probability and Statistics	3	1	0	4	NIL
18.	TCT-203	Theory of Computing	3	0	0	3	NIL
19.	TCT-204	Discrete Mathematics	3	0	0	3	NIL
20.	TCT-206	File Organization & Processing	2	0	2	3	NIL
21.	TCT-207	Computer Organization &Architecture	2	0	2	3	NIL
22.	TCT-208	Microprocessor	2	0	2	3	NIL
23.	TCT-209	Design & Analysis of Algorithms	3	0	2	4	NIL
24.	BHS-100	Constitution of India	1	0	0	1	NIL
25.	TCT-210	Formal Language & Automata Theory	3	0	0	3	NIL
26.	TCT-212	Computational Scientific Tool	1	0	2	2	NIL
27.	TCT-306	Computer Communication Systems	2	0	2	3	NIL
28.	TCT-301	Programming Languages	2	0	2	3	NIL
29.	TCT-302	Software Engineering	2	0	0	2	NIL
30.	TCT-303	Database Management Systems	3	0	2	4	NIL
31.	TCT-304	System programming	2	0	2	3	NIL
32.	TCT-	Professional Elective-I	3	0	0	3	NIL
33.	TCT-307	Operating Systems	3	0	2	4	NIL
34.	TCT-308	Compiler Design	3	0	2	4	NIL
35.	TCT-316	Computer Networks	3	0	2	4	NIL
36.	TCT-	Professional Elective-II	3	0	0	3	NIL
37.	TCT-309	Computer & Society	2	0	0	2	NIL

38.	As per offering Department (OE-I)	Open Elective-I	3	0	0	3	NIL
39.	TCT-390	Seminar	0	0	2	1	NIL
40.	TCT-	Professional Elective-III	3	0	0	3	NIL
41.	TCT-	Professional Elective-IV	3	0	0	3	NIL
42.	TCT-	[3]**Professional Elective-V/MOOCs-I**	3	0	0	3	NIL
43.	As per offering Department (OE-II)	Open Elective-II	3	0	0	3	NIL
44.	TCT-401	Machine Learning	2	0	2	3	NIL
45.	TCT-495A	Project-I	0	0	4x2	4	NIL
46.	TCT-	[3]**Professional Elective-VI/MOOCs-II**	3	0	0	3	NIL
47.	As per offering Department (OE-III)	Open Elective-III	3	0	0	3	NIL
48.	As per offering Department (OE-IV)	[3]**Open Elective-IV/MOOCs-III**	3	0	0	3	NIL
49.	TCT-495B	Project-II	0	0	8x2	8	NIL
50.	TCT/TIT-191	Practical Training-I	0	0	0	2weeks	NIL
51.	TCT/TIT-291	Practical Training-II	0	0	0	2weeks	NIL

52.	TCT/TIT-391	Practical Training-III	0	0	0	4weeks	NIL
53.	TIP- 454	Principles of Management	2	0	0	2	NIL
54.	NSS-201	National Service Scheme OR	0	0	4	0	NIL
	NCC-201	NCC	0	0	4		NIL
55.	NSS-202	National Service Scheme OR	0	0	4	1	NIL
	NCC-202	NCC	0	0	4		NIL
56.	NSS-301	National Service Scheme OR	0	0	4	0	NIL
	NCC-301	NCC	0	0	4		NIL
57.	NSS-302	National Service Scheme OR	0	0	4	1	NIL
	NCC-302	NCC	0	0	4		NIL
58.	TIC-100	Induction Programme (2 Weeks)	0	0	0	2weeks	NIL
							Total credits 165

Note: **1.** Those students who have not taken Hindi at the High School or equivalent level will also require to

Register the course BHS-173 Elementary Hindi.

2. Students are allowed to register either in NSS or NCC.

3. MOOCs courses will be decided on the basis of availability of courses on NPTEL/SWAYAM at the time of offering and will be decided through the committee under the chairmanship of Head of the Department

Professional Elective Courses & Open Elective Courses for B.Tech.

