

**M.M.M. UNIVERSITY OF TECHNOLOGY
GORAKHPUR**

Semester wise Credit Structure for B. Tech. (Chemical Engineering)

Category/Semesters	I	II	III	IV	V	VI	VII	VIII	Total
Basic Sciences & Maths (BSM)	4	6	5	5	--	--	--	--	20
Engineering Fundamentals (EF)	10	4	4	--	--	--	--	--	18
Professional Skill (PS)	2	2	--	--	--	--	--	--	4
Program Core (PC)	--	--	9	17	13	14	13	--	66
Management (M)	--	--	--	--	2	2	--	--	4
Humanities & Social Science (HSS)	--	2	2	--	--	--	--	--	4
Humanities & Social Science Elective (HSSE)	2	--	--	--	--	--	--	--	2
Project (P)	--	--	--	--	--	2	3	0/4	5/9
Seminar (S)	--	--	--	--	--	2	--	--	2
Industrial Practice (IP)/ Industrial Elective (IE)#	--	--	--	--	--	--	--	12/8	12/8
Program link basic science and engineering courses (PLBSE)	3	4	3	3	4	--	--	--	17
Program Electives (PE)	--	--	--	--	4	4	4	--	12
Open Electives (OE) (Other Departments)	--	--	--	--	--	--	3	--	3
Total	21	18	23	25	23	24	23	12	169

First Year, Semester I

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	BSM	BSM-101	Calculus and Linear Algebra	3	1	0	4
2.	EF	BCH-111	Chemical Process & Operation	3	1	0	4
3.	PS	BCH-112	Chemical Laboratory Skills	0	0	4	2
4.	EF	BEE-104	Introduction to Electrical Engineering	2	1	0	3
5.	EF	BEC-105	Introduction to Electronics Engineering	2	1	0	3
6.	PLBSE	BSM-126	Applied Physics	3	0	0	3
7.	HSSE	BHM***	HSSE Elective	2	0	0	2
			Total	15	4	4	21
8.	ECA-I		Induction Program	-	-	-	0

First Year, Semester II

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	BSM	BSM-158	Differential equations and numerical methods	3	1	0	4
2.	EF	BCE-101	Engineering Graphics	0	0	4	2
3.	BSM	BSM-195	Environmental Engineering Science	2	0	0	2
4.	PS	BCH-121	Process Plant Safety	1	0	2	2
5.	EF	BME-151	Technical Art	0	0	4	2
6.	HSS	BHM-151	Professional Communication	2	0	0	2
7.	PLBSE	BCH-122	Fluid Flow Operation	3	0	2	4
			Total	11	1	12	18
8.	ECA-II		Induction Program	-	-	-	0

Second Year, Semester III

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	BSM	BSM-242	Physical Chemistry	3	1	2	5
2.	EF	BME-210	Strength of Materials	3	1	0	4
3.	HSS***	BHM-201	Scientific and Technical Writing	2	0	0	2
4.	PC	BCH-201	Chemical Engineering Thermodynamics-I	3	1	0	4
5.	PC	BCH-202	Particulate Technology	3	1	2	5
6.	PLBSE	BCH-203	Process Calculations	3	0	0	3
Total Credit/Teaching Load of Semester				17	4	4	23
7.	ECA-III			-	-	-	0
8.	AC	AUC01-AUC15		1	-	-	1

Second Year, Semester IV

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	BSM	BSM-291	Organic and Inorganic Chemistry	3	1	2	5
2.	PC	BCH-251	Chemical Engineering Thermodynamics-II	3	1	2	5
3.	PC	BCH-252	Process Instrumentation	3	0	2	4
4.	PC	BCH-253	Heat Transfer Operation	3	1	2	5
5.	PC	BCH-254	Chemical Technology	3	0	0	3
6.	PLBSE	BCH-255	Biochemical Engineering	3	0	0	3
Total				18	3	8	25
8.	ECA-IV			-	-	-	-
9.	AC	AUC-01-AUC15		½	-	-	½
10.	DM1	SCH-211	Introduction Food Technology	3	1	2	5
	DM2	SCH-221	Chemistry of Alcohols	3	1	2	5

	DM3	SCH-231	Industrial Safety and Hazard Management	3	1	2	5
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Third Year, Semester V

