

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 (B. Tech in Production Engineering)								
Semester/ Session (Recommended)	Course Level	Category of course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial; P- Practicals</i>			Total Credits <i>C- Credits</i>
					L (Periods/ week)	T (Periods/ week)	P (Periods/ week)	C
GRAND TOTAL FOR FIRST YEAR								43.5
THIRD Monsoon	THEORY							
	SECOND	FS	MA203	Numerical Methods	2	0	0	2
	FIRST		CE101	Environmental Sciences	2	0	0	2
	SECOND	PC Program Core	PE201	Metallurgy	3	0	0	3
			ME203	Fluid Mechanics and Hydraulic Machines	3	0	0	3
			ME205	Strength of Materials	3	1	0	4
			PE203	Operations Research	3	0	0	3
	LABORATORIES							
	SECOND	GE	IT202	Basic IT Workshop	0	0	2	1
		FS	MA204	Numerical Methods Lab	0	0	2	1
		PC	PE202	Metallurgy Lab	0	0	3	1.5
			ME204	Mechanical Engineering Lab - I	0	0	3	1.5
		MC	MC201/202/203/ 204	Choice of: NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
	TOTAL							
FOURTH Spring	THEORY							
	SECOND	GE	IT201	Basics of Intelligent Computing	3	0	0	3
	FIRST	FS	BE101	Biological Sciences for Engineers	2	0	0	2
	SECOND	PC	PE204	Manufacturing Processes - I	3	0	0	3
			PE206	Metrology & Measurement	3	0	0	3
			ME207	Kinematics and Dynamics of Machines	3	0	0	3
			PE Program Elective		Program Elective - I	3	0	0
	LABORATORIES							
	FIRST	GE	EE102	Electrical Engineering Lab	0	0	3	1.5
	SECOND	PC	PE205	Manufacturing Processes - I Lab	0	0	3	1.5
			PE207	Metrology & Measurement Lab	0	0	3	1.5
		MC	MC205/206/207/ 208	Choice of: NCC/NSS/ PT & Games/ Creative Arts (CA)	0	0	2	1
TOTAL								22.5
FIFTH Monsoon	THEORY							
	FIRST	HSS Humanities & Social Sciences	MT123	Business Communications	2	0	2	3
	THIRD	PC	PE301	Manufacturing Processes - II	3	0	0	3
			PE303	Design of Machine Elements	3	1	0	4
			PE304	Production & Operations Management	4	0	0	4
			PE		Program Elective - II	3	0	0
		OE Open Elective		Open Elective - I	3	0	0	3
	LABORATORIES							
	THIRD	PC	PE302	Manufacturing Processes - II Lab	0	0	3	1.5
			PE305	Computer Aided Design and Drafting Lab	0	0	3	1.5
TOTAL								23

SIXTH Spring	THEORY								
	THIRD	PC	PE311	Machine Tool Design	3	1	0	4	
			PE313	Tool Design	3	1	0	4	
			PE314	Statistical Quality Control	3	0	0	3	
			PE315	Work Study & Ergonomics	3	0	0	3	
		PE	Program Elective - III	3	0	0	3		
		OE	Open Elective - II	3	0	0	3		
	MC	MC300	Summer Training- Mandatory	NA	NA	NA	3		
	LABORATORIES								
THIRD	PC	PE312	Machine Tool Design Sessional	0	0	3	1.5		
		PE316	Work Study & Ergonomics Lab.	0	0	3	1.5		
TOTAL								26	
THEORY									
SEVENTH Monsoon	FOURTH	HSS	PE401	Professional Practice, Law & Ethics	2	0	0	2	
		PC	PE402	Automation in Manufacturing	3	0	0	3	
		PE		Program Elective - IV	3	0	0	3	
		OE		Open Elective - III / MOOC-I	3	0	0	3	
				Open Elective - IV / MOOC-II	3	0	0	3	
	SECOND	MC	MT204	Constitution of India	2	0	0	NIL	
		LABORATORIES							
	FOURTH	PC	PE403	Automation in Manufacturing Lab	0	0	3	1.5	
			PE404	Modelling and Simulation Lab	0	0	3	1.5	
TOTAL								17	
EIGHT Spring	FOURTH		PE400	Research Project / Industrial Internship	Total			12	
GRAND TOTAL								167	