Branch/Course: Computer Engineering

L: Lectures   **T: Tutorial**   **P: Practical**   **C: Credits**

Sl. No.	Type	Code	Course Title	L	T	P	C
1.	Professional Elective	TCT- 411	Parallel and distributed algorithms	3	0	0	3
		TCT- 412	Computational Complexity	3	0	0	3
		TCT- 415	Information Theory and Coding	3	0	0	3
		TCT- 416	Quantum Computing	3	0	0	3
		TCT- 417	Object Oriented Programming	3	0	0	3
2.	Professional Elective	TCT- 422	Advanced Computers Architecture	3	0	0	3
		TCT- 423	Distributed Systems	3	0	0	3
		TCT- 424	Embedded Systems	3	0	0	3
		TCT- 425	Fault Tolerant Computing	3	0	0	3
		TCT- 426	Real Time System	3	0	0	3
		TCT- 427	Ad-hoc & Sensor Networks	3	0	0	3
		TCT- 428	Internet of Things	3	0	0	3
3.	Professional Elective	TCT- 432	Artificial Intelligence	3	0	0	3
		TCT- 433	Data Mining	3	0	0	3
		TCT- 434	Soft Computing	3	0	0	3

		TCT- 435	Speech and Natural Language Processing	3	0	0	3
		TCT- 436	Neural Networks and Deep Learning	3	0	0	3
4.	Professional Elective	TCT- 461	Digital Image Processing	3	0	0	3
		TCT- 463	Cloud Computing	3	0	0	3
		TCT- 464	Human Computer Interaction	3	0	0	3
		TCT- 465	Optimization Techniques	3	0	0	3
		TCT- 466	Cryptography and Network Security	3	0	0	3
		TCT- 467	Computer Graphics & Animation	3	0	0	3
		TCT- 468	VLSI System Design	3	0	0	3
5.	Open Elective (To be offered to the Students of other Departments of Engineering)	TCT-381	Programming for Artificial Intelligence and Machine Learning Applications	3	0	0	3
		TCT-382	Data Science Applications	3	0	0	3
		TCT-481	Cyber Law and Ethics	3	0	0	3
		TCT-482	IoT Applications	3	0	0	3

Graduation Requirement (Computer Engineering) Batch-2024

Semester Wise Distribution: First Year

		Semester I (First year I-Semester)				
Sl. No.	**Course Code**	**Course Title**	**Hours per week**			**C**
			L	**T**	**P**	
1	BPC-102	Chemistry-I	3	0	3	4
2	BPM-143	Calculus and Linear Algebra	3	1	0	4
3	TEE-104	Basic Electrical Engineering	3	1	2	5
4	TID/ TSW/ TCE/ TME-109	Introduction to Environmental Engineering and Disasters	3	0	0	3
5	TIT-121	Programming for Problem Solving	3	0	2	4
6	TWP-101	Work Programme	0	0	3	1
7	TIC-100	Induction Programme (2 Weeks)	-	-	-	-
					Total Credits	**21**
		Semester II (First year II-Semester)				
1	BPP-151	Waves and Optics and Introduction to Quantum Mechanics	3	1	2	5
2	BPM-154	Multivariable Calculus, Transforms & Ordinary differential equations	3	1	0	4
3	TCE-114	Engineering Graphics & Design	1	0	2x2	3
4	TIP-103	Workshop Practices	1	0	2x2	3
5	BHS-186	English	2	0	2	3

6	BHS-188	Industrial Sociology	3	0	0	3
7	TCT/TIT-191	Practical Training-I (2 weeks)	-	-	-	-
				Total Credits		**21**

Semester Wise Distribution: Second Year

			Hours per week			C
Semester III (Second year I-Semester)						
Sl. No.	**Course Code**	**Course Title**	**L**	**T**	**P**	
1	TEC- 301	Analog Electronic Circuits	3	0	2	4
2	TCT-201	Data structures	3	0	2	4
3	TCT- 202	Digital Electronics	3	0	2	4
4	BPS-228	Probability and Statistics	3	1	0	4
5	TCT-203	Theory of Computing	3	0	0	3
6	TCT-204	Discrete Mathematics	3	0	0	3
7	NSS-201 /NCC-201	National Service Scheme / NCC	0	0	4	0
				Total Credits		**22**
Semester IV (Second year II-Semester)						
1	TCT-206	File Organization & Processing	2	0	2	3
2	TCT-207	Computer Organization & Architecture	2	0	2	3
3	TCT-208	Microprocessor	2	0	2	3
4	TCT-209	Design & Analysis of Algorithms	3	0	2	4

5	BHS-100	Constitution of India	1	0	0	1
6	TCT-210	Formal Language & Automata Theory	3	0	0	3
7	TCT- 212	Computational Scientific Tool	1	0	2	2
8	BHS286	Effective Technical Communication	3	0	0	3
9	NSS-202/ NCC-202	National Service Scheme/ NCC	0	0	4	1
10	TCT/TIT-291	Practical Training-II (2 weeks)	-	-	-	-
					Total Credits	**23**

