

**Branch Code: CH21**  
**2014-Batch**  
**Dual Degree (B.Tech. & M.Tech.) in Chemical Engineering**

**SEMESTER 1**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH1010	Introduction to Chemical Engineering	2	0	0	2	PMT
2	CS1100	Computational Engineering	3	0	0	3	BET
3	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
4	ID1100	Concepts in Engineering Design	2	0	0	2	BET
5	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
6	PH1010	Physics I	3	0	0	3	SPH
7	PH1030	Physics Laboratory I	0	0	3	2	SPH
8	GN1100	Life Skills	2	0	0	2	HPF
		<b>Total Credits :</b>				<b>22</b>	

**SEMESTER 2**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH1020	Process Calculations	4	0	0	4	PMT
2	CY1002	Chemistry Lab I	1	0	3	3	SCY
3	EE1100	Basic Electrical Engineering	3	0	0	3	BET
4	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
5	ME1100	Thermodynamics	3	0	0	3	BET
6	ME1120	Engineering Drawing	3	0	0	3	BES
7	PH1020	Physics II	3	0	0	3	SPH
8	PH1040	Physics Laboratory II	0	0	3	2	SPH
		<b>Total Credits :</b>				<b>25</b>	
9	WS1010	Workshop I				4	BES
10	WS1020	Workshop II				2	BES

**SEMESTER 3**

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	BT1010	Life Sciences	2	0	0	2	SLS
3	CH2010	Chemical Engineering Thermodynamics	4	0	0	4	PMT
4	CH2030	Momentum Transfer	4	0	0	4	PMT
5	ID1200	Ecology and Environment	2	0	0	2	BET
6	HSE1	Humanities Elective 1	3	0	0	3	HSS
7	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		<b>Total Credits :</b>				<b>22</b>	

**SEMESTER 4**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH2020	Principles of Mass Transfer	4	0	0	4	PMT
2	CH2040	Mechanical Operations	4	0	0	4	PMT
3	CH2061	Computational Techniques	4	0	0	4	PMT
4	CH2082	Computational Prog. & Process Simulation Lab	0	0	3	2	PML
5	CH2100	Chemical Technology	3	0	0	3	PMT
6	HSE2	Humanities Elective 2	3	0	0	3	HSS
7	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		<b>Total Credits :</b>				<b>23</b>	

**SEMESTER 5**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH3010	Chemical Reaction Engineering I	3	0	0	3	PMT
2	CH3030	Applications of Mass Transfer	4	0	0	4	PMT
3	CH3051	Process Heat Transfer	4	0	0	4	PMT
4	CH3510	Momentum Transfer & MO Lab	0	0	6	4	PML
5	DPE1	Department Elective 1	3	0	0	3	PMT
6	FRE1	Free Elective 1	3	0	0	3	
7	MNS1	Minor Elective 1	3	0	0	3	MNS
<b>Total Credits :</b>						<b>24</b>	

**SEMESTER 6**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH3020	Chemical Reaction Engg. II	4	0	0	4	PMT
2	CH3040	Instrumentation & Process Control	4	0	0	4	PMT
3	CH3060	Transport Phenomena	3	0	0	3	PMT
4	CH3080	Process Equipment Design	4	0	0	4	PSS
5	CH3500	Summer Training	0	0	0	2	PIT
6	CH3520	Heat & Mass Transfer Lab	0	0	6	4	PML
7	DPE2	Department Elective 2	3	0	0	3	PMT
8	MNS2	Minor Elective 2	3	0	0	3	MNS
<b>Total Credits :</b>						<b>27</b>	

**SEMESTER 7**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH4010	Chemical Process Des. & Economics	4	0	0	4	PMT
2	CH4510	CRE & TDC Lab	0	0	6	4	PML
3	DPE3	Department Elective 3	3	0	0	3	PMT
4	DPE4	Department Elective 4	3	0	0	3	PMT
5	FRE2	Free Elective 2	3	0	0	3	
6	HSE4	Humanities Elective 4	3	0	0	3	HSS
7	MNS3	Minor Elective 3	3	0	0	3	MNS
<b>Total Credits :</b>						<b>23</b>	

**SEMESTER 8**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH4620	Industrial Lecture	0	0	0	1	PIL
2	CH	Restricted Elective I	3	0	0	3	PMT
3	HS3050	Professional Ethics	2	0	0	2	HPF
4	DPE5	Department Elective 5	3	0	0	3	PMT
5	DPE6	Department Elective 6	3	0	0	3	PMT
6	DPE7	Department Elective 7	3	0	0	3	PMT
7	CH5670	Project I	0	0	0	3*	PMP
<b>Total Credits :</b>						<b>15</b>	

*\* Project (CH5670+) grade will be assigned at the end of 10<sup>th</sup> semester*

**Restricted Elective I:** To be chosen from the following Basket of course in 8<sup>th</sup> semester subject to the courses being offered by the CH Dept.

- **CH5100** - Multiphase Systems
- **CH5140** - Process Analysis and Simulation
- **CH5160** - Chemical and Catalytic reaction engineering
- **CH5220** - Bioconversion and Fermentation Technology
- **CH6110** - Finite element analysis

**SEMESTER 9**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH5670+	Project II - DD	0	0	0	9*	PMP
2	CH	Restricted Elective II	3	0	0	3	PMT
3	CH5665	Seminar	0	0	0	2	PMP
		<b>Total Credits :</b>				<b>5</b>	

\* Project (CH5670+) grade will be assigned at the end of 10<sup>th</sup> semester

**Restricted Elective II:** To be chosen from the following Basket of course in 9<sup>th</sup> semester subject to the courses being offered by the CH Dept.

- **CH5020** - Experimental and statistical methods of analysis
- **CH5170** - Process Optimization
- **CH5190** - Introduction to Macromolecules
- **CH6170** - Advances in Biochemical Engineering & Biotechnology

**SEMESTER 10**

S.No	Course No	Course Name	L	T	P	C	Category
1	CH5680	Project II - DD	0	0	0	22	PMP
		<b>Total Credits :</b>				<b>22</b>	

Semester	I	II	III	IV	V	VI	VII	VIII	IX	X	Total
Req. Cr.	22	25+6	22	23	24	27	23	15	5	22	214

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	14	24

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	76	6	4	7	14	10	2	6	0

**Remarks**

1. Electives I to IV from Chemical Elective List or other equivalents from other departments with the consent of the Faculty Adviser & HoD.
2. Any two PMT electives can be taken as Pass/Fail courses
3. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
4. Dual Degree (B.Tech. Honours & M.Tech.)  
(Total credit requirement: 214+12 = 226)
  - **Students** having a CGPA of  $\geq 8.5$  and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.
  - Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
  - Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5<sup>th</sup> semester onwards.
  - Project work is a must for B.Tech (Honours) students in B.Tech programme.
  - Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4<sup>th</sup> semester onwards. Otherwise, they will be awarded only B.Tech Degree.
  - Extra credits earned by the students will be counted for prizes and awards.