



# G H RAISONI COLLEGE OF ENGINEERING NAGPUR

(An Autonomous Institute affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur)

CRPF Gate No.3, Hingna Road, Digdoh Hills, Nagpur. Maharashtra-440016 (India)

## Course wise Teaching Plan for Session : Summer 2018

Course : Fluid Machinery

Faculty : vpkalbande - Vednath P  
Kalbande

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to subject, TAE components and practical application	06/12/2017	BMEL302	A
1	2	Impulse momentum principle	06/12/2017	BMEL302	A
1	3	Velocity diagram construction	07/12/2017	BMEL302	A
1	4	Force exerted on flat vane, Inclined, curved vane fixed condition	08/12/2017	BMEL302	A
1	5	Force exerted on flat vane, Inclined, curved vane movable condition	13/12/2017	BMEL302	A
1	6	Force exerted on series of vanes.	13/12/2017	BMEL302	A
1	7	Numericals	14/12/2017	BMEL302	A
2	8	Hydraulic Turbines, Theory of impulse and reaction machines	15/12/2017	BMEL302	A
2	9	Impulse Turbines(Pelton), Principle, construction, Installation, Design parameters	20/12/2017	BMEL302	A
2	10	Numericals	20/12/2017	BMEL302	A
2	11	Numericals	21/12/2017	BMEL302	A
2	12	Numericals	22/12/2017	BMEL302	A
2	13	Analysis, characteristics and governing.	03/01/2018	BMEL302	A
3	14	Reaction Turbines (Francis and Kaplan) Main components and construction features	03/01/2018	BMEL302	A
3	15	Cavitations in water turbines, Governing mechanism, safety devices,	10/01/2018	BMEL302	A
3	16	Performance characteristics and their analysis, specific speed	10/01/2018	BMEL302	A
3	17	Cavitations in water turbines, Governing mechanism Hydraulic Pumps	11/01/2018	BMEL302	A
3	18	Numericals	12/01/2018	BMEL302	A
3	19	Numericals	17/01/2018	BMEL302	A
3	20	Numericals	17/01/2018	BMEL302	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Fluid Machinery

Faculty : vpkalbande - Vednath P  
Kalbande

Unit	Topic Code	Topic Covered	Date	Course	Section
4	21	Centrifugal Pumps: Principle of operation, Classification	18/01/2018	BMEL302	A
4	22	Types, Construction, Installation, characteristics and their analysis	19/01/2018	BMEL302	A
4	23	Numericals	24/01/2018	BMEL302	A
4	24	Numericals	24/01/2018	BMEL302	A
4	25	Axial flow pump: Basic theory, construction,	25/01/2018	BMEL302	A
4	26	Operation, Characteristics	31/01/2018	BMEL302	A
5	27	Reciprocating Pumps : Basic theory, types, construction	31/01/2018	BMEL302	A
5	28	Installation and characteristics	01/02/2018	BMEL302	A
5	29	Numericals	02/02/2018	BMEL302	A
5	30	Indicator diagram, Air vessels, Cavitations in pumps	07/02/2018	BMEL302	A
5	31	Numericals	07/02/2018	BMEL302	A
5	32	Numericals	14/02/2018	BMEL302	A
5	33	Rotary Pumps: Basic theory, types, construction	14/02/2018	BMEL302	A
5	34	Variable delivery pumps	15/02/2018	BMEL302	A
5	35	Rotary Displacement Pumps: Introduction to gear pumps,	16/02/2018	BMEL302	A
5	36	Sliding vane pumps, Screw pumps.	21/02/2018	BMEL302	A
6	37	Hydrostatic systems: their function, components	21/02/2018	BMEL302	A
6	38	application such as Hydraulic press, lift	22/02/2018	BMEL302	A
6	39	Crane, fluid drive for machine tools.	23/02/2018	BMEL302	A
6	40	Intensifier , Accumulator.	28/02/2018	BMEL302	A
6	41	Hydrokinetic systems: Fluid couplings	28/02/2018	BMEL302	A



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Course : Fluid Machinery

Faculty : vpkalbande - Vednath P  
Kalbande

Unit	Topic Code	Topic Covered	Date	Course	Section
6	42	Torque converter.	01/03/2018	BMEL302	A
6	43	Revision	07/03/2018	BMEL302	A
6	44	Revision	07/03/2018	BMEL302	A
6	45	Revision	08/03/2018	BMEL302	A
6	46	Revision	09/03/2018	BMEL302	A
6	47	Revision	15/03/2018	BMEL302	A
6	48	Revision	16/03/2018	BMEL302	A
6	49	Revision	21/03/2018	BMEL302	A
6	50	Revision	21/03/2018	BMEL302	A
6	51	Revision	22/03/2018	BMEL302	A
6	52	Revision	23/03/2018	BMEL302	A
6	53	Revision	28/03/2018	BMEL302	A
6	54	Revision	28/03/2018	BMEL302	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : akmahalle - Dr. Arvind K. Mahalle

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Tutorial-1	04/12/2017	BMEL207	A
1	1	UNIT 1: Course objectives, course outcomes, outcome based education, mapping of CO's with PO's, Planning of CAE & TAE.	05/12/2017	BMEL207	A
1	2	Introduction: Concept of simple stresses and strains: Introduction, stress, strain, types of stresses.	06/12/2017	BMEL207	A
1	3	Stress – strain diagram for brittle and ductile material, elastic limit, Hooks law, modulus of elasticity. Modulus of rigidity	07/12/2017	BMEL207	A
1	2	Tutorial-2	11/12/2017	BMEL207	A
1	4	Factor of safety, analysis of tapered rod, analysis of composite section, thermal stress and strain, thermal stresses with heat flow in cylinders and plates,	12/12/2017	BMEL207	A
1	5	Hertz's contact stresses Longitudinal strain and stress, lateral stresses and strains, Poisson's ration, volumetric stresses and strain with uni-axial, bi-axial and tri-axial loading	13/12/2017	BMEL207	A
1	6	Bulk modulus, relation between Young's modulus and modulus or rigidity, Poisson's ratio and bulk modulus.	14/12/2017	BMEL207	A
2	3	Tutorial-3	18/12/2017	BMEL207	A
1	7	Principal stresses and strains: Introduction, stress, strain, types of stresses, Principal stresses and strains on oblique section.	19/12/2017	BMEL207	A
1	8	Analytical method of determining stresses Mohr's circle for representation of stresses.	20/12/2017	BMEL207	A
1	9	Derivation of maximum and minimum principal stresses and maximum shear stresses	21/12/2017	BMEL207	A
2	4	Tutorial-4	01/01/2018	BMEL207	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : akmahalle - Dr. Arvind K. Mahalle

Unit	Topic Code	Topic Covered	Date	Course	Section
2	10	UNIT 2:-Shear force and bending moment: Types of beam (cantilever beam, simply supported beam, overhung beam etc.).	02/01/2018	BMEL207	A
2	11	Types of loads (Concentrated and UDL), shear force and bending moment diagrams for different types of beams subjected to different types of loads,	03/01/2018	BMEL207	A
2	5	Tutorial-5	08/01/2018	BMEL207	A
2	12	Sign conventions for bending moment and shear force, shear force and bending moment diagrams for beams subjected to couple.	09/01/2018	BMEL207	A
2	13	Relation between load, shear force and bending moment. Stresses in beams	11/01/2018	BMEL207	A
3	6	Tutorial-6	15/01/2018	BMEL207	A
2	14	Pure bending, theory of simple bending with assumptions and expressions for bending stress,	15/01/2018	BMEL207	A
2	15	Derivation of bending equation, bending stresses in symmetrical sections, section modulus for various shapes of beam sections.	16/01/2018	BMEL207	A
2	16	Shear stresses in beams: Concept, derivation of share stress distribution formula,	18/01/2018	BMEL207	A
3	7	Tutorial-7	22/01/2018	BMEL207	A
2	17	Shear stress distribution diagram for common symmetrical sections, maximum and Average shear stress	22/01/2018	BMEL207	A
3	18	UNIT3:- Deflection of beams: Derivation of differential equation of elastic curve with the assumptions made in it.	23/01/2018	BMEL207	A
3	19	Deflection and slope of cantilever	25/01/2018	BMEL207	A
3	8	Tutorial-8	29/01/2018	BMEL207	A
3	20	Simply supported, overhung beams subjected to concentrated load UDL	29/01/2018	BMEL207	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : akmahalle - Dr. Arvind K.

Mahalle

Unit	Topic Code	Topic Covered	Date	Course	Section
3	21	Relation between slope, deflection and radius curvature ,	30/01/2018	BMEL207	A
3	22	Macaulay's method,	01/02/2018	BMEL207	A
4	9	Tutorial-9	05/02/2018	BMEL207	A
3	23	Area moment method to determine deflection of beam	05/02/2018	BMEL207	A
3	24	Problems on all types of beams	06/02/2018	BMEL207	A
4	10	Tutorial-10	12/02/2018	BMEL207	A
4	25	UNIT 4:-Torsion of circular shafts: Derivation of torsion equation with the assumptions made int.	14/02/2018	BMEL207	A
4	26	Torsion shear stress induced in the shaft, when it is subjected to torque.	15/02/2018	BMEL207	A
5	11	Tutorial-11	26/02/2018	BMEL207	A
4	27	Strength and rigidity criteria. For design of shaft. Torque transmitted by solid and hollow circular shaft.	26/02/2018	BMEL207	A
4	28	Derivation of maximum, minimum principal stresses and maximum shear stress.	28/02/2018	BMEL207	A
4	29	Column and Struts: Failure of long and short column, slenderness ratio, Assumptions made in Euler's column theory, end conditions for column.	01/03/2018	BMEL207	A
5	12	Tutorial-12	05/03/2018	BMEL207	A
4	30	Expression for crippling load for various end conditions if column	05/03/2018	BMEL207	A
4	31	Effective length of column, limitations of Euler's formula, Rankine formula, Johnson's parabolic formula	07/03/2018	BMEL207	A
5	32	UNIT 5:- Strain energy and impact loading: Definition of strain energy stored in a body when it is subjected to gradually applied load,	08/03/2018	BMEL207	A
5	33	Strain energy stored in a body when it is subjected to gradually suddenly applied load and impact loads.	12/03/2018	BMEL207	A



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Course : Mechanics of Material

Faculty : akmahalle - Dr. Arvind K. Mahalle

Unit	Topic Code	Topic Covered	Date	Course	Section
6	13	Tutorial-13	19/03/2018	BMEL207	A
5	34	Strain energy stored in bending and torsion. Castigliano's theorem	19/03/2018	BMEL207	A
6	35	Unit 6 :-Factor of safety, Statistical methods in determining factor of safety	20/03/2018	BMEL207	A
6	36	Theories of failure, modes of failure, compound stresses, Eccentric axial loading, variable stresses in machine parts,	21/03/2018	BMEL207	A
6	14	Tutorial-14	26/03/2018	BMEL207	A
6	37	Stress concentration and stress raisers, notch sensitivity, stress concentration factor	26/03/2018	BMEL207	A
6	38	Methods for reducing stress concentration. Goodman's criteria, Soderberg criteria	27/03/2018	BMEL207	A
6	39	Gerber's criteria, fatigue design for finite and infinite life of the parts subjected to variable loads	28/03/2018	BMEL207	A



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Course : Mechanics of Material

Faculty : vnbhaiswar - Dr. V N Bhaiswar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Course objectives, course outcomes, outcome based education, mapping of CO's with PO's, Planning of CAE & TAE.	04/12/2017	BMEL207	B
1	2	Introduction: Concept of simple stresses and strains: Introduction, stress, strain, types of stresses.	05/12/2017	BMEL207	B
1	1	Tutorial-1	06/12/2017	BMEL207	B
1	3	Stress – strain diagram for brittle and ductile material, elastic limit, Hooks law, modulus of elasticity. Modulus of rigidity	06/12/2017	BMEL207	B
1	4	Factor of safety, analysis of tapered rod, analysis of composite section, thermal stress and strain, thermal stresses with heat flow in cylinders and plates.	11/12/2017	BMEL207	B
1	5	Hertz's contact stresses Longitudinal strain and stress, lateral stresses and strains, Poisson's ration, volumetric stresses and strain with uni-axial, bi-axial and tri-axial loading.	12/12/2017	BMEL207	B
1	2	Tutorial-2	13/12/2017	BMEL207	B
1	6	Bulk modulus, relation between Young's modulus and modulus of rigidity, Poisson's ratio and bulk modulus.	13/12/2017	BMEL207	B
1	7	Concept of simple stresses and strains: Introduction, stress, strain, types of stresses, Principal stresses and strains on oblique section.	18/12/2017	BMEL207	B
1	8	Analytical method of determining stresses Mohr's circle for representation of stresses.	19/12/2017	BMEL207	B
2	3	Tutorial-3	20/12/2017	BMEL207	B
1	9	Derivation of maximum and minimum principal stresses and maximum shear stresses.	20/12/2017	BMEL207	B
2	10	Shear force and bending moment: Types of beam (cantilever beam, simply supported beam, overhung beam etc.).	26/12/2017	BMEL207	B





