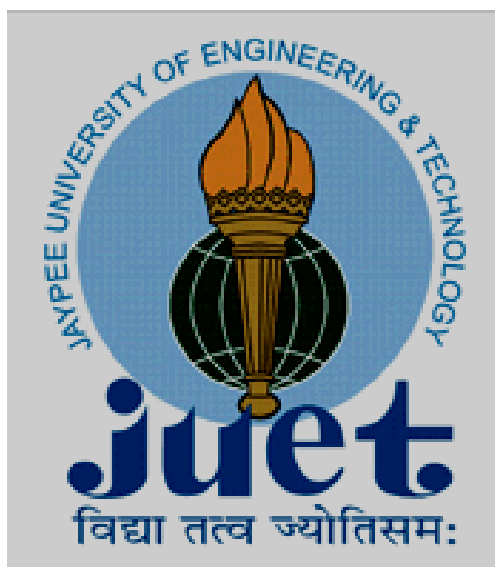


COURSE STRUCTURE
(w.e.f. 2024 batch onwards)

BACHELOR OF TECHNOLOGY
(CHEMICAL ENGINEERING)



Department of Chemical Engineering
Jaypee University of Engineering & Technology

A.B. Road, Raghogarh, Dist-Guna (M.P.) - 473226, INDIA

Ph No: 07544 -267051, 267310 - 314, Fax: 267011

website: www.juet.ac.in

4 year B. Tech. (Chemical Engineering) Course Structure

FIRST SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	Maths	MA102	Engineering Mathematics-I	3	1	-	4	4
2.	Physics	PH103	Engineering Physics	3	1	-	4	4
3.	CSE	CS101	Computer Programming	3	1	-	4	4
4.	HSS	HS101	English	2	-	2	4	3
5.	Physics	PH203	Engineering Physics Lab	-	-	2	2	1
6.	CSE	CS201	Computer Programming Lab	-	-	4	4	2
7.	MEC	ME201	Workshop Practices	-	-	3	3	1.5
8	HSS	HS001	Value Added Course (Human Values and Professional Ethics)	2	0	0	2	2 (Audit) Qualifying
			TOTAL				27	19.5

SECOND SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	HSS	HS104	Life Skills and Effective Communication	1	-	2	3	2
2.	Maths	MA103	Engineering Mathematics-2	3	1	-	4	4
3.	Chemistry	CH103	Engineering Chemistry	3	1	-	4	4
4.	ECE	EC102	Electrical Circuit Analysis	3	1	-	4	4
5.	MEC	ME101	Engineering Mechanics	3	1	-	4	4
6.	Chemistry	CH202	Engineering Chemistry Lab	-	-	2	2	1
7.	ECE	EC206	Electrical Circuit Analysis Lab	-	-	2	2	1
8.	MEC	ME202	Engineering Mechanics Lab	-	-	2	2	1
9.	MEC	ME203	Engineering Drawing and Design Lab	-	-	3	3	1.5
10.			Value Added Course	2	0	0	2	2(Audit)
			TOTAL				30	22.5

THIRD SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	CHE	CL101	Chemical Process Calculations	3	1	-	4	4
2.	CHE	CL102	Fluid and Fluid Particle Mechanics	3	1	-	4	4
3.	CHE	CH102	Organic Chemistry	3	1	-	4	4
4.	CHE	CH203	Organic Chemistry Lab	-	-	2	2	1
5.	CHE	CL201	Fluid Mechanics Lab	-	-	2	2	1
6.	CHE	CL202	Fluid Particle Mechanics Lab	-	-	2	2	1
7.	CHE	CL103	Chemical Engineering Thermodynamics	3	1	-	4	4
8.	HSS	HS102	Managerial Economics	2	1	-	3	3
9.	HSS	----	Value Added Course	2	-	-	2	2 (Audit)
10.	CSE		Programming in Python	-	-	-	2	2 (Audit)
11.	CHE		Internship/Summer Training (4 weeks - 160-180 hours)	-	-	-	-	4 (Audit, Optional)
			TOTAL				29	22

FOURTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	HSS		HSS Elective - 1	-	-	-	3	3
2.	Maths	MA105	Numerical Methods	3	1	-	4	4
3.	CHE	CL104	Heat Transfer Operations	3	1	-	4	4
4.	CHE	CL105	Mass Transfer Operations	3	1	-	4	4
5.	CHE	G001	Environmental Science	2	-	-	2	2 (Audit) Qualifying
6.	CHE	CL203	Heat Transfer Operations Lab - 1	-	-	2	2	1
7.	CHE	CL204	Mass Transfer Operations Lab-1	-	-	2	2	1
			TOTAL				21	17

FIFTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	HSS	----	HSS Elective-2	-	-	-	3	3
2.	CHE	CL106	Chemical Reaction Engineering-I	3	1	-	4	4
3.	CHE	----	Discipline Elective -1	3	-	-	3	3
4.		----	Science Elective	3	-	-	3	3
5.	CHE	CL205	Minor Project-1	-	-	4	4	2
6.	CHE	CL206	Chemical Reaction Engineering Lab	-	-	2	2	1
7.	CHE	CL207	Instrumentation and Process Control Lab	-	-	2	2	1
8.	CHE	CL208	Heat Transfer Operations Lab-2	-	-	2	2	1
9.	CHE	CL107	Instrumentation and Process Control	3	1	-	4	4
10.	CHE	CL209	Process Modeling and Simulation Lab	-	-	2	2	1
11.	CHE		Internship/Summer Training (4 weeks - 160-180 hours)	-	-	-	-	4 (Audit)Qualifying
			TOTAL				29	23

SIXTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	CHE	CL108	Design of Separation Processes	3	-	-	3	3
2.	CHE	----	Discipline Elective – 2	3	-	-	3	3
3.	CHE	----	Discipline Elective - 3	3	-	-	3	3
4.	CHE	CL109	Chemical Reaction Engineering-II	3	-	-	3	3
5.	CHE	CL210	Mass Transfer Operations Lab-2	-	-	2	2	1
6.	CHE	CL211	Minor Project-2	-	-	6	6	3
7.	CHE	CL110	Environmental Engineering	3	-	-	3	3
8.	CHE	CL212	Environmental Engineering Lab	-	-	2	2	1
9.	HSS	----	HSS Elective - 3	-	-	-	3	3
10.	HSS	HSS004	Value Added Course (Indian Constitution and Traditional Knowledge)	2	-	-	2	2 (Audit) Qualifying
			TOTAL				30	23

SEVENTH SEMESTER

Sr. No.	Department	Course No.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	CHE	----	Discipline Elective – 4	3			3	3
2.	CHE	----	Discipline Elective – 5	3			3	3
3.	CHE	----	Discipline Elective - 6	3	-	-	3	3
4.	HSS	----	Open Elective – 1	3		-	3	3
5.	CHE	CL213	Major Project Part-1	-	-	8	8	4
6.	CHE	CL001	Internship/Summer Training (6 weeks - 240-270 hours)	-	-	-	-	6 (Audit) Qualifying
7.			Value Added Course	2	-	-	2	2(Audit)
			TOTAL				22	16

EIGHTH SEMESTER

Sr. No.	Department	CourseNo.	Title	Contact Hours				Credits
				L	T	P	Total	
1.	CHE	----	Discipline Elective – 7	3			3	3
2.	CHE	----	Discipline Elective - 8	3			3	3
3.	(Engg. Only)	----	Open Elective -2	3		-	3	3
4.	CHE	CL214	Major Project Part-2	-	-	16	16	8
			TOTAL				25	17

Total Credits for B. Tech. –160. (Value Added Courses (Audit courses) will not count for CGPA calculations.

Value Added Courses

Course No.	Title	Contact Hours				Credits
		L	T	P	Total	
HS001	Human Values and Professional Ethics	2	-	-	2	-
HS002	Professional Communication Practice	2	-	-	2	-
HS003	Concept of Project Management	-	-	2	2	-
HS004	Indian Constitution & Traditional Knowledge	2	-	-	2	-
G001	Environmental Science	2	-	-	2	

LIST OF ELECTIVES

List of HSS Electives

Course No.	Title	Contact Hours				Credits
		L	T	P	Total	

HS304	Concepts of Digital Marketing	3	-	-	3	3
HS302	Concepts of Financial Management	2	1	-	3	3
HS305	Logical & Quantitative Technique	3	-	-	3	3
HS303	Knowledge management	3	-	-	3	3

List of Science Electives:

From the Department with Science name or Physics or Chemistry or Maths with science code.

1. CH301 Chemistry of Cement
2. CH302 Surface Science
3. ME301 Material Science

List of Discipline Electives:

CL301	Process Modelling and Simulation
CL303	Chemical Processes
CL304	Industrial Organic Synthesis
CL305	Equipment Design and Drawing
CL306	Solid and Hazardous Waste Management
CL307	Energy Sources and Energy Conservation
CL308	Polymer Engineering
CL309	Petroleum Refining
CL310	Multiphase Reactor Design
CL311	Industrial Catalysis
CL312	Advanced Process Control
CL313	Fertilizer Technology
CL314	Petrochemical Technology
CL315	Plant Utilities and Energy Systems
CL316	Co-generation
CL327	Piping Engineering
CL328	Cement Technology
CL329	AI and ML for Chemical Engineering
CL330	Transport Phenomena
CL331	Project Engineering

Note: The list of electives and value-added courses can be updated from time to time.