

SANDWICH BE: PRODUCTION ENGINEERING

MINIMUM CREDITS TO BE EARNED: 191
MINIMUM CREDITS IN INDUSTRIAL TRAINING: 68

Code No.	Course	Hours/Week				Maximum Marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	
SEMESTER 1									
08O101	Calculus and its Applications	3	2	0	4	50	50	100	
08P102	Applied Physics	3	0	0	3	50	50	100	
08P103	Applied Chemistry I	3	0	0	3	50	50	100	
08P105	Problem Solving and C Programming	2	0	2	3	50	50	100	
08P106	Introduction to Manufacturing Systems	3	0	0	3	50	50	100	
08P111	Engineering Practices	0	0	2	1	100 ^{&}	-	100	
08P211	Physics Laboratory	}	0	0	3	Refer Semester 2 and Footnote #			
08P212	Chemistry Laboratory								
08P213	Computer Aided Engineering Graphics								
08P100	Industrial Training I	-	-	15	4%	100 ^{&}	-	100	
		15	2	9+15	17+4				
SEMESTER 2									
08O201	Linear Algebra and Fourier Series	3	2	0	4	50	50	100	
08P202	Materials Science	3	0	0	3	50	50	100	
08P203	Applied Chemistry II	3	0	0	3	50	50	100	
08P205	Engineering Mechanics	3	2	0	4	50	50	100	
08P206	Engineering Metallurgy	3	0	0	3	50	50	100	
08P211	Physics Laboratory	}	0	0	3	1.5	100 [#]	-	100
08P212	Chemistry Laboratory					1.5	100 [#]	-	100
08P213	Computer Aided Engineering Graphics					4	100 [#]	-	100
08P200	Industrial Training II	-	-	15	8%	100 ^{&}	-	100	
		16	4	5+15	24+8				

CA - Continuous Assessment

FE - Final Examination

& - 40 marks for final test to be scheduled by the faculty

- Continuous Assessment marks are awarded for performance in both semesters 1 & 2 with 40 marks for final test to be scheduled by the faculty concerned at the end of semester 2 covering the entire syllabus.

% - Not counted for CGPA computation

SANDWICH BE: PRODUCTION ENGINEERING

Code No.	Course	Hours/Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 3								
08O104	Communication Skills in English	3	0	2	4	50	50	100
08P303	Kinematics of Machinery	3	1	0	3.5	50	50	100
08P304	Machining Technology	3	0	0	3	50	50	100
08P305	Strength of Materials	3	1	0	3.5	50	50	100
08P306	Electrical and Electronics Engineering	3	0	0	3	50	50	100
08P311	Metallurgy and Strength of Materials Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P312	Electrical and Electronics Engineering Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P300	Industrial Training III	-	-	15	12%	100 ^{&}	-	100
		15	2	8+15	20+12			

SEMESTER 4

08P204	Foundry Technology	3	0	0	3	50	50	100
08O__	Language Elective	3	0	0	3	50	50	100
08P401	Fluid Mechanics and Machinery ^{##}	3	1	0	3.5	50	50	100
08P402	Dynamics of Machinery	3	1	0	3.5	50	50	100
08P403	Thermal Systems and Heat Transfer	3	1	0	3.5	50	50	100
08P410	Machine Drawing	2	0	4	4	100 ^{&}	-	100
08P400	Industrial Training IV	-	-	15	8%	100 ^{&}	-	100
		17	3	4+15	20.5+8			

CA - Continuous Assessment

FE - Final Examination

& - 40 marks for final test to be scheduled by the faculty

- The course includes atleast one assignment with mathematical modeling and/ or simulation of a practical situation.

