

BIRLA INSTITUTE OF TECHNOLOGY- MESRA, RANCHI
PROPOSED COURSE STRUCTURE - To be effective from academic session
Based on CBCS & OBE model
(Food Engineering and Technology)

Semester/ Session of Study (Recommended)	LEVEL	Category of course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial;P-Practicals</i>			Total Credits C- Credits	
					L (Periods/w eek)	T (Periods/ week)	P (Periods/ week)	C	
THEORY									
FIRST Monsoon	FIRST	FS Foundation Sciences	MA103	Mathematics - I	3	1	0	4	
			PH113	Physics	3	1	0	4	
			BE 101	Biological Science for Engineers	2	0	0	2	
		GE General Engineering	EE101	Basics of Electrical Engineering	3	1	0	4	
			CS101	Programming for Problem Solving	3	1	0	4	
	LABORATORIES								
		HSS	MT 132	Communication Skills - I	0	0	3	1.5	
	FIRST	FS	PH114	Physics Lab	0	0	3	1.5	
		GE	CS102	Programming for Problem Solving Lab	0	0	3	1.5	
		GE	PE101	Workshop Practice	0	0	3	1.5	
MC Mandatory Course		MC101/102/ 103/104	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1		
TOTAL								25	
Second Spring	THEORY								
	FIRST	FS	MA107	Mathematics - II	3	1	0	4	
			CH101	Chemistry	3	1	0	4	
			CE 101	Environmental Science	2	0	0	2	
		GE	ME101	Basics of Mechanical Engineering	3	1	0	4	
			EC101	Basics of Electronics & Communication Engineering	3	1	0	4	
	LABORATORIES								
	FIRST	FS	CH102	Chemistry Lab	0	0	3	1.5	
		GE	EC102	Electronics & Communication Lab	0	0	3	1.5	
			ME102	Engineering Graphics	0	0	4	2	
MC		MC105/106/ 107/108	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1		
TOTAL								24	
GRAND TOTAL FOR FIRST YEAR								49	

Third Monsoon	THEORY							
	SECOND	FS	MA 203	Numerical Methods	2	0	0	2
	FIRST	HSS	MT 131	UHV2: Understanding Harmony	3	0	0	3
	SECOND	PC	CL 201	Thermodynamics	3	1	0	4
			CL203	Fluid Mechanics	3	0	0	3
			CL 217	Chemical Process Calculations	2	1	0	3
			CL 219	Heat Transfer Operations	3	1	0	4
	LABORATORIES							
	FS	MA 204	Numerical Methods Laboratory	0	0	2	1	
	MC	MC 201/202/203/204	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1	
TOTAL								21
Fourth Spring	THEORY							
	SECOND	PC	CL 205R1	Mechanical Operations	3	0	0	3
			FE 201	Principle of Food Processing and Preservation	3	0	0	3
			FE 203	Programming Language and Data Base Management System	3	0	0	3
			FE 205	Food Chemistry	3	0	0	3
	SECOND	PE		Program Elective (PE-I)	3	0	0	3
		OE		Open Elective (OE-I)/MOOC	3	0	0	3
	LABORATORIES							
	FIRST	GE	EE 102	Electrical Engineering Lab	0	0	3	1.5
	SECOND	MC	MC205/206/207/208	Choice of : NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
		PC	FE 204	Programming Language and Data Base Management System Lab	0	0	3	1.5
FE 206			Food Process Engineering & Technology Lab -I	0	0	3	1.5	
TOTAL								23.5

		THEORY						
Fifth Monsoon	THIRD	PC	FE 301	Food Microbiology	3	0	0	3
			FE 303	Food Quality Control , Laws, Standard and Regulation	3	0	0	3
			FE 305	Biochemistry and Human Nutrition	3	0	0	3
			FE 307	Mass Transfer in Food Processing	3	0	0	3
		PE		Program Elective II	3	0	0	3
		OE		Open Elective (OE-II)/MOOC	3	0	0	3
	LABORATORIES							
	THIRD	PC	FE 302	Food Microbiology Lab	0	0	3	1.5
			FE 304	Food Chemistry and Quality Control Lab 1	0	0	3	1.5
	First	HSS	MT 133	Communication Skills - II	0	0	3	1.5
TOTAL								22.5
		THEORY						
Six Spring	THIRD	PC	CL 333	Process Control &Instrumentation	3	1	0	4
			FE 311	Food Process Engineering	3	0	0	3
			FE 313	Technology of Fruits, Vegetable,Spices and Plantation Crops Processing	3	0	0	3
		PE		Program Elective (PE-III)	3	0	0	3
				Program Elective (PE-IV)	3	0	0	3
		OE		Open Elective (OE-III)/MOOC	3	0	0	3
		PROJ	FE 300	Summer Training	(Preferably in Food Data Analytics)			2
LABORATORIES								
	THIRD	PC	FE 306	Food Chemistry and Quality Control Lab II	0	0	3	1.5
TOTAL								22.5