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	M	BHM-302	Industrial Management	2	0	0	2
2.	PC	BCH-301	Mass Transfer -I	3	1	2	5
3.	PC	BCH-302	Reaction Engineering-I	3	1	2	5
4.	PC	BCH-303	Sugar and Alcohol Technology	3	0	0	3
5.	PE1	BCH-326- BCH-330	Program Elective-1	3	1	0	4
6.	PLBSE	BCH-304	Process Dynamics & Control	3	0	2	4
Total				17	3	6	23
7.	ECA-V			-	-	-	0
8.	DM1	SCH-312	Food Additives and Ingredients	3	1	0	4
	DM2	SCH-322	Industrial Fermentation	3	1	0	4
	DM3	SCH-332	Principle Safety Management	3	1	0	4

Third Year, Semester VI

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	M	BHM-353	Process Plant Economics	2	0	0	2
2.	PC	BCH-351	Transport Phenomena	3	1	0	4
3.	PC	BCH-352	Mass Transfer – II	3	1	2	5
4.	PC	BCH-353	Reaction Engineering – II	3	1	2	5
5.	PE2	BCH-376- BCH-380	Program Elective-2	3	1	0	4
6.	P	BCH-370	Project Part-I	0	0	4	2
7.	S	BCH-380	Seminar	0	0	4	2
Total				14	4	12	24
8.	ECA-VI			-	-	-	0
9.	DM1	SCH-313	Food Safety and Quality Control	3	1	0	4
	DM2	SCH-323	Distillery Instrumentation and Control	3	1	0	4
	DM3	SCH-333	Environmental Safety	3	1	0	4

Final Year, Semester VII

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	PC	BCH-401	Process Equipment Design	3	1	2	5
2.	PC	BCH-402	Process Plant Simulator	3	1	2	5
3.	PC	BCH-403	Process Integration & Optimization	3	0	0	3
4.	PE3	BCH-426- BCH-430	Program Elective – III	3	1	0	4

5.	OE	OCH-401- OCH-405	Open Elective	3	0	0	3
6.	P	BCH-440	Project Part-II	0	0	6	3
Total Credit/Teaching Load of Semester				15	3	10	23
7.	ECA-VII			-	-	-	0
8.	DM1	SCH – 414	Food Processing Waste Management	3	1	2	5
	DM2	SCH – 424	Alcohol Technology	3	1	2	5
	DM3	SCH – 434	Computer Aided Hazard Analysis	3	1	2	5

Final Year, Semester VIII

S. N.	Category	Paper Code	Subject	L	T	P	Credit
1.	IP	ICH-400	Industrial Practices	0	0	24	12
Without Industrial Practices (IP)							
2.	MP	BCH-480	Minor project	0	0	8	4
3.	IE1	ICH-401-ICH 405	Industrial Elective-I	3	1	0	4
4.	IE2	ICH-406-ICH-410	Industrial Elective-II	3	1	0	4
Total				6	2	8	12
5.	DM1	SCH - 415	Research Project*	0	0	4	2
	DM2	SCH - 425	Research Project*	0	0	4	2
	DM3	SCH - 435	Research Project*	0	0	4	2

Humanities & Social Science elective (HSSE)

S.N.	Paper Code	Subject	L	T	P	Credits
1	BHM-04	Human Values & Professional Ethics	2	0	0	2
2	BHM-05	Industrial Psychology	2	0	0	2
3	BHM-06	Industrial Sociology	2	0	0	2

Program Electives (Chemical Engineering)

S.N.	Paper Code	Subject	L	T	P	Credits
1	BCH-326	Nano Technology	3	1	0	4
2	BCH-327	Colloids & Interface Science and Engineering	3	1	0	4
3	BCH-328	Corrosion Science and Engineering	3	1	0	4
4	BCH-329	Rheology of Polymer	3	1	0	4
5	BCH-330	Advanced Separation Processes	3	1	0	4
6	BCH-376	Nuclear Engineering	3	1	0	4
7	BCH-377	Computational Fluid Dynamics	3	1	0	4
8	BCH-378	Polymer Science & Technology	3	1	0	4
9	BCH-379	Characterizations Techniques in Fuel Cell Technology	3	1	0	4