

BACHELOR OF TECHNOLOGY CURRICULA

Chemical Engineering Department

Credit Structure of B. Tech. Chemical Engineering with Specialization in Sugar and Alcohol Technology

Category	Semesters	I	II	III	IV	V	VI	VII	VIII	Total
Basic Sciences & Maths (BSM)		14	14	9	-	-	-	-	-	37
Engineering Fundamentals (EF)		7	6	6	6	-	-	-	-	25
Department Core (DC)		-	-	9	13	18	20	13	5	78
Management (M)		-	-	-	3	3	-	-	-	6
Humanities & Social Science Core (HSSC)		4	-	-	-	-	-	-	-	4
Project (P)		-	-	-	-	-	-	5	5	10
Program Electives (PE)		-	-	-	-	-	4	4	8	16
Open Electives (OE)		-	-	-	-	-	-	-	4	4
Humanities & Social Science Electives (HSSE)		-	3	-	-	-	-	-	-	3
		25	23	24	22	21	24	22	22	183

Freshman Year, Semester-I

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	BSM	BAS-01	Engineering Mathematics-I	3	1	0	4
2.	BSM	BAS-02	Engineering Physics-I	3	1	2	5
3.	BSM	BAS-15	Applied Engineering Chemistry	3	1	2	5
4.	EF	BEE-01	Principles of Electrical Engineering	3	1	2	5
5.	HSSC	BAS-03	Professional Communication	3	1	0	4
6.	EF	BCE-10	Engineering Graphics	0	0	4	2
7.	AC		Audit Subject				
			Total	15	5	10	25

Freshman Year, Semester-II

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	BSM	BAS-07	Engineering Mathematics-II	3	1	0	4
2.	BSM	BAS-08	Engineering Physics-II	3	1	2	5
3.	BSM	BAS-09	Engineering Chemistry	3	1	2	5
4.	EF	BCS-01	Introduction to Computer Programming	2	1	2	4
5.	HSSE	BAS-**	Humanities and Social Science Electives	2	1	0	3
6.	EF	BME-10	Workshop Technology	0	0	4	2

7.	AC		Audit Subject				
			Total	13	5	10	23

Sophomore Year, Semester-III

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	BSM	BAS-31	Advanced Mathematics & Statistics	3	1	0	4
2.	BSM	BCT-11	Chemical Engineering Fluid Mechanics	3	1	2	5
3.	EF	BCT-12	Materials in Chemical Engineering	3	1	0	4
4.	DC	BCT-13	Chemical Engineering Process Calculations	3	1	0	4
5.	DC	BCT-14	Chemical Engineering Mechanical Operations	3	1	2	5
6.	EF	BAS-20	Communication Skills	0	0	4	2
7.	AC		Audit Subject				
			Total	14	5	8	24

Sophomore Year, Semester-IV

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	M	MBA-01	Industrial Management	2	1	0	3
2.	DC	BCT-15	Transport Phenomena	3	1	0	4
3.	DC	BCT-16	Sugar Technology	3	1	0	4
4.	DC	BCT-17	Heat Transfer Operation	3	1	2	5
5.	EF	BCT-18	Chemical Engineering Thermodynamics-I	3	1	0	4
6.	EF	BEE-20	Simulation Techniques	0	0	4	2
7.	AC		Audit Subject				
			Total	14	5	6	22

Junior Year, Semester-V

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	M	MBA-02	Engineering and Managerial Economics	2	1	0	3
2.	DC	BCT-26	Chemical Technology	3	1	0	4
3.	DC	BCT-27	Mass Transfer-I	3	1	0	4
4.	DC	BCT-28	Sugar Production	3	1	2	5
5.	DC	BCT-29	Chemical Engineering Thermodynamics-II	3	1	2	5
6.	AC		Audit Subject				
			Total	15	5	6	21

Note: The student is required to complete 10 days industrial training in Sugar Industries after V Semester.

Junior Year, Semester-VI

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	DC	BCT-31	Alcohol Technology	3	1	2	5
2.	DC	BCT-32	Mass Transfer-II	3	1	2	5
3.	DC	BCT-33	Process Dynamics, Control & Instrumentation	3	1	2	5
4.	DC	BCT-34	Chemical Reaction Engineering	3	1	2	5
5.	PE1	BCT-**	Program Elective-1	3	1	0	4
6.	AC	BCT-30	Seminar				-
Total				15	5	8	24

Note: The student is required to complete 50-65 days industrial training in Process Industries after VI Semester and both training will be evaluated in Semester VII.

Senior Year, Semester-VII

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	DC	BCT-41	Process Equipment Design	3	1	2	5
2.	DC	BCT-42	Energy Resources & Applications	3	1	0	4
3.	DC	BCT-43	Chemical Control in Sugar Plant	3	1	0	4
4.	PE2	BCT-**	Program Elective-2	3	1	0	4
5.	P	BCT-40	Project Part-I	0	0	10	5
6.	AC	BCT-45	Industrial/Practical Training				-
Total				12	4	12	22

Senior Year, Semester-VIII

S.N.	Category	Paper Code	Subject	L	T	P	Credit
1.	DC	BCT-46	Chemical Engineering Design	3	1	2	5
2.	PE3	BCT-**	Program Elective-3	3	1	0	4
3.	PE4	BCT-**	Program Elective-4	3	1	0	4
4.	OE	BOE-**	Open Elective offered by other Department	3	1	0	4
5.	P	BCT-50	Project Part-II	0	0	10	5
Total				12	4	12	22

