

**BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI**  
**NEW COURSE STRUCTURE - To be effective from academic session 2018- 19**  
*Based on CBCS & OBE model*  
**Recommended scheme of study for M.Tech in Chemical Engineering**

SEMESTER / Session of Study (Recommended)	Course Level	Category of course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial; P-Practical</i>			Total Credits <i>C- Credits</i>
					L <i>(Periods/week)</i>	T <i>(Periods/week)</i>	P <i>(Periods/week)</i>	C
<b>FIRST / Monsoon</b>	FIFTH	<b>THEORY</b>						
		PC	CL 501	Advanced Transport Phenomena-I	3	0	0	3
			CL502	Advanced Mathematical Techniques in Chemical Engg	3	0	0	3
			CL503	Advanced Reaction Engg.	3	0	0	3
		PE		Program Elective (PE-I)	3	0	0	3
	OE		Open Elective (OE-I)	3	0	0	3	
		<b>LABORATORY</b>						
	FIFTH	PC	CL504	Design & Simulation Lab	0	0	4	2
			CL505	Computational Laboratory	0	0	4	2
		<b>TOTAL</b>						
<b>SECOND/ Spring</b>	FIFTH	<b>THEORY</b>						
		PC	CL506	Advanced Transport Phenomena- II	3	0	0	3
			CL507	Advanced Process Modelling, Simulation and Optimization	3	0	0	3
			CL508	Advanced Thermodynamics	3	0	0	3
		PE		Program Elective (PE-II)	3	0	0	3
	OE		Open Elective (OE-II)	3	0	0	3	
		<b>LABORATORY</b>						
	FIFTH	PC	CL509	Computer Aided Process Engg.	0	0	4	2
			CL510	Chemical Engg. Research Lab-I	0	0	4	2
		<b>TOTAL</b>						
<b>TOTAL FOR FIFTH LEVEL</b>							<b>38</b>	
<b>THIRD / Monsoon</b>	SIXTH	<b>THEORY</b>						
		PC	CL 600	Thesis Part 1				8
			CL 602	Advanced Separation Process	3	0	0	3
	PE		Program Elective (PE-III)	3	0	0	3	
		<b>LABORATORY</b>						
	SIXTH	PC	CL603	Chemical Engg. Research Lab-II	0	0	4	2
	<b>TOTAL</b>							<b>16</b>
<b>FOURTH/ Spring</b>	SIXTH	PC	CL650	Thesis Part 2				16
	<b>TOTAL</b>							<b>16</b>
<b>TOTAL FOR SIXTH LEVEL</b>							<b>32</b>	
<b>GRAND TOTAL FOR M.TECH PROGRAMME (38 + 32)</b>							<b>70</b>	

**DEPARTMENT OF CHEMICAL ENGINEERING**  
**PROGRAMME ELECTIVES (PE) \*\***  
**OFFERED FOR LEVEL 5-6 of M.Tech. In Chemical Engineering**

PE / LEVEL	Code no.	Name of the PE courses	Prerequisites courses with code	L	T	P	C
<b>Programme Elective -I</b>							
PE/5 (MO)	CL511	Complex Fluid Technology	CL210,CL203	3	0	0	3
PE/5 (MO)	CL512	Biochemical Engineering	CL209,CL302, CL308	3	0	0	3
PE/5 (MO)	CL513	Process safety and Management	CL205,CL308	3	0	0	3
<b>Programme Elective - II</b>							
PE/5 (SP)	CL514	Computational Fluid Dynamics	CL210,CL203,MA203,CS101	3	0	0	3
PE/5 (SP)	CL515	Process Intensification	CL308,CL210	3	0	0	3
PE/5 (SP)	CL516	Heterogeneous Catalysis and Catalytic Processes	CL302,CH101, PH113, CL301	3	0	0	3
<b>Programme Elective -III</b>							
PE/6 (MO)	CL631	Composite Manufacturing Technology	CH101, PH111,MA103	3	0	0	3
PE/6 (MO)	CL632	Polymer Physics	CH101, PH111,MA103	3	0	0	3
PE/6 (MO)	CL633	Polymer Product manufacturing Technology	CH101, PH111,MA103	3	0	0	3
PE/6 (MO)	CL634	Polymer Rheology	CH101, PH111,MA103	3	0	0	3
PE/6 (MO)	CL635	Die and Mould	PE201, ME101	3	0	0	3
PE/6 (MO)	CL614	Process Integration	CL308,CL210	3	0	0	3

**\*\* PROGRAMME ELECTIVES TO BE OPTED ONLY BY THE DEPARTMENT STUDENTS**

**DEPARTMENT OF CHEMICAL ENGINEERING  
OPEN ELECTIVES (OE)\*  
OFFERED FOR LEVEL 5-6 of M.Tech in Chemical Engineering**

<b>OE / LEVEL</b>	<b>Code no.</b>	<b>Name of the PE courses</b>	<b>Prerequisites courses with code</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
OE/5 (MO)	CL516	Heterogeneous Catalysis and Catalytic Processes	NIL	3	0	0	3
OE/5 (MO)	CL515	Process Intensification	NIL	3	0	0	3
OE/5 (SP)	CL614	Process Integration	NIL	3	0	0	3
OE/5 (SP)	CL631	Composite Manufacturing Technology	NIL	3	0	0	3

**\* OPEN ELECTIVES TO BE OPTED ONLY BY OTHER DEPARTMENT STUDENTS**