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Course : Mechanics of Material

Faculty : vnbhaiswar - Dr. V N Bhaiswar

Unit	Topic Code	Topic Covered	Date	Course	Section
2	4	Tutorial-4	27/12/2017	BMEL207	B
2	11	Types of loads (Concentrated and UDL), shear force and bending moment diagrams for different types of beams subjected to different types of loads.	27/12/2017	BMEL207	B
2	12	Sign conventions for bending moment and shear force, shear force and bending moment diagrams for beams subjected to couple.	01/01/2018	BMEL207	B
2	13	Relation between load, shear force and bending moment. Stresses in beams.	02/01/2018	BMEL207	B
3	5	Tutorial-5	03/01/2018	BMEL207	B
2	14	Pure bending, theory of simple bending with assumptions and expressions for bending stress.	03/01/2018	BMEL207	B
2	15	Derivation of bending equation, bending stresses in symmetrical sections, section modulus for various shapes of beam sections.	08/01/2018	BMEL207	B
2	16	Shear stresses in beams: Concept, derivation of shear stress distribution formula.	09/01/2018	BMEL207	B
3	6	Tutorial-6	10/01/2018	BMEL207	B
2	17	Shear stress distribution diagram for common symmetrical sections, maximum and Average shear stress.	10/01/2018	BMEL207	B
3	18	Deflection of beams: Derivation of differential equation of elastic curve with the assumptions made in it.	15/01/2018	BMEL207	B
3	19	Deflection and slope of cantilever.	16/01/2018	BMEL207	B
4	7	Tutorial-7	17/01/2018	BMEL207	B
3	20	Simply supported, overhung beams subjected to concentrated load UDL.	17/01/2018	BMEL207	B
3	21	Relation between slope, deflection and radius curvature.	22/01/2018	BMEL207	B
3	22	Macaulay's method.	23/01/2018	BMEL207	B



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Course : Mechanics of Material

Faculty : vnbhaiswar - Dr. V N Bhaiswar

Unit	Topic Code	Topic Covered	Date	Course	Section
4	8	Tutorial-8	24/01/2018	BMEL207	B
3	23	Area moment method to determine deflection of beam	24/01/2018	BMEL207	B
4	24	Torsion of circular shafts: Derivation of torsion equation with the assumptions made in it.	29/01/2018	BMEL207	B
4	25	Torsion shear stress induced in the shaft, when it is subjected to torque.	30/01/2018	BMEL207	B
5	9	Tutorial-9	31/01/2018	BMEL207	B
4	26	Strength and rigidity criteria. For design of shaft. Torque transmitted by solid and hollow circular shaft.	31/01/2018	BMEL207	B
4	27	Derivation of maximum principal stresses, minimum principal stresses & maximum shear stress	05/02/2018	BMEL207	B
4	28	Column and Struts: Failure of long and short column, slenderness ratio.	06/02/2018	BMEL207	B
5	10	Tutorial-10	07/02/2018	BMEL207	B
4	29	Assumptions made in Euler's column theory, end conditions for column.	07/02/2018	BMEL207	B
4	30	Expression for crippling load for various end conditions of column.	12/02/2018	BMEL207	B
6	11	Tutorial-11	14/02/2018	BMEL207	B
4	31	Effective length of column, limitations of Euler's formula.	14/02/2018	BMEL207	B
6	12	Tutorial-12	21/02/2018	BMEL207	B
4	32	Rankine formula, Johnson's parabolic formula.	26/02/2018	BMEL207	B
5	33	Strain energy and impact loading: Definition.	27/02/2018	BMEL207	B
6	13	Tutorial-13	28/02/2018	BMEL207	B
5	34	Expression of strain energy stored in a body when it is subjected to gradually applied load.	28/02/2018	BMEL207	B



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Course : Mechanics of Material

Faculty : vnbhaiswar - Dr. V N Bhaiswar

Unit	Topic Code	Topic Covered	Date	Course	Section
5	35	Expression of strain energy stored in a body when it is subjected to suddenly applied loads and impact loads.	05/03/2018	BMEL207	B
5	36	Expression of strain energy stored in bending and torsion.	06/03/2018	BMEL207	B
6	14	Tutorial-14	07/03/2018	BMEL207	B
5	37	Castigliano's theorem.	07/03/2018	BMEL207	B
6	38	Factor of safety, Statistical methods in determining factor of safety.	19/03/2018	BMEL207	B
6	39	Theories of failure, modes of failure, compound stresses.	20/03/2018	BMEL207	B
6	15	Tutorial-15	21/03/2018	BMEL207	B
6	40	Eccentric axial loading, variable stresses in machine parts.	21/03/2018	BMEL207	B
6	41	Stress concentration and stress raisers, notch sensitivity, stress concentration factor, Methods for reducing stress concentration.	26/03/2018	BMEL207	B
6	42	Goodmans criteria, Soderberg criteria, Gerber's criteria.	27/03/2018	BMEL207	B
6	16	Tutorial-16	28/03/2018	BMEL207	B
6	43	Fatigue design for finite and infinite life of the parts subjected to variable loads.	28/03/2018	BMEL207	B



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## Course wise Teaching Plan for Session : Summer 2018

Course : Dynamics of Machines

Faculty : knbhasme - Kapil N bhasme

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Objectives of subjects , planning and TAE parameters	04/12/2017	BMEL301	C
1	2	Unit: I Static Force and Dynamics Force Analysis : Basics	06/12/2017	BMEL301	C
1	3	Static force Analysis in linkages, Superposition Method	07/12/2017	BMEL301	C
1	4	FBD, Equilibrium of four force members ,Principal of Virtual Work	11/12/2017	BMEL301	C
1	5	D'Alembert's Principal ,Dynamic Analysis of Four Link Mechanism	13/12/2017	BMEL301	C
1	6	Engine Force Analysis, Numericals	14/12/2017	BMEL301	C
1	7	Dynamically Equivalent System. Computer aided mechanism	18/12/2017	BMEL301	C
2	8	Unit: II Flywheel and Gyroscope : Basics	20/12/2017	BMEL301	C
2	9	Turning moment Vs crank angle diagram for single cylinder & for multiple cylinder	21/12/2017	BMEL301	C
2	10	Punching machines, Flywheel selection	25/12/2017	BMEL301	C
2	11	Numericals	27/12/2017	BMEL301	C
2	12	Simple precession and gyroscopic couple, gyroscopic	28/12/2017	BMEL301	C
2	13	Gyroscopic effect on airplane, ship and Vehicles and Numericals	01/01/2018	BMEL301	C
2	14	Gyroscopic effect on airplane, ship and Vehicles and Numericals	03/01/2018	BMEL301	C
2	15	Numericals	04/01/2018	BMEL301	C
3	16	Unit: III Balancing : Basics	08/01/2018	BMEL301	C
3	17	Static and Dynamic balancing of Rotary masses	10/01/2018	BMEL301	C
3	18	Numericals	11/01/2018	BMEL301	C
3	19	Balancing of several masses rotating in different planes	15/01/2018	BMEL301	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Dynamics of Machines

Faculty : knbhasme - Kapil N bhasme

Unit	Topic Code	Topic Covered	Date	Course	Section
3	20	Numericals	17/01/2018	BMEL301	C
3	21	Centrifugal and Inertia Governors	18/01/2018	BMEL301	C
4	22	Unit: IV Partial balancing of locomotive	22/01/2018	BMEL301	C
4	23	Balancing of primary and secondary forces of Multicylinder In-Line Engine	24/01/2018	BMEL301	C
4	24	Numericals	25/01/2018	BMEL301	C
4	25	Crankshaft and associated components, gas forces and inertia forces on crankshaft	29/01/2018	BMEL301	C
4	26	Crankshaft and associated components, gas forces and inertia forces on crankshaft	31/01/2018	BMEL301	C
4	27	Numericals	01/02/2018	BMEL301	C
5	28	Unit: V Longitudinal and Transverse Vibration: Basics	07/02/2018	BMEL301	C
5	29	Free Vibration, Critical or whirling speed of shaft	08/02/2018	BMEL301	C
5	30	Free and Forced damped vibration	12/02/2018	BMEL301	C
5	31	Vibration isolation and transmissibility, Vibration Measurement	14/02/2018	BMEL301	C
5	32	Numericals	15/02/2018	BMEL301	C
5	33	Numericals	26/02/2018	BMEL301	C
5	34	Numericals	28/02/2018	BMEL301	C
6	35	Unit: VI Torsional Vibration: Basics	01/03/2018	BMEL301	C
6	36	Free Torsional Vibration	05/03/2018	BMEL301	C
6	37	Numericals	07/03/2018	BMEL301	C
6	38	Mode shape and Numericals	08/03/2018	BMEL301	C
6	39	Single, Two rotor system, Three rotor system	15/03/2018	BMEL301	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Dynamics of Machines

Faculty : knbhasme - Kapil N bhasme

Unit	Topic Code	Topic Covered	Date	Course	Section
6	40	Numericals	19/03/2018	BMEL301	C
6	41	Torsionally equivalent shaft , Geared system	21/03/2018	BMEL301	C
6	42	Torsionally equivalent shaft , Geared system	22/03/2018	BMEL301	C
6	43	Revision	26/03/2018	BMEL301	C
6	44	Revision	28/03/2018	BMEL301	C
6	45	Revision	29/03/2018	BMEL301	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Fluid Machinery

Faculty : ynnandanwar - Mr. Yogesh

Narayan Nandanwar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to subject, TAE components and practical application	04/12/2017	BMEL302	C
1	2	Impulse momentum principle	05/12/2017	BMEL302	C
1	3	Velocity diagram construction	07/12/2017	BMEL302	C
1	4	Force exerted on flat vane, Inclined, curved vane fixed condition	08/12/2017	BMEL302	C
1	5	Force exerted on flat vane, Inclined, curved vane movable condition	11/12/2017	BMEL302	C
1	6	Force exerted on series of vanes.	12/12/2017	BMEL302	C
1	7	Numericals	14/12/2017	BMEL302	C
2	8	Hydraulic Turbines, Theory of impulse and reaction machines	15/12/2017	BMEL302	C
2	9	Impulse Turbines(Pelton), Principle, construction, Installation, Design parameters	18/12/2017	BMEL302	C
2	10	Numericals	19/12/2017	BMEL302	C
2	11	Numericals	21/12/2017	BMEL302	C
2	12	Numericals	22/12/2017	BMEL302	C
2	13	Analysis, characteristics and governing.	01/01/2018	BMEL302	C
3	14	Reaction Turbines (Francis and Kaplan) Main components and construction features	02/01/2018	BMEL302	C
3	15	Cavitations in water turbines, Governing mechanism, safety devices,	04/01/2018	BMEL302	C
3	16	Performance characteristics and their analysis, specific speed	08/01/2018	BMEL302	C
3	17	Cavitations in water turbines, Governing mechanism Hydraulic Pumps	09/01/2018	BMEL302	C
3	18	Numericals	11/01/2018	BMEL302	C
3	19	Numericals	12/01/2018	BMEL302	C
3	20	Numericals	15/01/2018	BMEL302	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Fluid Machinery