DEPARTMENT OF PRODUCTION ENGINEERING PROGRAMME ELECTIVES (PE)**								
LEVEL		Course Code	Name of the PE courses	Prerequisites courses with code	L	T	P	C
SECOND	PE - I (Any one) (Industrial Engineering and Management)	PE208	Project Engineering	None	3	0	0	3
		PE209	Engineering Economy, Costing and Accounting	None	3	0	0	3
		PE210	Reliability and Maintenance Engineering	None	3	0	0	3
THIRD	PE - II (Any one) (Industrial Engineering and Management)	PE306	Advanced Operations Research	PE 203 Operations Research	3	0	0	3
		PE307	Competitive Manufacturing Strategies	None	3	0	0	3
		PE308	Logistics and Supply Chain Management	PE 203 Operations Research	3	0	0	3
	PE - III (Any one) (Advanced Manufacturing Technology)	PE317	Advanced Welding Technology	PE 201 Metallurgy, PE 204 Manufacturing Processes - I	3	0	0	3
		PE318	Rapid Prototyping and Tooling	None	3	0	0	3
		PE319	Material Deformation Processes	PE 204 Manufacturing Processes - I, ME 205 Strength of Materials	3	0	0	3
FOURTH	PE - IV (Any one) (Advanced Manufacturing Technology)	PE405	Manufacturing Science	PE 204 Manufacturing Processes - I, PE 301 Manufacturing Processes - II	3	0	0	3
		PE406	Non-conventional Machining Processes	None	3	0	0	3
		PE407	Advanced Manufacturing Processes	PE 204 Manufacturing Processes - I, PE 301 Manufacturing Processes - II	3	0	0	3

** PROGRAMME ELECTIVES TO BE OPTED ONLY BY THE PRODUCTION ENGINEERING STUDENTS

DEPARTMENT OF PRODUCTION ENGINEERING OPEN ELECTIVES (OE)*								
SEMESTER / SESSION OF STUDY (Recommended)	LEVEL	Code no.	Name of the OE courses	Prerequisites courses with code	L	T	P	C
FIFTH / Monsoon	SECOND	PE211	Engineering Economy	None	3	0	0	3
SIXTH / Spring	THIRD	PE309	Project Management	None	3	0	0	3

*** OPEN ELECTIVES TO BE OFFERED TO THE STUDENTS OF OTHER DEPT.**

<p align="center">DEPARTMENT OF PRODUCTION ENGINEERING IN-DEPTH SPECIALISATION on "Advanced Manufacturing and Production Management" (OFFERED ONLY TO THE DEPARTMENT STUDENTS)</p>

Students who have registered for DEPARTMENTAL SPECIALISATION (in-depth) in "Advanced Manufacturing and Production Management" should complete 20 credits and shall opt for courses listed below. The credits shall be over and above minimum requirement for degree award.

Semester/ Session of Study (Recommended)	Course Level	Category of course	Course Code	Courses	Mode of delivery & credits <i>L-Lecture; T-Tutorial; P-Practicals</i>			Total Credits <i>C- Credits</i>
					L <i>(Periods/ week)</i>	T <i>(Periods/ week)</i>	P <i>(Periods/ week)</i>	C
FIFTH / Monsoon	Third	PC	PE310	Industrial Robotics	3	1	0	4
			PE320	Sustainable Manufacturing	3	0	0	3
			TOTAL					
SIXTH / Spring	Third	PC	PE321	Manufacturing Management and Cost Optimization	3	0	0	3
			PE322	Processing of Polymers, Composite and Advanced Materials	3	0	0	3
		PE (any one)	PE323	Material Characterisation and Non-destructive Testing	3	0	0	3
			TOTAL					
SEVENTH / Monsoon	Fourth	PC	PE408	Micro and Nano Manufacturing	3	0	0	3
			PE409	Finite Elements in Manufacturing Engineering Applications	3	1	0	4
			TOTAL					
GRAND TOTAL								20

(OFFERED ONLY TO OTHER DEPARTMENT STUDENTS)

Semester/ Session of Study (Recommended)	Course Level	Category of course	Course Code	Courses	Prerequisites courses with code	Mode of delivery & credits <i>L-Lecture; T-Tutorial; P-Practicals</i>			Total Credits <i>C- Credits</i>
						L <i>(Periods/week)</i>	T <i>(Periods/week)</i>	P <i>(Periods/week)</i>	C

FIFTH / Monsoon				THEORY					
	SECOND	PC	PE203	Operations Research	Nil	3	0	0	3
	SECOND	PE (any one)	PE213	Manufacturing Processes	Nil	3	0	0	3
	THIRD		PE307	Competitive Manufacturing Strategies	Nil	3	0	0	3
TOTAL									6
SIXTH / Spring	THEORY								
	SECOND	PC	PE206	Metrology & Measurement	Nil	3	0	0	3
	THIRD	PE (any one)	PE318	Rapid Prototyping and Tooling	Nil	3	0	0	3
			PE314	Statistical Quality Control	Nil	3	0	0	3
			PE308	Logistics and Supply Chain Management	PE203 Operations Research	3	0	0	3
			LABORATORY						
	SECOND	PC	PE207	Metrology & Measurement Lab	(Co-requisite PE206)	0	0	3	1.5
TOTAL									7.5
SEVENTH / Monsoon	THEORY								
	THIRD	PC	PE304	Production & Operations Management	Nil	4	0	0	4
	LABORATORY								
	FOURTH	PC	PE404	Modelling and Simulation Lab	Nil	0	0	3	1.5
	PROJECT								
	FOURTH	PC	PE450	Mini Project		0	0	2	1
TOTAL									6.5
GRAND TOTAL									20