

SANDWICH BE: MECHANICAL ENGINEERING

MINIMUM CREDITS TO BE EARNED: 197
MINIMUM CREDITS IN INDUSTRIAL TRAINING: 68

Code No.	Course	Hours/Week			Credit	Maximum Mark		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 1								
08O101	Calculus and its Applications	3	2	0	4	50	50	100
08M102	Applied Physics	3	0	0	3	50	50	100
08M103	Applied Chemistry I	3	0	0	3	50	50	100
08O104	Communication Skills in English	3	0	2	4	50	50	100
08M110	Engineering Graphics I	2	0	3	3.5	100 ^{&}	-	100
08M211	Physics Laboratory	}	0	0	3	Refer Semester 2 and Footnote #		
08M212	Chemistry Laboratory		0	0	3			
08M205	Concepts of Engineering Design	3	0	0	3	100 ^{&}	-	100
08M100	Industrial Training I	-	-	15	4 [%]	100 ^{&}	-	100
		17	2	8+15	20.5 +4			

SEMESTER 2

08M105	Problem Solving and C Programming	2	0	2	3	50	50	100
08M106	Engineering Mechanics	3	2	0	4	50	50	100
08M202	Materials Science	3	0	0	3	50	50	100
08M203	Applied Chemistry II	3	0	0	3	50	50	100
08M204	Fluid Mechanics	3	1	0	3.5	50	50	100
08M211	Physics Laboratory	}	0	0	3	1.5	100 [#]	-
08M212	Chemistry Laboratory		0	0	3	1.5	100 [#]	-
08M213	Engineering Graphics II	2	0	3	3.5	100 ^{&}	-	100
08M200	Industrial Training II	-	-	15	8 [%]	100 ^{&}	-	100
		16	3	8+15	23+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: MECHANICAL ENGINEERING

Code No.	Course	Hours/Week			Credit	Maximum Mark		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 3								
08O201	Linear Algebra and Fourier Series	3	2	0	4	50	50	100
08M303	Electrical and Electronics Engineering	4	0	0	4	50	50	100
08M304	Kinematics of Machinery	3	1	0	3.5	50	50	100
08M305	Strength of Materials	3	1	0	3.5	50	50	100
08M310	Machine Drawing	2	0	3	3.5	100 ^{&}	-	100
08M210	Engineering Practices	0	0	2	1	100 ^{&}	-	100
08M311	Strength of Materials Laboratory	0	0	2	1	100 ^{&}	-	100
08M312	Electrical and Electronics Engineering Laboratory	0	0	2	1	100 ^{&}	-	100
08M300	Industrial Training III	-	-	15	12 [%]	100 ^{&}	-	100
		15	4	9+15	21.5+12			

SEMESTER 4

08O___	Language Elective	3	0	0	3	50	50	100
08M306	Industrial Metallurgy	3	0	0	3	50	50	100
08M403	Fluid Machinery and Gas Dynamics ^{##}	3	1	0	3.5	50	50	100
08M404	Dynamics of Machinery ^{##}	3	1	0	3.5	50	50	100
08M502	Instrumentation and Control Systems	4	0	0	4	50	50	100
08M411	Experimental Fluid Mechanics Laboratory	0	0	3	1.5	100 ^{&}	-	100
08M412	Dynamics Laboratory	0	0	2	1	100 ^{&}	-	100
08M413	Metallurgy Laboratory	0	0	2	1	100 ^{&}	-	100
08M420	Industrial Visit cum Lecture	0	0	2	1	100 ^{&}	-	100
08M400	Industrial Training IV	-	-	15	8 [%]	100 ^{&}	-	100
		16	2	9+15	21.5+8			

CA	-	Continuous Assessment
FE	-	Final Examination
&	-	40 marks for final test to be scheduled by the faculty concerned
##	-	The course includes at least one assignment with mathematical modeling and / or simulation of a practical situation.
%	-	Not counted for CGPA computation

Code No.	Course	Hours/Week			Credit	Maximum Mark		
		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
08M401	Manufacturing Technology I	4	0	0	4	50	50	100
08M402	Applied Thermodynamics	3	1	0	3.5	50	50	100
08O___	Mathematics Elective I	3	1	0	3.5	50	50	100
08M503	Metrology and Quality Assurance	3	0	0	3	50	50	100
08M510	Sensor Interface Laboratory	0	0	2	1	100 ^x	-	100
08M511	Metrology Laboratory	0	0	2	1	100 ^x	-	100
08M500	Industrial Training V	-	-	15	12 [%]	100 ^x	-	100
		19	4	4+15	23+12			

SEMESTER 6

08M501	Manufacturing Technology II	4	0	0	4	50	50	100
08O___	Humanities Elective	3	0	0	3	50	50	100
08M504	Design of Machine Elements I	3	1	0	3.5	50	50	100
08M505	Thermal Engineering	3	1	0	3.5	50	50	100
08O___	Mathematics Elective II	3	1	0	3.5	50	50	100
08M410	Manufacturing Process Laboratory I	0	0	2	1	100 ^x	-	100
08M512	Manufacturing Process Laboratory II	0	0	2	1	100 ^x	-	100
08M513	Thermal Engineering Laboratory	0	0	3	1.5	100 ^x	-	100
08M600	Industrial Training VI	-	-	15	8 [%]	100 ^x	-	100
		16	3	7+15	21+8			