Faculty : ynnandanwar - Mr. Yogesh

Narayan Nandanwar

Unit	Topic Code	Topic Covered	Date	Course	Section
4	21	Centrifugal Pumps: Principle of operation, Classification	16/01/2018	BMEL302	C
4	22	Types, Construction, Installation, characteristics and their analysis	18/01/2018	BMEL302	C
4	23	Numericals	19/01/2018	BMEL302	C
4	24	Numericals	22/01/2018	BMEL302	C
5	25	Reciprocating Pumps : Basic theory, types, construction	23/01/2018	BMEL302	C
5	26	Installation and characteristics	25/01/2018	BMEL302	C
5	27	Numericals	29/01/2018	BMEL302	C
5	28	Indicator diagram, Air vessels, Cavitations in pumps	30/01/2018	BMEL302	C
5	29	Numericals	01/02/2018	BMEL302	C
5	30	Numericals	02/02/2018	BMEL302	C
5	31	Rotary Pumps: Basic theory, types, construction	05/02/2018	BMEL302	C
5	32	Variable delivery pumps	06/02/2018	BMEL302	C
5	33	Rotary Displacement Pumps: Introduction to gear pumps,	12/02/2018	BMEL302	C
5	34	Sliding vane pumps, Screw pumps.	13/02/2018	BMEL302	C
5	35	Axial flow pump: Basic theory, construction,	15/02/2018	BMEL302	C
5	36	Operation, Characteristics	16/02/2018	BMEL302	C
6	37	Hydrostatic systems: their function, components	23/02/2018	BMEL302	C
6	38	application such as Hydraulic press, lift	26/02/2018	BMEL302	C
6	39	Crane, fluid drive for machine tools.	27/02/2018	BMEL302	C
6	40	Intensifier , Accumulator.	01/03/2018	BMEL302	C
6	41	Hydrokinetic systems: Fluid couplings	05/03/2018	BMEL302	C





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## Course wise Teaching Plan for Session : Summer 2018

Course : Fluid Machinery

Faculty : ynnandanwar - Mr. Yogesh

~~Narayan Nandanwar~~

Unit	Topic Code	Topic Covered	Date	Course	Section
6	42	Torque converter.	06/03/2018	BMEL302	C
6	43	Revision	12/03/2018	BMEL302	C
6	44	Revision	13/03/2018	BMEL302	C
6	45	Revision	15/03/2018	BMEL302	C
6	46	Revision	16/03/2018	BMEL302	C
6	47	Revision	19/03/2018	BMEL302	C
6	48	Revision	20/03/2018	BMEL302	C
6	49	Revision	22/03/2018	BMEL302	C
6	50	Revision	23/03/2018	BMEL302	C
6	51	Revision	26/03/2018	BMEL302	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : knbhasme - Kapil N bhasme

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to CO s, TAE, CAE	05/12/2017	BMEL316	C
1	2	(Unit-I): Introduction to Industrial Engineering	06/12/2017	BMEL316	C
1	1	Introduction to CO s, TAE, CAE	07/12/2017	BMEL316	C
1	3	Productivity Concept	08/12/2017	BMEL316	C
1	4	Work-Study: Introduction and Advantages of work study and procedure	12/12/2017	BMEL316	C
1	5	Method Study: Introduction, objectives and scope of method study	13/12/2017	BMEL316	C
1	2	Tutorial 1	14/12/2017	BMEL316	C
1	6	Various recording techniques, different types of charts	15/12/2017	BMEL316	C
1	7	Productivity -Numericals	19/12/2017	BMEL316	C
1	8	Outline process chart	20/12/2017	BMEL316	C
1	3	Tutorial 2	21/12/2017	BMEL316	C
1	9	Material chart	22/12/2017	BMEL316	C
1	10	Diagrams and string	26/12/2017	BMEL316	C
1	11	SIMO chart	27/12/2017	BMEL316	C
1	4	Tutorial 3	28/12/2017	BMEL316	C
1	12	Cycle graph and crono cycle graph	29/12/2017	BMEL316	C
1	13	Principle of motion economy	02/01/2018	BMEL316	C
1	14	Micro-motion study	03/01/2018	BMEL316	C
2	5	Tutorial 4	04/01/2018	BMEL316	C
2	15	(Unit -II) Work measurement	05/01/2018	BMEL316	C
2	16	Work measurement numericals	09/01/2018	BMEL316	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : knbhasme - Kapil N bhasme

Unit	Topic Code	Topic Covered	Date	Course	Section
2	17	Time study-equipment, number of cycles to be timed	10/01/2018	BMEL316	C
2	6	Tutorial 5	11/01/2018	BMEL316	C
2	18	Performance rating systems	12/01/2018	BMEL316	C
2	19	Allowances, standard time	16/01/2018	BMEL316	C
2	20	Work sampling, synthetic data	17/01/2018	BMEL316	C
2	7	Tutorial 6	18/01/2018	BMEL316	C
2	21	Standard time calculations	19/01/2018	BMEL316	C
2	22	Pre-determined motion time analysis	23/01/2018	BMEL316	C
3	23	(Unit -III) Factory Organisation: principles, Importance and Advantages	24/01/2018	BMEL316	C
2	8	Tutorial 7	25/01/2018	BMEL316	C
3	24	Characteristics of organization	26/01/2018	BMEL316	C
3	25	Organization Structures	30/01/2018	BMEL316	C
3	26	Classical organization theory	31/01/2018	BMEL316	C
3	9	Tutorial 8	01/02/2018	BMEL316	C
3	27	Types of organizations- military or line organizations	02/02/2018	BMEL316	C
3	28	Functional organization	06/02/2018	BMEL316	C
3	29	Line and staff organization	07/02/2018	BMEL316	C
3	10	Tutorial 9	08/02/2018	BMEL316	C
4	30	(Unit-IV) Ergonomics: Fundamentals applications of ergonomics in layout of equipment	09/02/2018	BMEL316	C
4	31	Design of seating display	14/02/2018	BMEL316	C
3	11	Tutorial 10	15/02/2018	BMEL316	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : knbhasme - Kapil N bhasme

Unit	Topic Code	Topic Covered	Date	Course	Section
4	32	Design characteristics of control,	16/02/2018	BMEL316	C
4	33	Man-machine workplace system,	23/02/2018	BMEL316	C
4	34	Fatigue, physiological and other causes of fatigue, environmental condition of fatigue.	27/02/2018	BMEL316	C
4	35	Human factors considerations in system design.	28/02/2018	BMEL316	C
4	12	Tutorial 11	01/03/2018	BMEL316	C
5	36	(Unit-V) Production Planning & Control (PPC) and Inventory Control: PPC its objectives, functions	06/03/2018	BMEL316	C
5	37	preplanning and planning, routing, estimating, scheduling-master schedule daily schedule, Gantt Chart,	07/03/2018	BMEL316	C
4	13	Tutorial 12	08/03/2018	BMEL316	C
5	38	dispatching-centralized vs. decentralized, control, follow up and progress reporting.	09/03/2018	BMEL316	C
4	14	Tutorial 13	15/03/2018	BMEL316	C
5	39	Functions, types of inventory. inventory control-importance & functions,	16/03/2018	BMEL316	C
5	40	inventory costs, factors affecting inventory control, various inventory control models,	20/03/2018	BMEL316	C
5	41	ABC analysis, lead time calculations.	21/03/2018	BMEL316	C
4	15	Tutorial 14	22/03/2018	BMEL316	C
6	42	(Unit-VI) Various Concepts in Industrial Engineering: Wages and incentives: concept, types, plans, desirable characteristics;	23/03/2018	BMEL316	C
6	44	Value Analysis: Definition, VA & VE, Job plan of VA, FAST diagram.	27/03/2018	BMEL316	C
6	43	Supply chain Management: definition, concept objectives, applications, benefits some cases in Indian industries;	28/03/2018	BMEL316	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : knbhasme - Kapil N bhasme

Unit	Topic Code	Topic Covered	Date	Course	Section
4	16	Tutorial 15	29/03/2018	BMEL316	C
6	45	Introduction to TQM, ISO standard, environmental and TS business standards.	30/03/2018	BMEL316	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : skumbhalkar - Skumar S

Unit	Topic Code	Topic Covered	Date	Course	Kumbhalkar Section
1	1	Introduction: Course objectives, course outcomes, outcome based education, mapping of CO's with PO's, Planning of CAE & TAE.	05/12/2017	BMEL207	C
1	2	Concept of simple stresses and strains: Introduction, stress, strain, types of stresses.	06/12/2017	BMEL207	C
1	3	Factor of safety, analysis of tapered rod, analysis of composite section, thermal stress and strain, thermal stresses with heat flow in cylinders and plates.	08/12/2017	BMEL207	C
1	4	Factor of safety, analysis of tapered rod, analysis of composite section, thermal stress and strain, thermal stresses with heat flow in cylinders and plates	12/12/2017	BMEL207	C
1	5	Bulk modulus, relation between Young's modulus and modulus of rigidity, Poisson's ratio and bulk modulus.	13/12/2017	BMEL207	C
1	6	Principal stresses and strains: Definitions of principal planes & principal stresses, analytical method of determining stresses on oblique section when member is subjected to direct stresses in one plane in mutually perpendicular two planes.	15/12/2017	BMEL207	C
1	7	Analytical method of determining stresses on oblique section when member is subjected to shear stress & direct stresses in two mutually perpendicular planes. Mohr's circle for representation of stresses.	19/12/2017	BMEL207	C
1	8	Derivation of maximum and minimum principal stresses and maximum shear stresses.	20/12/2017	BMEL207	C
1	9	Shear force and bending moment: Types of beam (cantilever beam, simply supported beam, overhung beam etc.).	22/12/2017	BMEL207	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : skumbhalkar - Skumar S

Kumbhalkar

Unit	Topic Code	Topic Covered	Date	Course	Section
2	10	Types of loads (Concentrated and UDL), shear force and bending moment diagrams for different types of beams subjected to different types of loads.	02/01/2018	BMEL207	C
2	11	Sign conventions for bending moment and shear force, shear force and bending moment diagrams for beams subjected to couple.	03/01/2018	BMEL207	C
2	12	Relation between load, shear force and bending moment. Stresses in beams.	09/01/2018	BMEL207	C
2	13	Pure bending, theory of simple bending with assumptions and expressions for bending stress.	10/01/2018	BMEL207	C
2	14	Problems on SFD & BMD	12/01/2018	BMEL207	C
2	15	Derivation of bending equation, bending stresses in symmetrical sections, section modulus for various shapes of beam sections.	16/01/2018	BMEL207	C
2	16	Shear stresses in beams: Concept, derivation of share stress distribution formula.	17/01/2018	BMEL207	C
2	17	Shear stress distribution diagram for common symmetrical sections, maximum and Average shear stress.	19/01/2018	BMEL207	C
3	18	Deflection of beams: Derivation of differential equation of elastic curve with the assumptions made in it.	23/01/2018	BMEL207	C
3	19	Deflection and slope of cantilever beam.	24/01/2018	BMEL207	C
3	20	Deflection & slope of simply supported, overhung beams subjected to concentrated load UDL.	30/01/2018	BMEL207	C
3	21	Relation between slope, deflection and radius curvature.	31/01/2018	BMEL207	C
3	22	Macaulay's method.	02/02/2018	BMEL207	C
3	23	Area moment method to determine deflection of beam.	06/02/2018	BMEL207	C
4	24	Torsion of circular shafts: Derivation of torsion equation with the assumption made in it.	07/02/2018	BMEL207	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : skumbhalkar - Skumar S

Unit	Topic Code	Topic Covered	Date	Course	Kumbhalkar Section
4	25	Torsion shear stress induced in the shaft, when it is subjected to torque.	09/02/2018	BMEL207	C
4	26	Strength and rigidity criteria. For design of shaft. Torque transmitted by solid and hollow circular shaft.	14/02/2018	BMEL207	C
4	27	Derivation of maximum, minimum principal stresses and maximum shear stress.	16/02/2018	BMEL207	C
4	28	Column and Struts: Failure of long and short column, slenderness ration,	23/02/2018	BMEL207	C
4	29	Assumptions made in Euler's column theory, end conditions for column.	27/02/2018	BMEL207	C
4	30	Expression for crippling load for various end conditions if column.	28/02/2018	BMEL207	C
4	31	Effective length of column, limitations of Euler's formula, Rankin formula, Johnson's parabolic formula.	06/03/2018	BMEL207	C
5	32	Strain energy and impact loading.	07/03/2018	BMEL207	C
5	33	Definition of strain energy stored in a body when it is subjected to gradually applied load.	09/03/2018	BMEL207	C
5	34	Suddenly applied loads and impact loads.	13/03/2018	BMEL207	C
5	35	Strain energy stored in bending and torsion.	14/03/2018	BMEL207	C
5	36	Castigliano's Theorem	16/03/2018	BMEL207	C
6	37	Factor of safety, Statistical method in determining factor of safety, Theories of failure, Methods of failure, Compound stress	20/03/2018	BMEL207	C
6	38	Eccentric axial loading, Variable stresses in machine parts.	21/03/2018	BMEL207	C
6	39	Stress concentration, stress raisers, Notch sensitivity, stress concentration factor & methods for reducing stress concentration.	23/03/2018	BMEL207	C
6	40	Fatigue design for finite & infinite life of the parts subjected to variable loads.	27/03/2018	BMEL207	C
6	41	Advanced Topic	28/03/2018	BMEL207	C





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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : skumbhalkar - Skumar S

Unit	Topic Code	Topic Covered	Date	Course	Section
6	42	Advanced Topic	30/03/2018	BMEL207	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : vnkshirsagar - VISHAL N.

