SHIV NADAR
INSTITUTION OF EMINENCE DEEMED TO BE UNIVERSITY
DELHI NCR

For award of B.Tech. degree in chemical engineering, a student is required to earn a minimum of **160 credits** by completing courses in the curriculum. This document lists these courses category-wise and semester-wise. Once admitted into this programme, the students should plan their progress according to these guidelines.

No.		Category	Min. Credits
Core	1.	Major	54
	2.	Major Elective	12
	3.	Projects	12
	4.	Engineering Sciences	17
	5.	Basic Sciences	23
Non-core	6.	University Wide Elective (UWE)	18
	7.	Core Common Curriculum (CCC)	18
	8.	Floating Credits (Opt. 2./6./7.)	6
		Total	**160**

* In case of time table clashes, courses get preference as per the mentioned hierarchy.

CATEGORY-WISE CORE COURSES

Major

No.	Code	Courses	L:T:P	Credits
1.	CHD 111	Intro. to Chemical & Biochemical Engg.	2:1:0	3
2.	CHD 213	Material & Energy Balance	3:0:0	3
3.	CHD 216	Fluid Mechanics	3:0:0	3
4.	CHD 217	Chemical Engineering Thermodynamics	3:0:0	3
5.	CHD 225	Chemical Reaction Engineering – I	3:0:0	3
6.	CHD 226	Heat Transfer	3:0:0	3
7.	CHD 227	Mechanical Operations	3:0:0	3
8.	CHD 228	Biochemistry	3:0:0	3
9.	CHD 310	Chemical Reaction Engineering – II	3:0:0	3
10.	CHD 318	Mass Transfer – I	3:0:0	3
11.	CHD 319	Chemical Engineering Laboratory – I	0:0:2	2
12.	CHD 320	Process Dynamics & Control	3:0:0	3
13.	CHD 323	Chemical Engineering Laboratory – II	0:0:2	2
14.	CHD 327	Mass Transfer – II	3:0:0	3
15.	CHD 328	Transport Phenomenon	3:0:0	3
16.	CHD 384	Mod. & Sim. of Chem. Engg. Systems	3:0:0	3
17.	CHD 413	Chemical Technology	3:0:0	3
18.	CHD 415	Process Equipment Design	3:0:0	3
19.	CHD 418	Chemical Engineering Laboratory – III	0:0:2	2
			Total	**54**

Major Elective

No.	Code	Courses	L:T:P	Credits
1.	CHD 262	Numerical Methods	3:0:0	3
2.	CHD 325	Polymers: Concepts, Props., Uses & Sust.	3:0:0	3
3.	CHD 372	Computational Fluid Dynamics	2:0:1	3
4.	CHD 416	Chemical Process Safety	3:0:0	3
5.	CHD 471	Process Engineering	3:0:0	3
6.	CHD 229	Microbiology	3:0:0	3
7.	CHD 317	Chemical Engineering Laboratory – IV	0:0:4	2
8.	CHD 326	Biochemical Engineering	3:0:0	3
9.	CHD 329	Biomass Conversion to Bioenergy	3:0:0	3
10.	CHD 333	Waste to Biomaterials	3:0:0	3
11.	CHD 419	Bioseparations and Bioprocessing	3:0:0	3
		Total (Any Four Electives)		**12**

* Students opting for biochemical specialization should choose their four electives only from options 6-11.

Projects

No.	Code	Courses	L:T:P	Credits
1.	CHD 417	Minor Project	0:0:6	3
2.	CHD 440	Major Project	0:0:18	9
			Total	**12**

Engineering Sciences

No.	Code	Courses	L:T:P	Credits
1.	CED 101	Engineering Mechanics	3:1:0	4
2.	CSD 101	Intro. to Computing & Programming	3:0:1	4
3.	MED 101	Manufacturing Processes	1:0:1	2
4.	MED 104	Descriptive Engineering Drawing	2:0:1	3
5.	MED 201	Material Science & Engineering	3:0:1	4
			Total	**17**

Basic Sciences

No.	Code	Courses	L:T:P	Credits
1.	BIO 113	Essentials of Biology	3:0:0	3
2.	CHY 111	Chemical Principles	3:1:1	5
3.	MAT 103	Mathematical Methods – I	3:1:0	4
4.	MAT 104	Mathematical Methods – II	3:1:0	4
5.	MAT 205	Mathematical Methods – III	3:0:0	3
6.	PHY 101	Introduction to Physics – I	3:1:0	4
			Total	**23**

SEMESTER-WISE CORE AND NON-CORE COURSES

Semester	Credits		
	Core	Non-Core	Total
First	18	4	22
Second	18	3	21
Third	16	6	22
Fourth	15	6	21
Fifth	14	9	23
Sixth	17	6	23
Seventh	11	6	17
Eighth	9	3	12
Total	**121**	**43**	**161**

First Semester

No.	Code	Courses	L:T:P	Credits
1.	CCC 704	Environmental Studies (**Compulsory*)	3:1:0	4
2.	CHY 111	Chemical Principles	3:1:1	5
3.	MAT 103	Mathematical Methods – I	3:1:0	4
4.	MED 101	Manufacturing Processes	1:0:1	2
5.	MED 104	Descriptive Engineering Drawing	2:0:1	3
6.	PHY 101	Introduction to Physics – I	3:1:0	4
			Total	**22**