Humanities & Social Science Electives

S.N.	Paper Code	Subject	Prerequisite Subject	L	T	P	Credits
1.	BAS-11	Human Values & Professional Ethics	-	2	1	0	3
2.	BAS-12	Industrial Psychology	-	2	1	0	3
3.	BAS-13	Industrial Sociology	-	2	1	0	3

Engineering Fundamentals & Department Core (Chemical Engineering with Specialization in Sugar and Alcohol Technology)

S.N.	Paper Code	Subject	Prerequisite Subject	L	T	P	Credits
		Year-I					
1.	BCT-01	Applied Engineering Chemistry	-	3	1	0	4
		Year-II					
2.	BCT-11	Chemical Engineering Fluid Mechanics	-	3	1	2	5
3.	BCT-12	Materials in Chemical Engineering	-	3	1	0	4
4.	BCT-13	Chemical Engineering Process Calculations	-	3	1	0	4
5.	BCT-14	Chemical Engineering Mechanical Operations	-	3	1	2	5
6.	BCT-15	Transport Phenomena	-	3	1	0	4
7.	BCT-16	Sugar Technology	-	3	1	0	4
8.	BCT-17	Heat Transfer Operation	-	3	1	2	5
9.	BCT-18	Chemical Engineering Thermodynamics-I	-	3	1	0	4
		Year-III					
10.	BCT-26	Chemical Technology	-	3	1	0	4
11.	BCT-27	Mass Transfer-I	-	3	1	0	4
12.	BCT-28	Sugar Production	-	3	1	2	5
13.	BCT-29	Chemical Engineering Thermodynamics-II	-	3	1	2	5
14.	BCT-31	Alcohol Technology	-	3	1	2	5
15.	BCT-32	Mass Transfer-II	BCT-27	3	1	2	5
16.	BCT-33	Process Dynamics, Control & Instrumentation	-	3	1	2	5
17.	BCT-34	Chemical Reaction Engineering	-	3	1	2	5
		Year-IV					
18.	BCT-40	Project Part-I	-	0	0	10	5
19.	BCT-41	Process Equipment Design	-	3	1	2	5
20.	BCT-42	Energy Resources & Applications	-	3	1	0	4
21.	BCT-43	Chemical Control in Sugar Plant	-	3	1	0	4
22.	BCT-45	Industrial/Practical Training	-	0	0	2	1
23.	BCT-46	Chemical Engineering Design	-	3	1	2	5
24.	BCT-50	Project Part-II	BCT-40	0	0	10	5

Program Electives (Chemical Engineering)

S.N.	Paper Code	Subject	Prerequisite Subject	L	T	P	Credits
PE-1 (VI Semester)							
1.	BCT-51	Process Integration	-	3	1	0	4
2.	BCT-52	Piping Design	-	3	1	0	4
3.	BCT-53	Statistical Design of Experiments	-	3	1	0	4
4.	BCT-54	Process Flow Sheet Simulation	-	3	1	0	4
5.	BCT-55	Food Technology	-	3	1	0	4
PE-2 (VII Semester)							
1.	BCT-61	Fertilizer Technology	-	3	1	0	4
2.	BCT-62	Nuclear Engineering	-	3	1	0	4
3.	BCT-63	Computational Fluid Dynamics	-	3	1	0	4
4.	BME-55	Total Quality Management	-	3	1	0	4
PE-3 & PE-4 (VIII Semester)							
1.	BCT-71	Heterogeneous Catalysis & Multiphase Reactor Design	-	3	1	0	4
2.	BCT-72	Petroleum Engineering	-	3	1	0	4
3.	BCT-73	Polymer Science & Technology	-	3	1	0	4
4.	BCT-74	Optimization Techniques in Chemical Engineering	-	3	1	0	4
5.	BCT-75	Standardization & Quality Assurance in Chemical Industry	-	3	1	0	4
6.	BCT-76	Industrial Safety & Hazard Management	-	3	1	0	4
7.	BAS-22	Nano Technology	-	2	1	0	3
8.	BCT-77	Project Engineering & Management	-	3	1	0	4
9.	BCT-78	Bioprocess Engineering Principles	-	3	1	0	4
10.	BCT-79	Nuclear Reactor Technology	-	3	1	0	4

Audit Courses for B. Tech. (Chemical Engineering) Students

S.N.	Paper Code	Subject	Prerequisite Subject	L	T	P	Credits
Year-I							
1.	BAS-04	Environmental Chemistry	-	3	1	0	4
2.	BAS-05	Environment & Ecology	-	2	1	0	3
3.	BME-02	Fundamentals of Mechanical Engineering	-	3	1	2	5
4.	BME-03	Manufacturing Processes	-	3	1	0	4
5.	BEC-01	Fundamentals of Electronics Engineering	-	3	1	2	5
6.	BAS-06	Space Sciences	-	2	1	0	3
Year-II							

1.	BME-56	Energy Management	-	3	1	0	4
2.	BEE-16	Electromechanical Energy Conversion	-	3	1	2	5
3.	BEE-15	Introduction to Microprocessors	-	3	1	2	5
4.	MAS-109	Foreign Language-French	-	2	1	0	3
5.	MAS-110	Foreign Language-German	-	2	1	0	3
6.	MAS-111	Foreign Language-Spanish	-	2	1	0	3
		Year-III	-				
1.	BCS-73	Neural Network & Fuzzy Systems	-	3	1	0	4
2.	BCE-21	Environmental Impact Assessment & Management	-	3	1	0	4
3.	BCS-15	Database Management Systems	-	3	1	2	5