KSHIRSAGAR

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	UNIT 1: Course objectives, course outcomes, outcome based education, mapping of CO's with PO's, Planning of CAE & TAE.	04/12/2017	BMEL207	D
1	2	Introduction: Concept of simple stresses and strains: Introduction, stress, strain, types of stresses.	05/12/2017	BMEL207	D
1	3	Stress – strain diagram for brittle and ductile material, elastic limit, Hooks law, modulus of elasticity. Modulus of rigidity	08/12/2017	BMEL207	D
1	4	Factor of safety, analysis of tapered rod, analysis of composite section, thermal stress and strain, thermal stresses with heat flow in cylinders and plates,	11/12/2017	BMEL207	D
1	5	Hertz's contact stresses Longitudinal strain and stress, lateral stresses and strains, Poisson's ration, volumetric stresses and strain with uni-axial, bi-axial and tri-axial loading	12/12/2017	BMEL207	D
1	6	Bulk modulus, relation between Young's modulus and modulus of rigidity, Poisson's ratio and bulk modulus.	15/12/2017	BMEL207	D
1	7	Principal stresses and strains: Introduction, stress, strain, types of stresses, Principal stresses and strains on oblique section.	18/12/2017	BMEL207	D
1	8	Analytical method of determining stresses Mohr's circle for representation of stresses.	19/12/2017	BMEL207	D
1	9	Derivation of maximum and minimum principal stresses and maximum shear stresses	22/12/2017	BMEL207	D
2	10	UNIT 2:-Shear force and bending moment: Types of beam (cantilever beam, simply supported beam, overhung beam etc.).	01/01/2018	BMEL207	D
2	11	Types of loads (Concentrated and UDL), shear force and bending moment diagrams for different types of beams subjected to different types of loads,	02/01/2018	BMEL207	D



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : vnkshirsagar - VISHAL N.

KSHIRSAGAR

Unit	Topic Code	Topic Covered	Date	Course	Section
2	12	Sign conventions for bending moment and shear force, shear force and bending moment diagrams for beams subjected to couple.	08/01/2018	BMEL207	D
2	13	Relation between load, shear force and bending moment. Stresses in beams	09/01/2018	BMEL207	D
2	14	Pure bending, theory of simple bending with assumptions and expressions for bending stress,	12/01/2018	BMEL207	D
2	15	Derivation of bending equation, bending stresses in symmetrical sections, section modulus for various shapes of beam sections.	15/01/2018	BMEL207	D
2	16	Shear stresses in beams: Concept, derivation of share stress distribution formula,	16/01/2018	BMEL207	D
2	17	Shear stress distribution diagram for common symmetrical sections, maximum and Average shear stress	19/01/2018	BMEL207	D
3	18	UNIT3:- Deflection of beams: Derivation of differential equation of elastic curve with the assumptions made in it.	22/01/2018	BMEL207	D
3	19	Deflection and slope of cantilever	23/01/2018	BMEL207	D
3	20	Simply supported, overhung beams subjected to concentrated load UDL	29/01/2018	BMEL207	D
3	21	Relation between slope, deflection and radius curvature ,	30/01/2018	BMEL207	D
3	22	Macaulay's method,	02/02/2018	BMEL207	D
3	23	Area moment method to determine deflection of beam	05/02/2018	BMEL207	D
3	24	Problems on all types of beams	06/02/2018	BMEL207	D
4	25	UNIT 4:-Torsion of circular shafts: Derivation of torsion equation with the assumptions made int.	12/02/2018	BMEL207	D
4	26	Torsion shear stress induced in the shaft, when it is subjected to torque.	16/02/2018	BMEL207	D



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## Course wise Teaching Plan for Session : Summer 2018

Course : Mechanics of Material

Faculty : vnkshirsagar - VISHAL N.

KSHIRSAGAR

Unit	Topic Code	Topic Covered	Date	Course	Section
4	27	Strength and rigidity criteria. For design of shaft. Torque transmitted by solid and hollow circular shaft.	23/02/2018	BMEL207	D
4	28	Derivation of maximum, minimum principal stresses and maximum shear stress.	26/02/2018	BMEL207	D
4	29	Column and Struts: Failure of long and short column, slenderness ratio, Assumptions made in Euler's column theory, end conditions for column.	27/02/2018	BMEL207	D
4	30	Expression for crippling load for various end conditions if column	05/03/2018	BMEL207	D
4	31	Effective length of column, limitations of Euler's formula, Rankine formula, Johnson's parabolic formula	06/03/2018	BMEL207	D
5	32	UNIT 5:- Strain energy and impact loading: Definition of strain energy stored in a body when it is subjected to gradually applied load,	09/03/2018	BMEL207	D
5	33	Strain energy stored in a body when it is subjected to gradually suddenly applied load and impact loads.	16/03/2018	BMEL207	D
5	34	Strain energy stored in bending and torsion. Castiglino's theorem	19/03/2018	BMEL207	D
6	35	Unit 6 :-Factor of safety, Statistical methods in determining factor of safety	20/03/2018	BMEL207	D
6	36	Theories of failure, modes of failure, compound stresses, Eccentric axial loading, variable stresses in machine parts,	23/03/2018	BMEL207	D
6	37	Stress concentration and stress raisers, notch sensitivity, stress concentration factor	26/03/2018	BMEL207	D
6	38	Methods for reducing stress concentration. Goodman's criteria, Soderberg criteria	27/03/2018	BMEL207	D
6	39	Gerber's criteria, fatigue design for finite and infinite life of the parts subjected to variable loads	30/03/2018	BMEL207	D



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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : aadeshpande - Archana A.

Deshpande

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Discussion of Course Objective, Outcomes of M-IV Syllabus	04/12/2017	BAML207	A
1	2	Unit-I: Error analysis	05/12/2017	BAML207	A
1	3	Solution of algebraic and transcendental equations by false position method	06/12/2017	BAML207	A
1	4	Newton-Raphson method	08/12/2017	BAML207	A
1	5	Newton-Raphson method for multiple roots	11/12/2017	BAML207	A
1	1	Tutorial-1	12/12/2017	BAML207	A
1	6	solution of system simultaneous linear equations	13/12/2017	BAML207	A
1	7	Gauss elimination method	15/12/2017	BAML207	A
1	8	Gauss Jordan method	18/12/2017	BAML207	A
1	2	Tutorial-2	19/12/2017	BAML207	A
1	9	Gauss-Seidel method	20/12/2017	BAML207	A
1	10	Crout's method	22/12/2017	BAML207	A
2	11	Unit-II : Eigen values & Eigen vector by iteration method	27/12/2017	BAML207	A
2	12	jacobi method	29/12/2017	BAML207	A
2	13	Givens method	01/01/2018	BAML207	A
2	3	Tutorial-3	02/01/2018	BAML207	A
2	14	Householder's method	03/01/2018	BAML207	A
2	15	solution of ordinary differential equations by Taylor's series method	08/01/2018	BAML207	A
2	4	Tutorial-4	09/01/2018	BAML207	A
2	16	Runge-Kutta fourth order method	10/01/2018	BAML207	A
2	17	Modified Euler method	12/01/2018	BAML207	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : aadeshpande - Archana A.

Deshpande

Unit	Topic Code	Topic Covered	Date	Course	Section
2	18	Milne's predictor corrector method	15/01/2018	BAML207	A
3	5	Tutorial-5	16/01/2018	BAML207	A
3	19	Unit III : Calculus of Variation -Functional, extremals of functions, Variational principle	17/01/2018	BAML207	A
3	20	Functional, extremals of functions, Variational principle	19/01/2018	BAML207	A
3	21	Euler's equation ,constrained extremals	22/01/2018	BAML207	A
3	6	Tutorial-6	23/01/2018	BAML207	A
3	22	Hamilton principle	24/01/2018	BAML207	A
3	23	Lagrange's equation in solid mechanics	29/01/2018	BAML207	A
4	7	Tutorial-7	30/01/2018	BAML207	A
3	24	Lagrange's equation in solid mechanics	31/01/2018	BAML207	A
4	25	Unit-IV : Random Variables, Distribution of continuous & discrete random variables	02/02/2018	BAML207	A
4	26	Joint distributions	05/02/2018	BAML207	A
4	8	Tutorial-8	06/02/2018	BAML207	A
4	27	Joint distributions	07/02/2018	BAML207	A
4	28	mathematical expectations, moment	12/02/2018	BAML207	A
5	9	Tutorial-9	13/02/2018	BAML207	A
4	29	Moment generating function	14/02/2018	BAML207	A
4	30	Characteristic function	16/02/2018	BAML207	A
6	39	Unit-VI :Introduction to optimization techniques-Linear programming,	21/02/2018	BAML207	A
4	31	Characteristic function	23/02/2018	BAML207	A



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Course : Applied Mathematics IV

Faculty : aadeshpande - Archana A.

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Unit	Topic Code	Topic Covered	Date	Course	Section
5	32	Unit-V : Special probability distribution-Geometric, Binomial, Poisson's, normal probability distribution	26/02/2018	BAML207	A
5	10	Tutorial-10	27/02/2018	BAML207	A
5	33	Random processes	28/02/2018	BAML207	A
5	34	Esemble average & temporal anerage,	05/03/2018	BAML207	A
6	11	Tutorial-11	06/03/2018	BAML207	A
5	35	Auto correlation & ross - correlation	07/03/2018	BAML207	A
5	36	Stationary random process	09/03/2018	BAML207	A
5	37	Power spectrum stationary process	16/03/2018	BAML207	A
5	38	Ergodic random process.	19/03/2018	BAML207	A
6	12	Tutorial-12	20/03/2018	BAML207	A
6	39	Unit-VI :Introduction to optimization techniques-Linear programming,	21/03/2018	BAML207	A
6	40	Mathematical Model formulation	23/03/2018	BAML207	A
6	41	Mathematical Model formulation	26/03/2018	BAML207	A
6	42	Solutions by Graphical method	27/03/2018	BAML207	A
6	43	Solutions by Graphical method	28/03/2018	BAML207	A
6	44	Simplex method	30/03/2018	BAML207	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : alalke - Ashwini Lalke

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Discussion of Course Objective, Outcomes of M-IV Syllabus	04/12/2017	BAML207	B
1	2	Unit-I: Error analysis	05/12/2017	BAML207	B
1	3	Solution of algebraic and transcendental equations by false position method	06/12/2017	BAML207	B
1	4	Newton-Raphson method	07/12/2017	BAML207	B
1	1	Tutorial-1	11/12/2017	BAML207	B
1	5	Newton-Raphson method for multiple roots	12/12/2017	BAML207	B
1	6	solution of system simultaneous linear equations	13/12/2017	BAML207	B
1	7	Gauss elimination method	14/12/2017	BAML207	B
1	2	Tutorial-2	18/12/2017	BAML207	B
1	8	Gauss Jordan method	19/12/2017	BAML207	B
1	9	Gauss-Seidel method	20/12/2017	BAML207	B
1	10	Crout's method	21/12/2017	BAML207	B
2	11	Unit-II : Eigen values & Eigen vector by iteration method	26/12/2017	BAML207	B
2	12	jacobi method	27/12/2017	BAML207	B
2	13	Givens method	28/12/2017	BAML207	B
2	3	Tutorial-3	01/01/2018	BAML207	B
2	14	Householder's method	02/01/2018	BAML207	B
2	15	solution of ordinary differential equations by Taylor's series method	03/01/2018	BAML207	B
2	4	Tutorial-4	08/01/2018	BAML207	B
2	16	Runge-Kutta fourth order method	09/01/2018	BAML207	B
2	17	Modified Euler method	10/01/2018	BAML207	B