% - Not counted for CGPA computation

SANDWICH BE: PRODUCTION ENGINEERING

Code No.	Course	Hours/Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 5								
08O301	Transforms and Complex Analysis	3	2	0	4	50	50	100
08O302	Economics for Business Decisions	3	0	0	3	50	50	100
08P501	Metal Forming Processes	3	0	0	3	50	50	100
08P502	Industrial Hydraulics and Pneumatics	3	0	0	3	50	50	100
08P504	Metrology and Quality Control	3	0	0	3	50	50	100
08P310	Machining Technology Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P411	Thermal Engineering and Fluid Machinery Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P500	Industrial Training V	-	-	15	8 [%]	100 ^{&}	-	100
		15	2	6+15	19+8			

SEMESTER 6

08P404	Welding Technology	3	0	0	3	50	50	100
08O___	Mathematics Elective I	3	1	0	3.5	50	50	100
08O___	Humanities Elective	3	0	0	3	50	50	100
08P601	Design of Machine Elements	3	2	0	4	50	50	100
08P604	CNC Machines	3	0	0	3	50	50	100
08P611	Fluid Power and CNC Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P520	Mini Project I	0	0	2	1	100	-	100
08P420	Industry Visit	0	0	3	1.5	100 ^{&}	-	100
08P600	Industrial Training VI	-	-	15	12 [%]	100 ^{&}	-	100
		15	3	8+15	20.5+12			

CA - Continuous Assessment

FE - Final Examination

& - 40 marks for final test to be scheduled by the faculty

% - Not counted for CGPA computation

SANDWICH BE: PRODUCTION ENGINEERING

Code No.	Course	Hours/Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 7								
08P503	Process Planning and Cost Estimation	5	0	0	3	50	50	100
08P505	Theory of Metal Cutting ^{##}	5	0	0	3	50	50	100
08O___	Mathematics Elective II	3	2	0	3.5	50	50	100
08P510	Manufacturing Technology Laboratory	0	0	4	1.5	100 ^{&}	-	100
08P511	Metrology and Instrumentation Laboratory	0	0	4	1.5	100 ^{&}	-	100
08P620	Mini Project II^{***}	0	0	3[@]	1	100	-	100
08P700	Industrial Training VII^{***}	-	-	20[@]	8[%]	100^{&}	-	100
		13	2	8 + 23 [@]	12.5			

SEMESTER 8

08P602	Industrial Engineering and Operations Research ^{##}	3	0	0	3	50	50	100
08P603	Design of Production Tooling	3	0	2	4	50	50	100
08P605	Design for Manufacture and Assembly	3	0	0	3	50	50	100
08P704	Automation and CIM	3	0	0	3	50	50	100
08___	Elective I	3	0	0	3	50	50	100
08P610	Industrial Engineering and Simulation Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P711	Computer Aided Engineering Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P800	Industrial Training VIII	-	-	15	4 [%]	-	-	Grade
		15	0	8+15	19+4			

CA - Continuous Assessment, FE - Final Examination

& - 40 marks for final test to be scheduled by the faculty concerned

- Continuous Assessment marks are awarded for performance in both semesters 1 & 2 with 40 marks for final test to be scheduled by the faculty concerned at the end of semester 2 covering the entire syllabus.

% - Not taken into account for minimum total credits and CGPA

*** - Students will undergo the course work and /or training in an industry immediately after the 6th semester examinations for a period of 3 months.

@ - minimum no. of hours in the industry

SANDWICH BE: PRODUCTION ENGINEERING

Code No.	Course	Hours/Week			Credits	Maximum Marks		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 9								
08P701	Environmental Science and Engineering	3	0	0	3	50	50	100
08P702	Non-Traditional Machining Techniques	3	0	0	3	50	50	100
08P703	Production and Operations Management ^{##}	3	0	0	3	50	50	100
08____	Elective II	3	0	0	3	50	50	100
08____	Elective III	3	0	0	3	50	50	100
08P710	Product Design and Development Laboratory	0	0	3	1.5	100 ^{&}	-	100
08P720	Project Work I	0	0	6	3	100	-	100
08P900	Industrial Training IX	-	-	15	4 [%]	-	-	Grade
		15	-	9+15	19.5+4			

SEMESTER 10

08____	Elective IV	3	0	0	3	50	50	100
08____	Elective V	3	0	0	3	50	50	100
08P820	Project Work II	0	0	24	12	50	50	100
		6	0	24	18			

CA - Continuous Assessment

FE - Final Examination

& - 40 marks for final test to be scheduled by the faculty

- The course includes atleast one assignment with mathematical modeling and/ or simulation of a practical situation.