** This course increases the total course credits to 161.*

	Credits	Cumulative
Core	18	18
UWE	0	0
CCC	4	4
Floating	0	0
Total	**22**	**22**

Second Semester

No.	Code	Courses	L:T:P	Credits
1.	BIO 113	Essentials of Biology	3:0:0	3
2.	CED 101	Engineering Mechanics	3:1:0	4
3.	CHD 111	Intro. to Chemical & Biochemical Engg.	2:1:0	3
4.	CSD 101	Intro. to Computing & Programming	3:0:1	4
5.	MAT 104	Mathematical Methods – II	3:1:0	4
6.	UWE ___	(Any UWE course)	3:0:0	3
			Total	**21**

	Credits	Cumulative
Core	18	36
UWE	3	3
CCC	0	4
Floating	0	0
Total	**21**	**43**

Third Semester

No.	Code	Courses	L:T:P	Credits
1.	CHD 216	Fluid Mechanics	3:0:0	3
2.	CHD 217	Chemical Engineering Thermodynamics	3:0:0	3
3.	CHD 213	Material & Energy Balance	3:0:0	3
4.	MAT 205	Mathematical Methods – III	3:0:0	3
5.	MED 201	Material Science & Engineering	3:0:1	4
6.	UWE ___	(Any UWE course)	3:0:0	3
7.	CCC ___	(CCC in first half semester)	3:0:0	1.5
8.	CCC ___	(CCC in second half semester)	3:0:0	1.5
			Total	**22**

	Credits	Cumulative
Core	16	52
UWE	3	6
CCC	3	7
Floating	0	0
Total	**22**	**65**

Fourth Semester

No.	Code	Courses	L:T:P	Credits
1.	CHD 226	Heat Transfer	3:0:0	3
2.	CHD 227	Mechanical Operations	3:0:0	3
3.	CHD 228	Biochemistry	3:0:0	3
4.	CHD 225	Chemical Reaction Engineering – I	3:0:0	3
5.	CHD ___	Major Elective (First)	3:0:0	3
6.	UWE ___	(Any UWE course)	3:0:0	3
7.	CCC ___	(CCC in first half semester)	3:0:0	1.5
8.	CCC ___	(CCC in second half semester)	3:0:0	1.5
			Total	**21**

	Credits	Cumulative
Core	15	67
UWE	3	9
CCC	3	10
Floating	0	0
Total	**21**	**86**

Fifth Semester

No.	Code	Courses	L:T:P	Credits
1.	CHD 320	Process Dynamics & Control	3:0:0	3
2.	CHD 318	Mass Transfer – I	3:0:0	3
3.	CHD 310	Chemical Reaction Engineering – II	3:0:0	3
4.	CHD 319	Chemical Engineering Laboratory – I	0:0:2	2
5.	CHD ___	Major Elective (Second)	3:0:0	3
6.	UWE ___	(Any UWE course)	3:0:0	3
7.	UWE ___	(Any UWE course)	3:0:0	3
8.	CCC ___	(CCC in first half semester)	3:0:0	1.5
9.	CCC ___	(CCC in second half semester)	3:0:0	1.5
			Total	**23**

	Credits	Cumulative
Core	14	81
UWE	6	15
CCC	3	13
Floating	0	0
Total	**23**	**109**

Sixth Semester

No.	Code	Courses	L:T:P	Credits
1.	CHD 327	Mass Transfer – II	3:0:0	3
2.	CHD 328	Transport Phenomena	3:0:0	3
3.	CHD 323	Chemical Engineering Laboratory – II	0:0:2	2
4.	CHD 384	Mod. & Sim. of Chem. Engg. Systems	3:0:0	3
5.	CHD 415	Process Equipment Design	3:0:0	3
6.	CHD ___	Major Elective (Third)	3:0:0	3
7.	UWE ___	(Any UWE course)	3:0:0	3
8.	CCC ___	(CCC in first half semester)	3:0:0	1.5
9.	CCC ___	(CCC in second half semester)	3:0:0	1.5
			Total	**23**

	Credits	Cumulative
Core	17	98
UWE	3	18
CCC	3	16
Floating	0	0
Total	**23**	**132**

Seventh Semester

No.	Code	Courses	L:T:P	Credits
1.	CHD 417	Minor Project	0:0:6	3
2.	CHD 418	Chemical Engineering Laboratory – III	0:0:2	2
3.	CHD 413	Chemical Technology	3:0:0	3
4.	CHD ___	Major Elective (Fourth)	3:0:0	3
5.	CCC ___	(CCC in first half semester)	3:0:0	1.5
6.	CCC ___	(CCC in second half semester)	3:0:0	1.5
Floating Credits				
7.		(Any Major Elective / UWE / CCC)	3:0:0	3
			Total	**17**

	Credits	Cumulative
Core	11	109
UWE	0	18
CCC	3	19
Floating	3	3
Total	**17**	**149**

Eighth Semester

No.	Code	Courses	L:T:P	Credits
1.	CHD 440	Major Project	0:0:18	9
Floating Credits				
2.		(Any Major Elective / UWE / CCC)	3:0:0	3
			Total	**12**

	Credits	Cumulative
Core	9	118
UWE	0	18
CCC	0	19
Floating	3	6
Total	**12**	**161***

** The total credits are more than the minimum (160) due to a compulsory CCC 704 course in the first semester.*