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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : alalke - Ashwini Lalke

Unit	Topic Code	Topic Covered	Date	Course	Section
2	18	Milne's predictor corrector method	11/01/2018	BAML207	B
3	5	Tutorial-5	15/01/2018	BAML207	B
3	19	Unit III : Calculus of Variation -Functional, extremals of functions, Variational principle	16/01/2018	BAML207	B
3	20	Functional, extremals of functions, Variational principle	17/01/2018	BAML207	B
3	21	Euler's equation ,constrained extremals	18/01/2018	BAML207	B
3	6	Tutorial-6	22/01/2018	BAML207	B
3	22	Hamilton principle	23/01/2018	BAML207	B
3	23	Lagrange's equation in solid mechanics	24/01/2018	BAML207	B
3	24	Lagrange's equation in solid mechanics	25/01/2018	BAML207	B
4	7	Tutorial-7	29/01/2018	BAML207	B
4	25	Unit-IV : Random Variables, Distribution of continuous & discrete random variables	30/01/2018	BAML207	B
4	26	Joint distributions	31/01/2018	BAML207	B
4	27	Joint distributions	01/02/2018	BAML207	B
4	8	Tutorial-8	05/02/2018	BAML207	B
4	28	mathematical expectations, moment	06/02/2018	BAML207	B
4	29	Moment generating function	07/02/2018	BAML207	B
5	9	Tutorial-9	12/02/2018	BAML207	B
4	30	Characteristic function	14/02/2018	BAML207	B
4	31	Characteristic function	15/02/2018	BAML207	B
5	10	Tutorial-10	26/02/2018	BAML207	B



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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : alalke - Ashwini Lalke

Unit	Topic Code	Topic Covered	Date	Course	Section
5	32	Unit-V : Special probability distribution-Geometric, Binomial, Poisson's, normal probability distribution	27/02/2018	BAML207	B
5	33	Random processes	28/02/2018	BAML207	B
5	34	Esemble average & temporal aneage,	01/03/2018	BAML207	B
5	11	Tutorial-11	05/03/2018	BAML207	B
5	35	Auto correlation & ross - correlation	06/03/2018	BAML207	B
5	36	Stationary random process	07/03/2018	BAML207	B
5	37	Power spectrum stationary process	08/03/2018	BAML207	B
6	12	Tutorial-12	12/03/2018	BAML207	B
5	38	Ergodic random process.	15/03/2018	BAML207	B
6	13	Tutorial-13	19/03/2018	BAML207	B
6	39	Unit-VI :Introduction to optimization techniques-Linear programming,	20/03/2018	BAML207	B
6	40	Mathematical Model formulation	21/03/2018	BAML207	B
6	41	Mathematical Model formulation	22/03/2018	BAML207	B
6	14	Tutorial-14	26/03/2018	BAML207	B
6	42	Solutions by Graphical method	27/03/2018	BAML207	B
6	43	Solutions by Graphical method	28/03/2018	BAML207	B
6	44	Simplex method	29/03/2018	BAML207	B



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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : aadeshpande - Archana A.

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Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Discussion of Course Objective, Outcomes of M-IV Syllabus	04/12/2017	BAML207	C
1	2	Unit-I: Error analysis	05/12/2017	BAML207	C
1	3	Solution of algebraic and transcendental equations by false position method	07/12/2017	BAML207	C
1	4	Newton-Raphson method	08/12/2017	BAML207	C
1	5	Newton-Raphson method for multiple roots	11/12/2017	BAML207	C
1	1	Tutorial-1	12/12/2017	BAML207	C
1	6	solution of system simultaneous linear equations	14/12/2017	BAML207	C
1	7	Gauss elimination method	15/12/2017	BAML207	C
1	8	Gauss Jordan method	18/12/2017	BAML207	C
1	2	Tutorial-2	19/12/2017	BAML207	C
1	9	Gauss-Seidel method	21/12/2017	BAML207	C
2	13	Givens method	01/01/2018	BAML207	C
2	3	Tutorial-3	02/01/2018	BAML207	C
2	14	Householder's method	08/01/2018	BAML207	C
2	4	Tutorial-4	09/01/2018	BAML207	C
2	15	solution of ordinary differential equations by Taylor's series method	11/01/2018	BAML207	C
2	16	Runge-Kutta fourth order method	12/01/2018	BAML207	C
2	17	Modified Euler method	15/01/2018	BAML207	C
3	5	Tutorial-5	16/01/2018	BAML207	C
2	18	Milne's predictor corrector method	18/01/2018	BAML207	C
3	19	Unit III : Calculus of Variation -Functional, extremals of functions, Variational principle	19/01/2018	BAML207	C



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Course : Applied Mathematics IV

Faculty : aadeshpande - Archana A.

Deshpande

Unit	Topic Code	Topic Covered	Date	Course	Section
3	20	Functional, extremals of functions, Variational principle	22/01/2018	BAML207	C
3	6	Tutorial-6	23/01/2018	BAML207	C
3	21	Euler's equation ,constrained extremals	25/01/2018	BAML207	C
3	22	Hamilton principle	29/01/2018	BAML207	C
3	23	Lagrange's equation in solid mechanics	29/01/2018	BAML207	C
4	7	Tutorial-7	30/01/2018	BAML207	C
3	24	Lagrange's equation in solid mechanics	01/02/2018	BAML207	C
4	25	Unit-IV : Random Variables, Distribution of continuous & discrete random variables	02/02/2018	BAML207	C
4	26	Joint distributions	05/02/2018	BAML207	C
4	8	Tutorial-8	06/02/2018	BAML207	C
4	27	Joint distributions	12/02/2018	BAML207	C
5	9	Tutorial-9	13/02/2018	BAML207	C
4	28	mathematical expectations, moment	15/02/2018	BAML207	C
4	29	Moment generating function	16/02/2018	BAML207	C
4	30	Characteristic function	23/02/2018	BAML207	C
4	31	Characteristic function	26/02/2018	BAML207	C
5	10	Tutorial-10	27/02/2018	BAML207	C
5	32	Unit-V : Special probability distribution-Geometric, Binomial, Poisson's, normal probability distribution	01/03/2018	BAML207	C
5	33	Random processes	05/03/2018	BAML207	C
6	11	Tutorial-11	06/03/2018	BAML207	C



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Course : Applied Mathematics IV

Faculty : aadeshpande - Archana A.

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Unit	Topic Code	Topic Covered	Date	Course	Section
5	34	Esemble average & temporal aneage,	08/03/2018	BAML207	C
5	35	Auto correlation & ross - correlation	09/03/2018	BAML207	C
5	36	Stationary random process	15/03/2018	BAML207	C
5	37	Power spectrum stationary process	16/03/2018	BAML207	C
5	38	Ergodic random process.	19/03/2018	BAML207	C
6	12	Tutorial-12	20/03/2018	BAML207	C
6	39	Unit-VI :Introduction to optimization techniques-Linear programming,	22/03/2018	BAML207	C
6	40	Mathematical Model formulation	23/03/2018	BAML207	C
6	41	Mathematical Model formulation	26/03/2018	BAML207	C
6	42	Solutions by Graphical method	27/03/2018	BAML207	C
6	43	Solutions by Graphical method	29/03/2018	BAML207	C
6	44	Simplex method	30/03/2018	BAML207	C
1	10	Crout's method	22/12/2018	BAML207	C
2	11	Unit-II : Eigen values & Eigen vector by iteration method	28/12/2018	BAML207	C
2	12	jacobi method	29/12/2018	BAML207	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : alalke - Ashwini Lalke

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Discussion of Course Objective, Outcomes of M-IV Syllabus	04/12/2017	BAML207	D
1	2	Unit-I: Error analysis	05/12/2017	BAML207	D
1	3	Solution of algebraic and transcendental equations by false position method	06/12/2017	BAML207	D
1	1	Tutorial-1	08/12/2017	BAML207	D
1	1	tutorial I	08/12/2017	BAML207	D
1	4	Newton-Raphson method	11/12/2017	BAML207	D
1	5	Newton-Raphson method for multiple roots	12/12/2017	BAML207	D
1	6	solution of system simultaneous linear equations	13/12/2017	BAML207	D
1	2	Tutorial-2	15/12/2017	BAML207	D
1	7	Gauss elimination method	18/12/2017	BAML207	D
1	8	Gauss Jordan method	19/12/2017	BAML207	D
1	9	Gauss-Seidel method	20/12/2017	BAML207	D
2	3	Tutorial-3	22/12/2017	BAML207	D
1	10	Crout's method	26/12/2017	BAML207	D
2	11	Unit-II : Eigen values & Eigen vector by iteration method	27/12/2017	BAML207	D
2	4	Tutorial-4	29/12/2017	BAML207	D
2	12	jacobi method	01/01/2018	BAML207	D
2	13	Givens method	02/01/2018	BAML207	D
2	14	Householder's method	03/01/2018	BAML207	D
3	5	Tutorial-5	05/01/2018	BAML207	D
2	15	solution of ordinary differential equations by Taylor's series method	08/01/2018	BAML207	D



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Course : Applied Mathematics IV

Faculty : alalke - Ashwini Lalke

Unit	Topic Code	Topic Covered	Date	Course	Section
2	16	Runge-Kutta fourth order method	09/01/2018	BAML207	D
2	17	Modified Euler method	10/01/2018	BAML207	D
3	6	Tutorial-6	12/01/2018	BAML207	D
2	18	Milne's predictor corrector method	15/01/2018	BAML207	D
3	19	Unit III : Calculus of Variation -Functional, extremals of functions, Variational principle	16/01/2018	BAML207	D
3	20	Functional, extremals of functions, Variational principle	17/01/2018	BAML207	D
4	7	Tutorial-7	19/01/2018	BAML207	D
3	21	Euler's equation ,constrained extremals	22/01/2018	BAML207	D
3	22	Hamilton principle	23/01/2018	BAML207	D
3	23	Lagrange's equation in solid mechanics	24/01/2018	BAML207	D
3	24	Lagrange's equation in solid mechanics	29/01/2018	BAML207	D
4	25	Unit-IV : Random Variables, Distribution of continuous & discrete random variables	30/01/2018	BAML207	D
4	26	Joint distributions	31/01/2018	BAML207	D
4	8	Tutorial-8	02/02/2018	BAML207	D
4	27	Joint distributions	05/02/2018	BAML207	D
4	28	mathematical expectations, moment	06/02/2018	BAML207	D
4	29	Moment generating function	07/02/2018	BAML207	D
5	9	Tutorial-9	09/02/2018	BAML207	D
4	30	Characteristic function	12/02/2018	BAML207	D
4	31	Characteristic function	14/02/2018	BAML207	D
5	10	Tutorial-10	16/02/2018	BAML207	D



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## Course wise Teaching Plan for Session : Summer 2018

Course : Applied Mathematics IV

Faculty : alalke - Ashwini Lalke

Unit	Topic Code	Topic Covered	Date	Course	Section
5	11	Tutorial-11	23/02/2018	BAML207	D
5	32	Unit-V : Special probability distribution-Geometric, Binomial, Poisson's, normal probability distribution	26/02/2018	BAML207	D
5	33	Random processes	27/02/2018	BAML207	D
5	34	Esemble average & temporal aneage,	28/02/2018	BAML207	D
5	35	Auto correlation & ross - correlation	05/03/2018	BAML207	D
5	36	Stationary random process	06/03/2018	BAML207	D
5	37	Power spectrum stationary process	07/03/2018	BAML207	D
6	12	Tutorial-12	09/03/2018	BAML207	D
5	38	Ergodic random process.	12/03/2018	BAML207	D
6	39	Unit-VI :Introduction to optimization techniques-Linear programming,	13/03/2018	BAML207	D
6	40	Mathematical Model formulation	14/03/2018	BAML207	D
6	13	Tutorial-13	16/03/2018	BAML207	D
6	41	Mathematical Model formulation	19/03/2018	BAML207	D
6	42	Solutions by Graphical method	20/03/2018	BAML207	D
6	43	Solutions by Graphical method	21/03/2018	BAML207	D
6	14	Tutorial-14	23/03/2018	BAML207	D
6	44	Simplex method	26/03/2018	BAML207	D
6	45	Simplex method	27/03/2018	BAML207	D
6	46	Revision	28/03/2018	BAML207	D
6	15	Tutorial-15	30/03/2018	BAML207	D