Semester Wise Distribution: Third Year

Sl. No.	Course Code	Course Title	Hours per week			C
			L	T	P	
1	TCT-306	Computer Communication Systems	2	0	2	3
2	TCT-301	Programming Languages	2	0	2	3
3	TCT-302	Software Engineering	2	0	0	2
4	TCT-303	Database Management Systems	3	0	2	4
5	TCT-304	System programming	2	0	2	3
6	As per offering Department (OE-I)	Open Elective-I	3	0	0	3
7	NSS-301/NCC-301	National Service Scheme/ NCC	0	0	4	0
8	TCT-	Professional Elective-I	3	0	0	3

Semester V (Third year I-Semester)

			Total Credits	21

		Semester VI (Third year II-Semester)				
1	TCT-307	Operating Systems	3	0	2	4
2	TCT-308	Compiler Design	3	0	2	4
3	TCT-316	Computer Networks	3	0	2	4
4	TCT-309	Computer & Society	2	0	0	2
5	As per offering Department (OE-II)	Open Elective-II	-	-	-	3
6	TCT-390	Seminar	0	0	2	1
7	TCT/TIT-391	Practical Training-III	0	0	0	4weeks
8	NSS-302/NCC-302	National Service Scheme /NCC	0	0	4	1
			Total Credits			**19**

Semester Wise Distribution: Fourth Year

Sl. No.	Course Code	Course Title	Hours per week			C
			L	**T**	**P**	
		Semester VII (Fourth year I-Semester)				
1	TCT-	Professional Elective-II	3	0	0	3
2	TCT-	Professional Elective-III	3	0	0	3
3	TCT-	Professional Elective-IV	3	0	0	3
4	As per offering Department (OE-III)	Open Elective-III	3	0	0	3

5	TCT-401	Machine Learning	2	0	2	3
6	TCT-495A	Project-I	0	0	8	4
					Total Credits	**19**
Semester VIII (Fourth year II-Semester)						
1	TCT-	***Professional Elective-V/MOOCs-I**	3	0	0	3
2	TCT-	***Professional Elective-VI/MOOCs-II**	3	0	0	3
3	As per offering Department (OE-IV)	***Open Elective-IV/MOOCs-III**	3	0	0	3
4	TIP-454	Principles of Management	2	0	0	2
5	TCT-495B	Project-II	0	0	16	8
					Total Credits	**19**

Total Credits 165

*MOOCs courses will be decided on the basis of availability of courses on NPTEL/SWAYAM at the time of offering and will be decided through the committee under the chairmanship of Head of the Department

GRADUATION REQUIREMENT FOR B.TECH. (COMPUTER ENGINEERING)

LATERAL ENTRY (BATCH-2024)

Sl. No.	Course Code	Course Title	Hours per week			Credits	Pre-requisite
			L	T	P		
1.	TWP-101	Work Programme	0	0	3	1	NIL
2.	TEC-301	Analog Electronic Circuits	3	0	2	4	NIL
3.	TCT-201	Data structures	3	0	2	4	NIL
4.	TCT-202	Digital Electronics	3	0	2	4	NIL
5.	BPS-228	Probability and Statistics	3	1	0	4	NIL
6.	TCT-203	Theory of Computing	3	0	0	3	NIL
7.	TCT-204	Discrete Mathematics	3	0	0	3	NIL
8.	TCT-206	File Organization & Processing	2	0	2	3	NIL
9.	TCT-207	Computer Organization &Architecture	2	0	2	3	NIL
10.	TCT-208	Microprocessor	2	0	2	3	NIL
11.	TCT-209	Design & Analysis of Algorithms	3	0	2	4	NIL
12.	BHS-100	Constitution of India	1	0	0	1	NIL
13.	TCT-210	Formal Language & Automata Theory	3	0	0	3	NIL
14.	TCT-212	Computational Scientific Tool	1	0	2	2	NIL
15.	TCT-306	Computer Communication Systems	2	0	2	3	NIL
16.	TCT-301	Programming Languages	2	0	2	3	NIL

