

Proposed Scheme & Syllabus
For
Bachelor of Technology
Computer Science & Engineering Department



National Institute of Technology
Delhi

A Choice Based Flexible Credit Requirement

Sl. No.	Category of Courses	Credits Offered	Minimum Credits to be Earned
1.	Basic Science Courses	26	26
2.	Other Engineering Courses	33	33
3.	Humanities and Social Science Courses	12	12
4.	Departmental Core Courses	68	68
5.	Elective Courses	21	15
6.	Open Elective Courses	06	03
7.	Other Mandatory Courses	09	09
8.	Departmental Major Projects	14	14

Minimum Credits Required for Award of B.Tech. (CSE) Degree = 180

COURSES OFFERED BY DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**SEMESTER - I**

Sl. No.	Course Code	Course Title	L	T	P	Credits
1.	CYL 100	Chemical Structures & Reactivity	3	1	0	4
2.	CSB 101	Problem Solving and Computer Programming	3	0	2	4
3.	MAL 101	Advanced Calculus	3	1	0	4
4.	MEB 100	Engineering Visualization	3	0	2	4
5.	HMB 101	Human Values and Ethics	3	0	2	4
6.	MEL 102	Engineering Mechanics	3	0	0	3
7.	CYP 100	Chemistry Laboratory	0	0	3	2
8.	MEP 103	Product Design and Realization Laboratory I	0	0	2	1
9.	EAP 101	Extra-Academic Activity	0	0	2	1
Total Credits			18	2	13	27

SEMESTER-II

Sl. No.	Course Code	Course Title	L	T	P	Credits
1.	PHL 100	Electromagnetic and Quantum Physics	3	1	0	4
2.	CSB 102	Data Structures	3	0	2	4
3.	MAL 151	Linear Algebra and Complex Analysis	3	1	0	4
4.	EEB 100	Introduction to Electrical and Electronics Engineering	3	0	2	4
5.	HMB 100	Professional Communication	3	0	2	4
6.	MEL 101	Environmental Studies	3	0	0	3
7.	PHP 100	Physics Laboratory	0	0	3	2
8.	MEP 104	Product Design and Realization Laboratory II	0	0	2	1
9.	EAP 102	Extra-Academic Activity	0	0	2	1
Total Credits			18	2	13	27

SEMESTER - III

Sl.No.	Course No.	Course Title	L	T	P	Credits
1.	MAL 241	Probability and Statistics	3	1	0	4
2.	ECB 206	Analog Electronics	3	0	2	4
3.	CSL 201	Discrete structures	3	1	0	4
4.	CSB 202	Database Management System	3	0	2	4
5.	ECB 204	Signals and Systems	3	0	2	4
6.	CSL 203	System Programming	3	1	0	4
7.	CSP 211	Colloquium/ Industrial Lecture/ Seminar	0	0	2	1
Total Credits			18	3	8	25

SEMESTER- IV

Sl.No.	Course No.	Course Title	L	T	P	Credits
1.	ECB 256	Communication Systems	3	0	2	4
2.	CSL 251	Theory of Computation	3	1	0	4
3.	CSB 252	Design and Analysis of Algorithms	3	0	2	4
4.	CSB 253	Software Engineering	3	0	2	4
5.	ECB 257	Digital Electronics and Logic Design	3	0	2	4
6.	CSB 27X	Elective I (From Bouquet I)	2	0	2	3
7.	MAP 281	Numerical Methods Lab	0	0	3	2
8.	CSP 312	Summer Internship-I (Credit will be added in next semester)	-	-	-	-
Total Credits			17	1	13	25

SEMESTER- V

Sl.No.	Course No.	Course Title	L	T	P	Credits
1.	CSB 301	Computer Organization	3	0	2	4
2.	CSL 36X	Elective-II (From Bouquet II)	3	0	0	3
3.	CSB 302	Operating System	3	0	2	4
4.	CSL 303	Artificial Intelligence	3	1	0	4
5.	CSB 304	Computer Networks	3	0	2	4
6.	HML 351	Engineering Economics & Accountancy	3	0	0	3
7.	CSP 311	Colloquium/ Industrial Lecture/ Seminar	0	0	2	1
8.	CSP 312	Summer Internship-I	-	-	-	1
Total Credits			18	1	8	24