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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : adpitale - Mr. Amol Dilip Pitale

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Basics of Thermodynamics	04/12/2017	BMEL312	A
1	2	Classification of I.C. engines, Basics	05/12/2017	BMEL312	A
1	3	General description of Petrol and Diesel	06/12/2017	BMEL312	A
1	4	working and performance of i c	07/12/2017	BMEL312	A
1	5	Comparison with air standard cycles	11/12/2017	BMEL312	A
2	7	Combustion phenomenon in S.I and	13/12/2017	BMEL312	A
1	6	Time and heat loss factors, Exhaust	19/12/2017	BMEL312	A
2	8	Pre combustion, Knock, Detonation	21/12/2017	BMEL312	A
2	9	Combustion chambers. System	01/01/2018	BMEL312	A
2	10	Carburetor	02/01/2018	BMEL312	A
2	11	Fuel injection in S.I. and C.I.	03/01/2018	BMEL312	A
2	12	CRDI Introduction to Supercharging	08/01/2018	BMEL312	A
2	13	Starting, Ignition, Governing,	09/01/2018	BMEL312	A
2	14	Cooling and Exhaust	10/01/2018	BMEL312	A
3	15	determination of IP, BP, FP	11/01/2018	BMEL312	A
3	16	Air Consumption,	16/01/2018	BMEL312	A
3	17	Engine efficiencies	17/01/2018	BMEL312	A
3	18	Fuel Consumption	18/01/2018	BMEL312	A
3	19	Performance characteristics	22/01/2018	BMEL312	A
3	20	Energy balance	23/01/2018	BMEL312	A
3	21	Numerical on HBT	24/01/2018	BMEL312	A
4	22	Factors affecting carburetor, Design	25/01/2018	BMEL312	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : adpitale - Mr. Amol Dilip Pitale

Unit	Topic Code	Topic Covered	Date	Course	Section
4	23	Design of carburetor	29/01/2018	BMEL312	A
4	24	A: F mixture, principle of carburetor	30/01/2018	BMEL312	A
1	25	compensation devices	31/01/2018	BMEL312	A
4	26	types of carburetors	01/02/2018	BMEL312	A
4	27	modern carburetors	05/02/2018	BMEL312	A
5	28	Mechanical injection system	06/02/2018	BMEL312	A
4	29	classification of injection system	07/02/2018	BMEL312	A
6	38	effect of design and operating	07/02/2018	BMEL312	A
4	30	fuel feed pump, injection pump,	08/02/2018	BMEL312	A
4	31	Fuel nozzles, electronic injection	12/02/2018	BMEL312	A
5	32	multi point fuel injection, (MPFI)	15/02/2018	BMEL312	A
5	33	Electronic control system	26/02/2018	BMEL312	A
6	34	Air pollution due to I.C. Engines	27/02/2018	BMEL312	A
6	35	Emissions, Euro norms	28/02/2018	BMEL312	A
6	36	Emission control methods	05/03/2018	BMEL312	A
6	37	EGR system, Diesel Particulate Filter	06/03/2018	BMEL312	A
6	39	Catalyst, Alternative fuels, Methanol	12/03/2018	BMEL312	A
6	40	comparison of alternate fuel	13/03/2018	BMEL312	A
6	41	Ethanol, vegetable oils, biogas	14/03/2018	BMEL312	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Energy Conversion II

Faculty : sdchavhan - Shyamkumar D  
Chavhan

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Unit-I: Reciprocating compressors : Parts, Operations, Work done during isothermal	04/12/2017	BMEL313	A
1	2	Polytropic and adiabatic compression process	05/12/2017	BMEL313	A
1	1	Numerical on unit 1	06/12/2017	BMEL313	A
1	3	PV diagram, isothermal efficiency	07/12/2017	BMEL313	A
1	4	Effect of clearance, volumetric efficiency	08/12/2017	BMEL313	A
1	5	Mechanical efficiency, Multistage compressor	11/12/2017	BMEL313	A
1	6	condition for minimum work input	12/12/2017	BMEL313	A
1	2	Numerical on unit 1	13/12/2017	BMEL313	A
1	7	Capacity control, Actual indicator diagram.	14/12/2017	BMEL313	A
1	8	Video on working of single stage reciprocating compressor.	15/12/2017	BMEL313	A
2	9	Video on working of multi stage reciprocating compressor.	18/12/2017	BMEL313	A
2	10	Unit-II: Rotary Compressors:	19/12/2017	BMEL313	A
2	11	Rotary and vanes blower and screw compressor:	21/12/2017	BMEL313	A
2	12	Principle, operation, parts, indicator diagram	22/12/2017	BMEL313	A
2	13	work done, Roots efficiency, Vanes efficiency. (No analytical treatment expected)	25/12/2017	BMEL313	A
2	14	Centrifugal Compressor:	26/12/2017	BMEL313	A
2	15	Principle, operation, parts, velocity diagram, static & total head quantities	28/12/2017	BMEL313	A
2	16	Work done by impeller, isentropic efficiency of compressor, slip factor, pressure coefficient, power input factor.	29/12/2017	BMEL313	A
2	17	Axial flow compressor:	01/01/2018	BMEL313	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Energy Conversion II

Faculty : sdchavhan - Shyamkumar D  
Chavhan

Unit	Topic Code	Topic Covered	Date	Course	Section
2	18	Principle, operation, parts, velocity diagram, work done,	02/01/2018	BMEL313	A
2	19	Degree of reaction stage efficiency compressor characteristics, surging & chocking. Poly tropic efficiency.	08/01/2018	BMEL313	A
2	20	Video on operation of axial flow compressor.	09/01/2018	BMEL313	A
2	21	Video on working of centrifugal compressor.	11/01/2018	BMEL313	A
3	22	video on actual working of roots blower.	12/01/2018	BMEL313	A
3	23	video on actual working of vane blower.	15/01/2018	BMEL313	A
3	24	Unit-III: I.C. Engines: Air standard	16/01/2018	BMEL313	A
3	25	cycle fuel air cycles,	18/01/2018	BMEL313	A
3	26	parts of I.C. Engines, working of I.C. Engines	19/01/2018	BMEL313	A
3	27	Two stroke and four stroke I.C. Engines, SI & CI Engines,	22/01/2018	BMEL313	A
3	28	Introduction to combustion in SI & CI Engine	23/01/2018	BMEL313	A
3	29	Carburetion and fuel injection. (Analytical treatment not expected)	25/01/2018	BMEL313	A
3	30	video on actual working of two stroke petrol engine.	29/01/2018	BMEL313	A
4	31	video on actual working of two stroke diesel engine.	30/01/2018	BMEL313	A
4	32	video on actual working of four stroke petrol engine.	01/02/2018	BMEL313	A
4	33	video on actual working of four stroke diesel engine	02/02/2018	BMEL313	A
4	34	Unit-IV: I.C. Engine Testing: Measurement of power: Indicated, friction and brake power	05/02/2018	BMEL313	A
4	35	measurement of speed, fuel and air consumption	06/02/2018	BMEL313	A
4	36	calculation of indicated and brake thermal efficiency,	12/02/2018	BMEL313	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Energy Conversion II

Faculty : sdchavhan - Shyamkumar D  
Chavhan

Unit	Topic Code	Topic Covered	Date	Course	Section
4	37	volumetric efficiency,	15/02/2018	BMEL313	A
4	38	mechanical efficiency	16/02/2018	BMEL313	A
0	0	reheat and regeneration, fuel – air ratio, combustion efficiency performance calculation	23/02/2018	BMEL313	A
4	41	Performance, characteristics and factors influencing the performance of I.C. Engines.	23/02/2018	BMEL313	A
5	44	open cycle and closed cycle gas turbine plants co-generations and combined power	26/02/2018	BMEL313	A
5	45	cycles. Principles and working of turbojet, turboprop	27/02/2018	BMEL313	A
5	46	Ramjet and pulse jet simple turbojet cycle,	01/03/2018	BMEL313	A
5	47	Thrust power, propulsive power, Thermal efficiency propulsive efficiency, overall efficiency.	05/03/2018	BMEL313	A
5	48	video on actual working of jet engines.	06/03/2018	BMEL313	A
5	49	video on actual working of open and closed gas turbine.	08/03/2018	BMEL313	A
5	50	Unit-VI: Gas Turbines and Jet propulsion : Refrigeration and Air-conditioning	09/03/2018	BMEL313	A
5	51	Introduction, capacity of refrigerating unit, refrigeration methods	15/03/2018	BMEL313	A
6	52	vapours refrigeration cycle	16/03/2018	BMEL313	A
6	53	vapours compression refrigeration cycle,	19/03/2018	BMEL313	A
6	54	selection of refrigerant, vapour absorption cycle	20/03/2018	BMEL313	A
6	55	Electrolux refrigerator, dry air,	22/03/2018	BMEL313	A
6	56	moist air and saturated air, specific humidity ,reparative humidity	23/03/2018	BMEL313	A
6	57	Explanation on trigeneration technology	26/03/2018	BMEL313	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Energy Conversion II

Faculty : sdchavhan - Shyamkumar D  
Chavhan

Unit	Topic Code	Topic Covered	Date	Course	Section
6	58	Study on ice plant cold storage system	27/03/2018	BMEL313	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : mggabhane - Mohitkumar

Gajanan Gabhane

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Unit-I Introduction, Importance and Scope of Subject introduction of CO	04/12/2017	BMEL315	A
1	2	Prerequisites for learning Subject	05/12/2017	BMEL315	A
1	3	Basic terminologies used in Heat Transfer	06/12/2017	BMEL315	A
1	4	Modes of Heat transfer, Basic laws of Heat transfer	08/12/2017	BMEL315	A
1	5	Conservation Of Energy Requirement ,General Heat Conduction Equation In Cartesian Co-ordinate	09/12/2017	BMEL315	A
1	6	Cylindrical And Spherical Coordinates	11/12/2017	BMEL315	A
1	7	Thermal Conductivity And Diffusivity,Critical Thickness Of Insulation	12/12/2017	BMEL315	A
1	8	One Dimensional Steady State Conduction Equation For The Plane Wall,Cylinder	13/12/2017	BMEL315	A
1	9	One Dimensional Steady State Conduction Equation For The Sphere	15/12/2017	BMEL315	A
1	10	Thermal Resistance Of Composite Structures	16/12/2017	BMEL315	A
1	11	Contact Resistance, Overall Heat Transfer Coefficient	18/12/2017	BMEL315	A
1	12	Concept of Thermal contact resistance and variable thermal conductivity	19/12/2017	BMEL315	A
1	13	REVISION	20/12/2017	BMEL315	A
1	14	REVISION	22/12/2017	BMEL315	A
1	15	REVISION	23/12/2017	BMEL315	A
1	16	REVISION	25/12/2017	BMEL315	A
2	17	Unit-II Conduction with internal Heat Generation -Basic equations	26/12/2017	BMEL315	A
2	18	Application of Conduction equations for plain wall, cylinders, spheres with internal heat generation	27/12/2017	BMEL315	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : mggabhane - Mohitkumar

Gajanan Gabhane

Unit	Topic Code	Topic Covered	Date	Course	Section
2	19	Concept and necessity of Extended Surface with Practical applications	29/12/2017	BMEL315	A
2	20	General Mathematical Treatment for Fin Analysis	30/12/2017	BMEL315	A
2	21	Fin Analysis for Variety of practical applications	01/01/2018	BMEL315	A
2	22	Estimation of error in temperature measurement	02/01/2018	BMEL315	A
2	23	Introduction to unsteady state heat transfer, Lumped Heat Capacity Analysis	03/01/2018	BMEL315	A
2	24	Applications of Lumped Parameter Analysis	08/01/2018	BMEL315	A
2	25	Necessity and Utility of Heisler Charts	09/01/2018	BMEL315	A
2	26	REVISION	10/01/2018	BMEL315	A
2	27	REVISION	12/01/2018	BMEL315	A
3	28	Unit-III Introduction to Convection Heat Transfer, Introduction to Basic terms Involved.	13/01/2018	BMEL315	A
3	29	Concept Of Velocity & Thermal Boundary Layer	15/01/2018	BMEL315	A
3	30	Physical Signification Of Non-Dimensional Parameters.	16/01/2018	BMEL315	A
3	31	Flow Of High Moderate Prandtl Number Fluid Over A Flat Surface.	17/01/2018	BMEL315	A
3	32	Flow Of Low Moderate Prandtl Number Fluid Over A Flat Surface.	22/01/2018	BMEL315	A
3	33	Local And Average Heat Transfer Coefficients, Empirical Co-Relations For External Flow	23/01/2018	BMEL315	A
3	34	Empirical Co-Relations For Internal Flow, Empirical Co-Relations For Laminar & Turbulent Flow Through Conduits	24/01/2018	BMEL315	A
3	35	Numericals	26/01/2018	BMEL315	A
3	36	Numericals	27/01/2018	BMEL315	A
3	37	Numericals	29/01/2018	BMEL315	A