17.	TCT-302	Software Engineering	2	0	0	2	NIL
18.	TCT-303	Database Management Systems	3	0	2	4	NIL
19.	TCT-304	System programming	2	0	2	3	NIL
20.	TCT-	Professional Elective-I	3	0	0	3	NIL
21.	TCT-307	Operating Systems	3	0	2	4	NIL
22.	TCT-308	Compiler Design	3	0	2	4	NIL
23.	TCT-316	Computer Networks	3	0	2	4	NIL
24.	TCT-	Professional Elective-II	3	0	0	3	NIL
25.	TCT-309	Computer & Society	2	0	0	2	NIL
26.	As per offering Department (OE-I)	Open Elective-I	3	0	0	3	NIL
27.	TCT-390	Seminar	0	0	2	1	NIL
28.	TCT-	Professional Elective-III	3	0	0	3	NIL
29.	TCT-	Professional Elective-IV	3	0	0	3	NIL
30.	TCT-	[3]**Professional Elective-V/MOOCs-I**	3	0	0	3	NIL
31.	As per offering Department (OE-II)	Open Elective-II	3	0	0	3	NIL
32.	TCT-401	Machine Learning	2	0	2	3	NIL
33.	TCT-495A	Project-I	0	0	4x2	4	NIL
34.	TCT-	[3]**Professional Elective-VI/MOOCs-II**	3	0	0	3	NIL

No.	Code	Subject	L	T	P	Credits	Prerequisite
35.	As per offering Department (OE-III)	Open Elective-III	3	0	0	3	NIL
36.	As per offering Department (OE-IV)	[3]Open Elective-IV/MOOCs-III	3	0	0	3	NIL
37.	TCT-495B	Project-II	0	0	8x2	8	NIL
38.	TCT/TIT-191	Practical Training-I	0	0	0	2weeks	NIL
39.	TCT/TIT-291	Practical Training-II	0	0	0	2weeks	NIL
40.	TCT/TIT-391	Practical Training-III	0	0	0	4weeks	NIL
41.	TIP- 454	Principles of Management	2	0	0	2	NIL
42.	NSS-201	National Service Scheme OR	0	0	4	0	NIL
43.	NCC-201	NCC	0	0	4	0	NIL
44.	NSS-202	National Service Scheme OR	0	0	4	1	NIL
45.	NCC-202	NCC	0	0	4	1	NIL
46.	NSS-301	National Service Scheme OR	0	0	4	0	NIL
47.	NCC-301	NCC	0	0	4	0	NIL
48.	NSS-302	National Service Scheme OR	0	0	4	1	NIL
49.	NCC-302	NCC	0	0	4	1	NIL
50.	TWP-101	Work Programme	0	0	3	1	NIL

Total credits 124

Note: Note: **1.** Those students who have not taken Hindi at the High School or equivalent level will also require to

    Register the course BHS-173 Elementary Hindi.

    2. Students are allowed to register either in NSS or NCC.

    3. MOOCs courses will be decided on the basis of availability of courses on NPTEL/SWAYAM at the time of offering and will be decided through the committee under the chairmanship of Head of the Department

Professional Elective Courses& Open Elective Courses for B.Tech.

LATERAL ENTRY (BATCH-2024)

Branch/Course: Computer Engineering

L: Lectures   T: Tutorial   P: Practical   C: Credits

Sl. No.	Type	Code	Course Title	Hours per week			C
				L	T	P	
1.	Professional Elective	TCT- 411	Parallel and distributed algorithms	3	0	0	3
		TCT- 412	Computational Complexity	3	0	0	3
		TCT- 415	Information Theory and Coding	3	0	0	3
		TCT- 416	Quantum Computing	3	0	0	3
		TCT- 417	Object Oriented Programming	3	0	0	3
2.	Professional Elective	TCT- 422	Advanced Computers Architecture	3	0	0	3
		TCT- 423	Distributed Systems	3	0	0	3
		TCT- 424	Embedded Systems	3	0	0	3
		TCT- 425	Fault Tolerant Computing	3	0	0	3
		TCT- 426	Real Time System	3	0	0	3
		TCT- 427	Ad-hoc & Sensor Networks	3	0	0	3
		TCT- 428	Internet of Things	3	0	0	3
3.	Professional Elective	TCT- 432	Artificial Intelligence	3	0	0	3
		TCT- 433	Data Mining	3	0	0	3

		TCT- 434	Soft Computing	3	0	0	3
		TCT- 435	Speech and Natural Language Processing	3	0	0	3
		TCT- 436	Neural Networks and Deep Learning	3	0	0	3
4.	Professional Elective	TCT- 461	Digital Image Processing	3	0	0	3
		TCT- 463	Cloud Computing	3	0	0	3
		TCT- 464	Human Computer Interaction	3	0	0	3
		TCT- 465	Optimization Techniques	3	0	0	3
		TCT- 466	Cryptography and Network Security	3	0	0	3
		TCT- 467	Computer Graphics & Animation	3	0	0	3
		TCT- 468	VLSI System Design	3	0	0	3
5.	Open Elective (To be offered to the Students of other Departments of Engineering)	TCT-381	Programming for Artificial Intelligence and Machine Learning Applications	3	0	0	3
		TCT-382	Data Science Applications	3	0	0	3
		TCT-481	Cyber Law and Ethics	3	0	0	3
		TCT-482	IoT Applications	3	0	0	3