THEORY								
Seventh Moonsoon		PE	FE 401	Cereal, Pulses and Oilseeds Processing Technology	3	0	0	3
			FE 403	Dairy and Animal Product Processing Technology	3	0	0	3
			Program Elective (PE-V)	3	0	0	3	
			Program Elective (PE-VI)	3	0	0	3	
		OE		Open Elective (OE-IV)/MOOC-I	3	0	0	3
		PROJ	FE 400	Minor Project				3
	SECOND	MC	MT 204	Constitution of India	2	0	0	NC
LABORATORIES								
		PC	FE 402	Food Process Engineering & Technology Lab -II	0	0	3	1.5
TOTAL								19.5
EIGHT Spring	FOURTH	PROJ	FE 400	Research Project / Industry Internship	Total			10
GRAND TOTAL <i>Minimum requirement for Degree award</i>								168

DEPARTMENT OF CHEMICAL ENGINEERING
PROGRAMME ELECTIVES (PE)**
OFFERED FOR LEVEL 1-4

PE / LEVEL		Code no.	Name of the PE courses	Prerequisites courses with code	L	T	P	C
2	PE 1 (IV Sem)	FE 221	Applied Statistics for Food Engineering Technology		3	0	0	3
		CL 233	Waste Management		3	0	0	3
		CL 231	Computer Aided Process Engineering		3	0	0	3
		FE 223	Statistical Machine Learning I		3	0	0	3
		FE 225	Algorithms For Big Data I		3	0	0	3
3	PE 2 (V Sem)	FE 321	Entrepreneurship Development		3	0	0	3
		FE 323	Nutraceutical & Functional Foods		3	0	0	3
		CL 347	Analytical Instrumental Methods		3	0	0	3
		FE 325	Statistical Machine Learning II		3	0	0	3
		FE 327	Regression Techniques		3	0	0	3
3	PE 3(VI Sem)	FE 337	Food Supply Chain Management		3	0	0	3
		FE 339	Engineering Properties of Foods		3	0	0	3
		CL 351	Design and Analysis of Experiments		3	0	0	3
		FE 333	Big Data Analytics		3	0	0	3
		FE 335	Data Mining and Data Visualization		3	0	0	3
3	PE 4 (VI Sem)	FE 337	Food Processing Equipment Design		3	0	0	3
		FE 339	Food Processing Plant Engineering & Layout		3	0	0	3
		FE 341	Novel Techniques in Food Processing and Preservation		3	0	0	3
		FE 343	Refrigeration and Air Conditioning Engineering		3	0	0	3
		CL 371	Computational Fluid Dynamics		3	0	0	3
		FE 401	Fats and Oil Processing Technology		3	0	0	3
		FE 403	Biochemical Engineering		3	0	0	3

4	PE 5 (VII Sem)	FE 405	Food Product Development and Consumer Science		3	0	0	3
		FE 407	Enzyme Technology		3	0	0	3
		FE 409	Bakery and Confectionary Technology		3	0	0	3
		FE 411	Food Packaging Technology		3	0	0	3
		CL427	Microfluidics		3	0	0	3
4	PE 6 (VII Sem)	FE 423	Food Additives & Ingredients		3	0	0	3
		FE 425	Flavor Technology		3	0	0	3
		FE 427	Post Harvest Engineering		3	0	0	3
		FE 429	Rheology and Texture Analysis		3	0	0	3
		FE 431	Energy Utilization of Food Industries		3	0	0	3
		CL 439	Biomaterial		3	0	0	3

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