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## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : mggabhane - Mohitkumar

Gajanan Gabhane

Unit	Topic Code	Topic Covered	Date	Course	Section
3	38	Numericals	30/01/2018	BMEL315	A
3	39	Numericals	31/01/2018	BMEL315	A
3	40	Numericals	02/02/2018	BMEL315	A
4	41	Unit-IV Free Or Natural Convection, Grashof Number, Rayleigh Number. Horizontal And Vertical Plate.	03/02/2018	BMEL315	A
4	42	Empirical Co-Relations For Cylinders And Spheres	05/02/2018	BMEL315	A
4	43	Numericals	06/02/2018	BMEL315	A
4	44	Heat Transfer With Phase Change, Pool Boiling Curve & Regimes Of Pool Boiling.	07/02/2018	BMEL315	A
4	45	Film & Drop Wise Condensation, Laminar Film Condensation On Vertical Surface	12/02/2018	BMEL315	A
4	46	Film Condensation On Horizontal Tubes	13/02/2018	BMEL315	A
4	47	Introduction To Heat Pipe.	14/02/2018	BMEL315	A
4	48	Heat Transfer With Phase Change, Pool Boiling Curve & Regimes Of Pool Boiling.	16/02/2018	BMEL315	A
4	49	Numerical	17/02/2018	BMEL315	A
4	50	Numerical	19/02/2018	BMEL315	A
4	51	Numerical	20/02/2018	BMEL315	A
4	52	Numerical	21/02/2018	BMEL315	A
5	53	Unit-V Radiation, Nature Of Thermal Radiation, Black Body Radiation, Radiation Intensity	23/02/2018	BMEL315	A
5	54	Laws Of Radiation – Kirchoffs, Plancks, Weins Displacement, Stefan Boltzmann & Lamberts Co-Sine Law.	24/02/2018	BMEL315	A
5	55	Emissivity, Absorptivity, Transmissivity, Reflectivity, Radiosity, Emissive Power, Irradiation	26/02/2018	BMEL315	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : mggabhane - Mohitkumar

Gajanan Gabhane

Unit	Topic Code	Topic Covered	Date	Course	Section
5	56	Network, Radiation Exchange between Surfaces, Idea Of Shape Factor & Reciprocity Theorem	27/02/2018	BMEL315	A
5	57	Radiation Between Parallel Plates, Cylinder & Spheres.	28/02/2018	BMEL315	A
5	58	Radiation Shields	02/03/2018	BMEL315	A
5	59	Numericals	03/03/2018	BMEL315	A
5	60	Numericals	05/03/2018	BMEL315	A
5	61	Numericals	06/03/2018	BMEL315	A
5	62	REVISION	07/03/2018	BMEL315	A
5	63	REVISION	09/03/2018	BMEL315	A
6	64	Unit-VI Heat Exchanger: Classification	10/03/2018	BMEL315	A
6	65	Heat Transfer Coefficient, Fouling Factor	16/03/2018	BMEL315	A
6	66	LMTD Method of Heat Exchanger Analysis for Parallel	17/03/2018	BMEL315	A
6	67	Counter Flow & Cross Flow Arrangement.	19/03/2018	BMEL315	A
6	68	Effectiveness NTU Method, Heat Exchanger Analysis By NTU Method	20/03/2018	BMEL315	A
6	69	Design Aspects Of Heat Exchangers. Numericals	21/03/2018	BMEL315	A
6	70	Introduction to Compact Heat Exchanger	23/03/2018	BMEL315	A
6	71	Syllabus Review and Guidelines about preparation for examination	24/03/2018	BMEL315	A
6	72	REVISION	26/03/2018	BMEL315	A
6	73	REVISION	27/03/2018	BMEL315	A
6	74	REVISION	28/03/2018	BMEL315	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : vskhangar - Mr. Vipin

Suresh Rao Khangar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Productivity Measures	05/12/2017	BMEL316	A
1	1	Introduction to COS, TAE, CAE	06/12/2017	BMEL316	A
1	2	(Unit-I) Introduction to Industrial Engineering	07/12/2017	BMEL316	A
1	3	Work study -Introduction & advantages of work study & procedure	08/12/2017	BMEL316	A
1	2	Productivity Measures partial & Total	12/12/2017	BMEL316	A
1	4	Method Study: Introduction, objectives and scope of method study	13/12/2017	BMEL316	A
1	5	Diagrams & string, SIMO Chart	14/12/2017	BMEL316	A
1	6	Cycle graph and Crono cycle graph	15/12/2017	BMEL316	A
1	3	Outline Process Chart,	19/12/2017	BMEL316	A
1	7	Principles of motion economy	20/12/2017	BMEL316	A
1	8	Micro-motion study	21/12/2017	BMEL316	A
2	9	(Unit-II) Work Measurement	22/12/2017	BMEL316	A
1	4	Multiple Activity chart	02/01/2018	BMEL316	A
2	10	Performance rating systems	03/01/2018	BMEL316	A
1	5	SIMO Chart	09/01/2018	BMEL316	A
2	11	Allowances, standard time	10/01/2018	BMEL316	A
2	12	Work sampling, synthetic data	11/01/2018	BMEL316	A
2	13	Pre-determined motion time analysis	12/01/2018	BMEL316	A
2	6	time study equipment	16/01/2018	BMEL316	A
3	14	(Unit-III) Ergonomics: Fundamentals applications of in layout of equipment	17/01/2018	BMEL316	A
3	15	Design characteristics of control	18/01/2018	BMEL316	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : vskhangar - Mr. Vipin

Suresh Rao Khangar

Unit	Topic Code	Topic Covered	Date	Course	Section
3	16	Environmental factors	19/01/2018	BMEL316	A
2	7	Standard time calculation	23/01/2018	BMEL316	A
3	17	Man Machine system	24/01/2018	BMEL316	A
3	18	Anthropometry	25/01/2018	BMEL316	A
2	8	Work sampling Numericals	30/01/2018	BMEL316	A
3	19	human factors considerations in system design	31/01/2018	BMEL316	A
4	20	(Unit-IV) PPC and Inventory Control objectives, functions	01/02/2018	BMEL316	A
4	21	Scheduling- master schedule, daily schedule	02/02/2018	BMEL316	A
3	9	Workplace design	06/02/2018	BMEL316	A
4	22	Inventory: - Types, control, importance	07/02/2018	BMEL316	A
4	23	Sales forecasting: - Introduction, objectives	14/02/2018	BMEL316	A
4	24	Least square Method	15/02/2018	BMEL316	A
4	25	Numericals on sales forecasting	16/02/2018	BMEL316	A
4	10	Regression Analysis	20/02/2018	BMEL316	A
4	11	Inventory Models, Functions, costs	27/02/2018	BMEL316	A
5	26	(Unit-V) Value Analysis: Definition, VA & VE	28/02/2018	BMEL316	A
5	27	Value Analysis: Definition, VA & VE	01/03/2018	BMEL316	A
5	12	mechanics of MRP- II	06/03/2018	BMEL316	A
5	28	Supply chain Management: concept objectives, applications	07/03/2018	BMEL316	A
5	29	5S, Lean manufacturing,	08/03/2018	BMEL316	A
5	30	Kanban, Kaizen.	09/03/2018	BMEL316	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : vskhangar - Mr. Vipin

Suresh Rao Khangar

Unit	Topic Code	Topic Covered	Date	Course	Section
5	31	JIT: definition, concept, importance, misconception, relevance, applications, push pull technique.	15/03/2018	BMEL316	A
5	32	Introduction to TQM, ISO standard, environmental and TS business standards.	16/03/2018	BMEL316	A
6	13	Reliability and maintainability	20/03/2018	BMEL316	A
5	33	MRP: Introduction, objectives, factors, guidelines, techniques,	21/03/2018	BMEL316	A
6	35	Maintenance Management: Objectives, Types of maintenance, preventive, predictive, break down maintenance.	22/03/2018	BMEL316	A
6	36	analysis Failure data analysis,	23/03/2018	BMEL316	A
6	14	reliability, MTBT, MTTR,	27/03/2018	BMEL316	A
6	37	Bathtub curve,	28/03/2018	BMEL316	A
6	38	series parallel and stand by system	29/03/2018	BMEL316	A
6	39	TPM	30/03/2018	BMEL316	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Renewable Energy Sources

Faculty : sdchavhan - Shyamkumar D  
Chavhan

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Unit-I: Solar Energy:- Energy Sources, convectional energy sources	04/12/2017	BMEL318	A
1	2	prospects of Renewable & non Renewable energy sources	05/12/2017	BMEL318	A
1	3	Solar radiation & its measurement	06/12/2017	BMEL318	A
1	4	calculation of incident angle, global radiations	07/12/2017	BMEL318	A
1	5	solar day length and its prediction	11/12/2017	BMEL318	A
1	6	Flat plate collectors	12/12/2017	BMEL318	A
1	7	focusing collectors	13/12/2017	BMEL318	A
1	8	working video on different types of collector	14/12/2017	BMEL318	A
2	9	Unit-II: Performance of flat plate, cylindrical parabolic	18/12/2017	BMEL318	A
2	10	concentric collectors	19/12/2017	BMEL318	A
2	11	solar central receiver system	20/12/2017	BMEL318	A
2	12	Heliostats and Receiver – Heat transport system	21/12/2017	BMEL318	A
2	13	solar distributed receiver system	26/12/2017	BMEL318	A
2	14	sensible heat storage using solids and liquids	27/12/2017	BMEL318	A
2	15	Packed bed storage – Latent heat storage – working principle	28/12/2017	BMEL318	A
2	16	Other solar devices – stills, air heaters	01/01/2018	BMEL318	A
2	17	dryers	02/01/2018	BMEL318	A
2	18	Solar Ponds & Solar Refrigeration.	03/01/2018	BMEL318	A
2	19	Active and Passive heating systems	08/01/2018	BMEL318	A
2	20	solar cells – performance	09/01/2018	BMEL318	A
2	21	Working videos on Solar devices	10/01/2018	BMEL318	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Renewable Energy Sources

Faculty : sdchavhan - Shyamkumar D  
Chavhan

Unit	Topic Code	Topic Covered	Date	Course	Section
3	22	Unit-III: Wind Energy :- Introduction, Basic principles	11/01/2018	BMEL318	A
3	23	classification of WECS Systems, wind data & energy estimate	15/01/2018	BMEL318	A
3	24	site selection, wind machines, energy storage, environmental aspects	16/01/2018	BMEL318	A
3	25	Wind velocities, wind speed, profiles, wind speed data	17/01/2018	BMEL318	A
3	26	Power in the wind, wind power development	18/01/2018	BMEL318	A
3	27	Types of wind mill	22/01/2018	BMEL318	A
3	28	performance of wind mills	23/01/2018	BMEL318	A
3	29	Application for pumping and power generation	24/01/2018	BMEL318	A
3	30	video on actual working of Wind Mills	25/01/2018	BMEL318	A
4	31	Unit-IV: Introduction, Biomass conversion Technology	29/01/2018	BMEL318	A
4	32	biogas generation, biogas plant	30/01/2018	BMEL318	A
4	33	materials used, site selection, fuel property of biogas	31/01/2018	BMEL318	A
4	34	Methods for obtaining biomass ,gasification	01/02/2018	BMEL318	A
4	35	Fuel Cell, design & principle of operation, classification, types, applications	05/02/2018	BMEL318	A
4	36	MHD power generation, methods	06/02/2018	BMEL318	A
4	37	MHD design	07/02/2018	BMEL318	A
4	38	MHD Problems, status	12/02/2018	BMEL318	A
4	39	Thermo electrical power	14/02/2018	BMEL318	A
4	40	Thermionic generation	15/02/2018	BMEL318	A
4	41	Video on thermoelectric power generation	19/02/2018	BMEL318	A