Graduation Requirement (Computer Engineering)

LATERAL ENTRY (BATCH-2024)

Semester Wise Distribution: First Year

Semester I (First year I-Semester)						
Sl. No.	**Course Code**	**Course Title**	**Hours per week**			**C**
			L	**T**	**P**	
1	TEC- 301	Analog Electronic Circuits	3	0	2	4
2	TCT-201	Data structures	3	0	2	4
3	TCT- 202	Digital Electronics	3	0	2	4
4	BPS-228	Probability and Statistics	3	1	0	4
5	TCT-203	Theory of Computing	3	0	0	3
6	TCT-204	Discrete Mathematics	3	0	0	3
7	NSS-201/ NCC-201	NSS/ NCC	0	0	4	0
					Total Credits	**22**
Semester II (First year II-Semester)						
1	TCT-206	File Organization & Processing	2	0	2	3
2	TCT-207	Computer Organization& Architecture	2	0	2	3
3	TCT-208	Microprocessor	2	0	2	3
4	TCT-209	Design & Analysis of Algorithms	3	0	2	4
5	BHS-100	Constitution of India	1	0	0	1
6	TCT-210	Formal Language & Automata Theory	3	0	0	3
7	TCT- 212	Computational Scientific Tool	1	0	2	2
8	BHS286	Effective Technical Communication	3	0	0	3

9	NSS-202/ NCC-202	NSS/ NCC	0	0	4	1
10	TCT295	Practical Training-II (2 weeks)	-	-	-	-
11	TWP-101	Work Programme	0	0	3	1
				Total Credits		**24**

Semester Wise Distribution: Second Year

Semester III (Second year I-Semester)						
Sl. No.	**Course Code**	**Course Title**	**Hours per week**			**C**
			L	**T**	**P**	
1	TCT-306	Computer Communication Systems	2	0	2	3
2	TCT-301	Programming Languages	2	0	2	3
3	TCT-302	Software Engineering	2	0	0	2
4	TCT-303	Database Management Systems	3	0	2	4
5	TCT-304	System programming	2	0	2	3
6	As per offering Department (OE-I)	Open Elective-I	3	0	0	3
7	NSS-301/ NCC-301	NSS/ NCC	0	0	4	0
8	TCT-	Professional Elective-I	3	0	0	3
				Total Credits		**21**
Semester IV (Second year II-Semester)						
1	TCT-307	Operating Systems	3	0	2	4
2	TCT-308	Compiler Design	3	0	2	4

3	TCT-316	Computer Networks	3	0	2	4
4	TCT-309	Computer & Society	2	0	0	2
5	As per offering Department (OE-I)	Open Elective-II	-	-	-	3
6	TCT-390	Seminar	0	0	2	1
7	TCT-395	Practical Training-III	0	0	0	4weeks
8	NSS-302/ NCC-302	NSS/ NCC	1	0	4	1
					Total Credits	**19**

Semester Wise Distribution: Third Year

Semester VII (Fourth year I-Semester)						
Sl. No.	**Course Code**	**Course Title**	**Hours per week**			**C**
			L	**T**	**P**	
1	TCT-	Professional Elective-II	3	0	0	3
2	TCT-	Professional Elective-III	3	0	0	3
3	TCT-	Professional Elective-IV	3	0	0	3
4	As per offering Department (OE-II)	Open Elective-III	3	0	0	3
5	TCT-401	Machine Learning	2	0	2	3
6	TCT-495A	Project-I	0	0	8	4
					Total Credits	**19**
Semester VIII (Fourth year II-Semester)						

1	TCT-	***Professional Elective-V/MOOCs-I**	3	0	0	3
2	TCT-	***Professional Elective-VI/MOOCs-II**	3	0	0	3
3	As per offering Department (OE-IV)	***Open Elective-IV/MOOCs-III**	3	0	0	3
4	TIP-454	Principles of Management	2	0	0	2
5	TCT-495B	Project-II	0	0	16	8
					Total Credits	**19**

Total Credits 124

*MOOCs courses will be decided on the basis of availability of courses on NPTEL/SWAYAM at the time of offering and will be decided through the committee under the chairmanship of Head of the Department