CA	-	Continuous Assessment
FE	-	Final Examination
&	-	40 marks for final test to be scheduled by the faculty concerned
%	-	Not counted for CGPA computation

SANDWICH BE : MECHANICAL ENGINEERING

Code No.	Course	Hours/Week			Credit	Maximum Mark		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 7								
08M602	Mechatronic System Design	4	0	0	4	50	50	100
08M603	Heat and Mass Transfer ^{##}	3	1	0	3.5	50	50	100
08M604	Design of Machine Elements II	3	1	0	3.5	50	50	100
08M703	Finite Element Analysis ^{##}	3	1	0	3.5	50	50	100
08M610	Heat and Mass Transfer Laboratory	0	0	2	1	100 ^{&}	-	100
08M520	Mini Project	0	0	2	1	100	-	100
08M611	Mechatronics Laboratory	0	0	2	1	100 ^{&}	-	100
08M710	Computer Aided Engineering Laboratory	0	0	2	1	100 ^{&}	-	100
08M700	Industrial Training VII	-	-	15	8 [%]	100 ^{&}	-	100
		13	3	8+15	18.5+8			

SEMESTER 8

08M601	Design for Manufacture and Assembly	3	1	0	3.5	50	50	100
08M605	Operations Research	3	1	0	3.5	50	50	100
08____	Elective I	3	0	0	3	50	50	100
08M702	Manufacturing Systems Design ^{##}	3	0	0	3	50	50	100
08M704	Tool Design	3	0	0	3	50	50	100
08M711	Manufacturing Systems Laboratory	0	0	2	1	100 ^{&}	-	100
08M621	Comprehensive Viva Voce	0	0	2	1	100	-	100
08M800	Industrial Training VIII	-	-	15	4 [%]	-	-	Grade
		15	2	4+15	18+4			

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: MECHANICAL ENGINEERING

Code No.	Course	Hours/Week			Credit	Maximum Mark		
		Lecture	Tutorial	Practical		CA	FE	Total
SEMESTER 9								
08M701	Environmental Science and Engineering	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
08M720	Project Work I	0	0	6	3	100	-	100
08M900	Industrial Training IX	-	-	15	4 [%]	-	-	Grade
		9	-	6+15	12+4			
SEMESTER 10								
08_____	Elective IV	3	0	0	3	50	50	100
08_____	Elective V	3	0	0	3	50	50	100
08M820	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
% - Not counted for CGPA computation

ELECTIVES

MATHEMATICS (A minimum of two electives)

08O001	Applied Numerical Analysis
08O002	Business Statistics
08O003	Mathematical Modeling
08O004	Optimization Techniques
08O005	Statistics and Quality Control
08O006	Stochastic Models
08O007	Database Systems
08O008	Mathematical Modeling for Mechanical Sciences

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 Device
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	Electro analytical Methods
08O041	Instrumental Methods of Chemical Analysis
08O042	Advanced Reaction Mechanism
08O043	Chemical Sensors and Biosensors
08O044	Computational Physical Chemistry
08O045	Molecular Spectroscopy

HUMANITIES (A minimum of one elective)

08O046	Principles of Management
08O047	Human Resource Management
08O048	Introduction to Management
08O049	Organizational Behaviour
08O050	Value Management
08O051	Human Values and Professional Ethics
08O052	Micro Economic Environment
08O053	Marketing Systems
08O054	Entrepreneurship
08O055	Analysis of Manufacturing and Service Systems
08O056	Financial and Management Accounting
08O057	Managerial Finance
08O058	Working Capital Management
08O059	Cost Management
08O060	Technology Incubators and Commercialization of Innovation

LANGUAGE (A minimum of one elective)

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)#

DESIGN ENGINEERING

08M001	Computer Aided Design
08M002	Advanced Strength of Materials
08M003	Automobile Engineering
08M004	Failure Analysis and Design
08M005	Vibration and Noise Engineering
08M006	Design of Rotating Equipment
08M007	Product Design and Development Strategies
08M008	Theory of Elasticity and Plasticity
08M009	Mechanics of Composite Materials
08M010	Biomechanics

MANUFACTURING ENGINEERING

08M016	Computer Integrated Manufacture
08M017	Manufacture and Inspection of Gears
08M018	Hydraulic and Pneumatic Systems
08M019	Precision Engineering
08M020	Manufacture of Automotive Components

THERMAL ENGINEERING

08M026	Computational Fluid Dynamics
08M027	IC Engine Design
08M028	Power Plant Engineering
08M029	Biogas Engineering
08M030	Modeling and Simulation of Internal Combustion Engines
08M031	Advanced Theory of Internal Combustion Engines
08M032	Gas Dynamics and Space Propulsion
08M033	Refrigeration and Air Conditioning

INDUSTRIAL ENGINEERING

08M039	Lean Manufacturing
08M040	Value Analysis and Value Engineering
08M041	Supply Chain Management
08M042	Industrial Design and Applied Ergonomics
08M043	Process Planning and Cost Estimation
08M044	Optimization Techniques
08M045	Quality Engineering