% - Not counted for CGPA computation

ELECTIVES

MATHEMATICS (Two electives to be opted)

08O001	Applied Numerical Analysis
08O002	Business Statistics
08O003	Mathematical Modeling
08O004	Optimization Techniques
08O005	Statistics and Quality Control
08O006	Stochastic Models
08O007	Mathematical Modeling for Mechanical Sciences

HUMANITIES (One elective to be opted)

08O046	Principles of Management
08O047	Human Resource Management
08O048	Introduction to Management
08O049	Human Values and Professional Ethics
08O050	Micro Economic Environment
08O051	Entrepreneurship

LANGUAGE (One elective to be opted)

08O061	Professional English
08O062	Initiative to German Language
08O063	Basic French
08O064	Basic Conversational Skills in Japanese Language

DEPARTMENT ELECTIVES

(A minimum of three electives are to be opted from streams A and B put together)

STREAM A – GENERAL ELECTIVES

08P001	Mechatronics
08P002	Mechanical Measurements
08P003	Industrial Robotics
08P004	Maintenance and Safety Engineering
08P005	Finite Element Applications in Manufacturing
08P006	Micro Systems Technology
08P007	Product Development Strategies
08P008	Design and Manufacture of Gears
08P009	Product Data Management and Collaborative Product Commerce
08P010	Cleaner Production
08P011	Surface Engineering and Tribology
08P012	Manufacture of Automotive Components
08P013	Quality Assurance and Reliability
08P014	Production Planning and Control
08P015	Lean Manufacturing

STREAM B – RESEARCH ELECTIVES

08P051	Composite Materials Processing
08P052	Simulation of Manufacturing Systems
08P053	Computational Fluid Dynamics
08P054	Applied Heat Transfer in Manufacturing
08P055	Strategic Quality Management
08P056	Mechanical Vibrations

OTHER DEPARTMENT ELECTIVES **

PHYSICS

08O016	Micro Machining and Micro Sensors
08O017	Nano Science and Technology
08O018	Integrated Circuit Technology
08O019	Thin Film Technology
08O020	Laser Technology
08O021	Composite Materials
08O022	Electronic Ceramics
08O023	Plasma Technology
08O024	Computational Materials Science
08O025	Quantum Mechanics
08O026	Electro Optic Materials
08O027	Analytical Methods in Materials Science
08O028	Vacuum Science and Deposition Techniques
08O029	Semi Conducting Materials and Devices
08O030	Sensors for Engineering Applications

CHEMISTRY

08O031	Energy Storing Devices and Fuel Cells
08O032	Polymers in Electronics
08O033	Organic Electronics
08O034	Functional Coatings by Polymer Micro Encapsulation
08O035	Analytical Methods for Textiles and Textile Ancillaries
08O036	Polymers and Composites
08O037	Corrosion Science and Engineering
08O038	Chemistry of Nanomaterials
08O039	Polymer Chemistry and Polymer Processing
08O040	Electroanalytical Methods
08O041	Instrumental Methods of Chemical Analysis
08O042	Advanced Reaction Mechanism
08O043	Chemical Sensors and Biosensors
08O044	Computational Physical Chemistry
08O045	Molecular Spectroscopy

MANAGEMENT (To be offered by the PSG Institute of Management)

08O081	Financial and Managerial Accounting
08O082	Managerial Finance
08O083	Applied Business Statistics
08O084	Marketing Systems
08O085	Analysis of Manufacturing and Service Systems

COMPUTER SCIENCE (To be offered by the Department of Mathematics & Computer Applications)

08O091	Database Management Systems
08O092	Enterprise Computing
08O093	Data Structures

** Students can opt for a maximum of two electives from the list of electives of other departments, including the ones listed above.

ONE CREDIT COURSES

08PK01	Process Improvement and Product Design through Lean Six Sigma
08PK02	Design and Optimization Technology