SEMESTER- VI

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	CSB 351	Network Programming	3	0	2	4
2.	CSB 352	Data Mining	3	0	2	4
3	CSB 353	Compiler Design	3	0	2	4
4.	CSL 37X	Elective-III (From Bouquet III)	3	0	0	3
5.	ECB 355	Microprocessors and Interfacing	3	0	2	4
6.		Open Elective I	3	0	0	3
7.	HMP 352	Technical Communication	0	0	2	1
8.	CSP 411	Summer Internship/ Summer Project-II (Credit will be added in next semester)	-	-	-	-
Total Credits			18	0	10	23

SEMESTER- VII

Sl. No	Course No.	Course Title	L	T	P	Credits
1.	CSB 401	Theory of App Development	2	0	3	4
2.	CSL 4XX	Elective-IV (From Bouquet IV)	3	0	0	3
3.	CSL 4XX	Elective -V (From Bouquet IV)	3	0	0	3
4.		Open Elective - II	3	0	0	3
5.	CSP 400	Project Work	0	0	6	4
7.	CSP 411	Summer Internship-II	-	-	-	1
Total Credits			11	0	9	18

SEMESTER- VIII

Sl.No.	Course No.	Course Title	L	T	P	Credits
1.	CSB 451	Network Security and Cryptography	3	0	2	4
2.	CSL 4XX	Elective -VI (From Bouquet IV)	3	0	0	3
3.	CSL 4XX	Elective-VII (From Bouquet IV)	3	0	0	3
4.	CSP 450	Project Work	0	0	15	10
Total Credits			9	0	17	20

ELECTIVE COURSES**BOUQUET I**

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	CSB 271	Java Technologies	2	0	2	3
2.	CSB 272	Foundation of Programming	2	0	2	3
3.	CSB 273	Object Oriented Programming	2	0	2	3
4.	CSB 274	Web Programming	2	0	2	3

BOUQUET II

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	CSL 371	Advances in Algorithms	3	0	0	3
2.	CSL 362	Middleware Technologies	3	0	0	3
3.	CSL 363	Graph Theory and Combinatorics	3	0	0	3
4.	CSL 364	Software Quality and Testing	3	0	0	3
5.	CSL 365	Software Metrics and Software Project Management	3	0	0	3

6.	CSL 366	Architectural and Design Patterns	3	0	0	3
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BOUQUET III

Sl.No.	Course No.	Course Title	L	T	P	Credits
1	CSL 361	Advance Data Base Management Systems	3	0	0	3
2	CSL 372	Concurrent and Parallel Programming	3	0	0	3
3	CSL 373	Computer Graphics	3	0	0	3
4	CSL 374	Advanced Computer Networks	3	0	0	3
5	CSL 375	Soft Computing	3	0	0	3
6	CSL 376	Cloud Computing	3	0	0	3
7	CSL 377	Natural Language Processing	3	0	0	3
8	CSL 378	Distributed Computing	3	0	0	3

BOUQUET IV

Sl.No.	Course No.	Course Title	L	T	P	Credits
1	CSL 461	Computational Complexity	3	0	0	3
2	CSL 462	Digital Image Processing	3	0	0	3
3	CSL 463	Computer Vision	3	0	0	3
4	CSL 464	Simulation and Modeling	3	0	0	3
5	CSL 465	Neural Networks	3	0	0	3
6	CSL 466	Information Security	3	0	0	3
7	CSL 467	Wireless Mobile Communications	3	0	0	3
8	CSL 468	Mobile Computing	3	0	0	3
9	CSL 469	Complex Networks	3	0	0	3
10	CSL 470	Real Time Systems	3	0	0	3
11	CSL 471	Next Generation Networks	3	0	0	3
12	CSL 472	E-Governance	3	0	0	3
13	CSL 473	Pattern Recognition	3	0	0	3
14	CSL 474	Machine Learning	3	0	0	3
15	CSL 475	Information Storage & Retrieval	3	0	0	3
16	CSL 476	Information Theory and Coding	3	0	0	3
17	CSL 477	Game Theory	3	0	0	3
18	CSL 478	Multi Agent Systems	3	0	0	3
19	CSL 479	Reconfigurable Computing	3	0	0	3
20	CSL 480	Bio-informatics	3	0	0	3

21	CSL 481	Biomedical Image Processing	3	0	0	3
22	CSL 482	Fault Tolerant Computing	3	0	0	3
23	CSL 483	Wireless Sensor Networks	3	0	0	3

Basic Science Courses:

Sl.No.	Course No.	Course Title	L	T	P	Credits
1.	PHL 100	Electromagnetic and Quantum Physics	3	1	0	4
2.	MAL 101	Advanced Calculus	3	1	0	4
3.	CYL 100	Chemical Structures and Reactivity	3	1	0	4
4.	MAL 151	Linear Algebra and Complex Analysis	3	1	0	4
5.	PHP 100	Physics Laboratory	0	0	3	2
6.	CYP 100	Chemistry Laboratory	0	0	3	2
7.	MEL 103	Probability and Statistics	3	1	0	4
8.	MAP 281	Numerical Methods Lab	0	0	3	2
Total Credits			15	5	9	26

Other Engineering Courses:

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	EEB 100	Introduction to Electrical and Electronics Engineering	3	0	2	4
2.	MEP 103	Product Design and Realization Laboratory-I	0	0	2	1
3.	MEP 104	Product Design and Realization Laboratory-II	0	0	2	1
4.	MEB 100	Engineering Visualization	3	0	2	4
5.	MEL 102	Engineering Mechanics	3	0	0	3
6.	ECB 257	Digital Electronics & Logic Design	3	0	2	4
7.	ECB 256	Communication Systems	3	0	2	4
8.	ECB 204	Signals & Systems	3	0	2	4
9.	ECB 206	Analog Electronics	3	0	2	4
10.	ECB 355	Microprocessors and Interfacing	3	0	2	4
Total Credits			24	0	18	33

Humanities Courses:

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	HMB 100	Professional Communication	3	0	2	4
2.	HMB 101	Human Values and Ethics	3	0	2	4
3.	HML 351	Engineering Economics and Accountancy	3	0	0	3
4.	HMP 352	Technical Communication	0	0	2	1
Total Credits			9	0	6	12

Departmental Elective Courses:

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	CSL 24X	Departmental Elective – I	3	0	0	3
2.	CSL 36X	Departmental Elective – II	3	0	0	3
3.	CSL 37X	Departmental Elective – III	3	0	0	3
4.	CSL 46X	Departmental Elective – IV	3	0	0	3
5.	CSL 46X	Departmental Elective – V	3	0	0	3
6.	CSL 44X	Departmental Elective – VI	3	0	0	3
7.	CSL 46X	Departmental Elective – VII	3	0	0	3
Total Credits			21	0	0	21

Open Elective Courses:

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.		Open Elective – I	3	0	0	3
2.		Open Elective – II	3	0	0	3
Total Credits			6	0	0	6

Major Project Courses:

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	CSP 400	Project – I	0	0	6	4
2.	CSP 450	Project – II	0	0	15	10
Total Credits			0	0	21	14

Other Mandatory Courses:

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	MEL 101	Environmental Studies	3	0	0	3
2.	CSP 312	Summer Internship/ Summer Project – I	0	0	2	1
3.	CSP 411	Summer Internship/ Summer Project – II	0	0	2	1
4.	CSP 211	Colloquium/ Industrial Lecture/ Seminar	0	0	2	1
5.	CSP 312	Colloquium/ Industrial Lecture/ Seminar	0	0	2	1

6.	EAP 101	Extra-Academic Activity - I	0	0	2	1
7.	EAP 102	Extra-Academic Activity - II	0	0	2	1
Total Credits			3	0	12	9

Core Engineering Courses:

Sl. No.	Course No.	Course Title	L	T	P	Credits
1.	CSB 101	Problem Solving and Computer Programming	3	0	2	4
2.	CSB 102	Data Structures	3	0	2	4
3.	CSL 201	Discrete structures	3	1	0	4
4.	CSB 253	Software Engineering	3	0	2	4
5.	CSB 252	Design and Analysis of Algorithm	3	0	2	4
6.	CSL 251	Theory of Computation	3	1	0	4
7.	CSB 301	Computer Organization	3	0	2	4
8.	CSB 202	Database Management System	3	0	2	4
9.	CSL 203	System Programming	3	1	0	4
10.	CSB 353	Compiler Design	3	0	2	4
11.	CSB 302	Operating System	3	0	2	4
12.	CSL 303	Artificial Intelligence	3	1	0	4
13.	CSB 351	Network Programming	3	0	2	4
14.	CSB 304	Computer Networks	3	0	2	4
15.	CSB 352	Data Mining	3	0	2	4
16.	CSB 451	Network Security and Cryptography	3	0	2	4
17.	CSB 401	Theory of App Development	2	0	3	4
Total Credits			50	4	27	68