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## Course wise Teaching Plan for Session : Summer 2018

Course : Renewable Energy Sources

Faculty : sdchavhan - Shyamkumar D  
Chavhan

Unit	Topic Code	Topic Covered	Date	Course	Section
5	42	Unit-V: Ocean Energy: Ocean currents and wave, ocean wave power	20/02/2018	BMEL318	A
5	43	conversion of wave energy	21/02/2018	BMEL318	A
5	44	pneumatic and oscillating wave converters	22/02/2018	BMEL318	A
5	45	Tidal power: power developed, single basin and two basin power plants	26/02/2018	BMEL318	A
5	46	Ocean thermal energy conversion systems: ocean temperature profile	27/02/2018	BMEL318	A
5	47	OTE power plant development	28/02/2018	BMEL318	A
5	48	Geothermal energy resources	01/03/2018	BMEL318	A
5	49	power generation methods, Such as vapour dominated and water dominated systems	05/03/2018	BMEL318	A
5	50	power generation methods, Such as vapour dominated and water dominated systems	06/03/2018	BMEL318	A
5	51	video on actual working of tidal power generation plant	07/03/2018	BMEL318	A
6	52	Unit-VI: Economical analysis of renewable energy system	08/03/2018	BMEL318	A
6	53	problem on Economical analysis	15/03/2018	BMEL318	A
6	54	problem on Economical analysis	19/03/2018	BMEL318	A
6	55	problem on Economical analysis	20/03/2018	BMEL318	A
6	56	problem on Economical analysis	21/03/2018	BMEL318	A
6	57	problem on Economical analysis	22/03/2018	BMEL318	A
6	58	Advance topic	26/03/2018	BMEL318	A
6	59	Advance topic	27/03/2018	BMEL318	A
6	60	Advance topic	28/03/2018	BMEL318	A



**G.H. Raison College of Engineering, Nagpur.**  
(An autonomous institute, Affiliated to Rashtrasant Tukadoji Maharaj Nagpur university)  
**Department of Mechanical Engineering.**  
**Teaching Plan**  
**Even Semester: 2017-18**

<b>Name of Faculty:</b> Prof. K. S. Rambhad,		<b>Subject Code/Subject Name:</b> BMEL-313 / Energy Conversion-II	
<b>Semester/Section:</b> VI/B		<b>Session:</b> 2017-18	
<b>Lecture No.</b>	<b>Topic</b>		
1.	<b>Unit-I:</b> Reciprocating compressors : Parts, Operations, Work done during isothermal		
2.	Polytropic and adiabatic compression process		
3.	PV diagram, isothermal efficiency		
4.	Effect of clearance, volumetric efficiency		
5.	Mechanical efficiency, Multistage compressor		
6.	condition for minimum work input		
7.	Capacity control, Actual indicator diagram.		
8.	<b>Video on working of single stage reciprocating compressor.</b> <b>Video on working of multi stage reciprocating compressor.</b>		
9.	<b>Unit-II: Rotary Compressors:</b> Rotary and vanes blower and screw compressor:		
10.	Principle, operation, parts, indicator diagram		
11.	work done, Roots efficiency, Vanes efficiency. (No analytical treatment expected)		
12.	<b>Centrifugal Compressor:</b> Principle, operation, parts, velocity diagram, static & total head quantities		
13.	Work done by impeller, isentropic efficiency of compressor, slip factor, pressure coefficient, power input factor.		
14.	<b>Axial flow compressor:</b> Principle, operation, parts, velocity diagram, work done,		
15.	Degree of reaction stage efficiency compressor characteristics, surging & chocking. Polytropic efficiency.		
16.	<b>Video on operation of axial flow compressor.</b> <b>Video on working of centrifugal compressor.</b>		
17.	<b>video on actual working of roots blower.</b> <b>video on actual working of vane blower.</b>		
18.	<b>Unit-III: I.C. Engines:</b> Air standard		
19.	cycle fuel air cycles,		
20.	parts of I.C. Engines, working of I.C. Engines		
21.	Two stroke and four stroke I.C. Engines, SI & CI Engines,		
22.	Introduction to combustion in SI & CI Engine		
23.	Carburetion and fuel injection. (Analytical treatment not expected)		
24.	<b>video on actual working of two stroke petrol engine.</b> <b>video on actual working of two stroke diesel engine.</b>		
25.	<b>video on actual working of four stroke petrol engine.</b> <b>video on actual working of four stroke diesel engine</b>		
26.	<b>Unit-IV: I.C. Engine Testing:</b> Measurement of power: Indicated, friction and brake power		
27.	measurement of speed, fuel and air consumption		
28.	calculation of indicated and brake thermal efficiency,		
29.	volumetric efficiency,		

30.	mechanical efficiency
31.	percentage of excess air
32.	Heat balance sheet
33.	Performance, characteristics and factors influencing the performance of I.C. Engines.
34.	<b>Unit-V: Gas Turbines and Jet propulsion</b> : Ideal cycles isentropic and small stage efficiency,
35.	application of gas turbine pressure losses, effect of inter-cooling,
36.	reheat and regeneration, fuel – air ratio, combustion efficiency performance calculation
37.	open cycle and closed cycle gas turbine plants co-generations and combined power
38.	cycles. Principles and working of turbojet, turboprop
39.	Ramjet and pulse jet simple turbojet cycle,
40.	Thrust power, propulsive power, Thermal efficiency propulsive efficiency, overall efficiency.
41.	<b>video on actual working of jet engines.</b> <b>video on actual working of open and closed gas turbine.</b>
42.	<b>Unit-VI: Gas Turbines and Jet propulsion</b> : Refrigeration and Air-conditioning
43.	Introduction, capacity of refrigerating unit, refrigeration methods
44.	vapours refrigeration cycle
45.	vapours compression refrigeration cycle,
46.	selection of refrigerant, vapour absorption cycle
47.	Electrolux refrigerator, dry air,
48.	moist air and saturated air, specific humidity ,reparative humidity
49.	Explanation on trigeneration technology
50.	Study on ice plant cold storage system

**Signature of Faculty**

# G. H. RAISONI COLLEGE OF ENGINEERING, NAGPUR

(An Autonomous Institute Affiliated to RTMNU Nagpur)

## DEPARTMENT OF MECHANICAL ENGINEERING

**B.E.** (Mechanical Engineering)

### TEACHING PLAN

<b>Name of Faculty:</b> Prof. V. V. Bhandarkar	<b>Subject Code/Subject Name:</b> BMEL316/Industrial Engineering
<b>Semester/Section:</b> Sixth/B	<b>Session:</b> 2017-18 (Even Semester)

Lecture No.	Date	Topic to be covered
1	12/04/17	Introduction to CO s, TAE, CAE
2	12/05/17	<b>(Unit-I):</b> Introduction to Industrial Engineering
3	12/07/17	Productivity Concept
4	12/11/17	Work-Study: Introduction and Advantages of work study and procedure
5	12/12/17	Method Study: Introduction, objectives and scope of method study
6	12/14/17	Various recording techniques, different types of charts
7	12/18/17	Productivity -Numericals
8	12/19/17	Outline process chart
9	12/21/17	Material chart
10	12/25/17	Diagrams and string
11	12/26/17	SIMO chart
12	12/28/17	Cycle graph and crono cycle graph
13	01/01/18	Principle of motion economy
14	01/02/18	Micro-motion study
15	01/04/18	<b>(Unit -II)</b> Work measurement
16	01/08/18	Work measurement numericals
17	01/09/18	Time study-equipment, number of cycles to be timed
18	01/11/18	Performance rating systems
19	01/15/18	Allowances, standard time
20	01/16/18	Work sampling, synthetic data
21	01/18/18	Standard time calculations
22	01/22/18	Pre-determined motion time analysis
23	01/23/18	<b>(Unit -III)</b> Factory Organisation: principles, Importance and Advantages
24	01/25/18	Characteristics of organization
25	01/29/18	Organization Structures
26	01/30/18	Classical organization theory
27	02/01/18	Types of organizations- military or line organizations
28	02/05/18	Functional organization
29	02/06/18	Line and staff organization
30	02/08/18	<b>(Unit-IV)</b> Ergonomics: Fundamentals applications of ergonomics in layout of equipment
31	02/12/18	Design of seating display
32	02/13/18	Design characteristics of control,

33	02/15/18	Man-machine workplace system,
34	02/19/18	Fatigue, physiological and other causes of fatigue, environmental condition of fatigue.
35	02/20/18	Human factors considerations in system design.
36	02/22/18	<b>(Unit-V)</b> Production Planning & Control (PPC) and Inventory Control: PPC its objectives, functions
37	02/26/18	preplanning and planning, routing, estimating, scheduling-master schedule daily schedule, Gantt Chart,
38	02/27/18	dispatching-centralized vs. decentralized, control, follow up and progress reporting.
39	03/01/18	Functions, types of inventory.inventory control-importance & functions,
40	03/05/18	inventory costs, factors affecting inventory control, various inventory control models,
41	03/06/18	ABC analysis, lead time calculations.
42	03/08/18	Sales forecasting: Introduction, objectives and importance of sales forecasting, methods of sales forecasting,
43	03/12/18	Collective opinion, method, Delphi technique, economic indicator method, regression analysis, moving average method, time series analysis.
44	03/13/18	<b>(Unit-VI)</b> Various Concepts in Industrial Engineering: Wages and incentives: concept, types, plans, desirable characteristics;
45	03/15/18	Value Analysis: Definition, VA & VE, Job plan of VA, FAST diagram.
46	03/19/18	Supply chain Management: definition, concept objectives, applications, benefits some cases in Indian industries;
47	03/20/18	JIT: definition, concept, importance, misconception, relevance, applications, push-pull technique.
48	03/22/18	Introduction to TQM, ISO standard, environmental and TS business standards.
49	03/26/18	MRP: Introduction, objectives, factors, guidelines, techniques, elements of MRP system,
50	03/27/18	mechanics of MRP-I &II
51	03/29/18	Revision



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CRPF Gate No.3, Hingna Road, Digdoh Hills, Nagpur. Maharashtra-440016 (India)

## Course wise Teaching Plan for Session : Summer 2018

Course : Machine Design II

Faculty : skumbhalkar - Skumar S

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Objectives of the subject, Course Outcomes	04/12/2017	BMEL314	B
1	2	UNIT-1:-Coupling: types of shaft coupling.	05/12/2017	BMEL314	B
1	3	Design of flange coupling.	06/12/2017	BMEL314	B
1	4	Flexible bush coupling.	07/12/2017	BMEL314	B
1	5	Flywheel: coefficient of fluctuation of energy ,speed, .	11/12/2017	BMEL314	B
1	6	Energy store in flywheel.	12/12/2017	BMEL314	B
1	7	Stresses in flywheel.	13/12/2017	BMEL314	B
1	8	Design of flywheel.	01/01/2018	BMEL314	B
2	9	Unit-2:-Surface finish, friction wear, lubrication, oil seals.	02/01/2018	BMEL314	B
2	10	Design of journal bearings for radial and thrust loads.	03/01/2018	BMEL314	B
2	11	Ball and roller bearing for radial and thrust loads.	08/01/2018	BMEL314	B
2	12	Failures of antifriction bearing.	09/01/2018	BMEL314	B
2	13	Design of hydrostatic pocket type thrust bearing.	10/01/2018	BMEL314	B
2	14	Circular step thrust bearing, bearing housing.	11/01/2018	BMEL314	B
3	15	UNIT 3:-Flat belt drive: types of belts and belt material.	15/01/2018	BMEL314	B
3	16	Analysis of belt tension, condition for transmitting maximum power.	16/01/2018	BMEL314	B
3	17	Design of flat belt.	17/01/2018	BMEL314	B
3	18	Flat belt pulley.	18/01/2018	BMEL314	B
3	19	V belt drive : types of V-belt, analysis of V-belt tension	22/01/2018	BMEL314	B
3	20	Design of V belt pulley, Roller change drive.	23/01/2018	BMEL314	B
3	21	Velocity ratio and length of chain, design of chain.	24/01/2018	BMEL314	B



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## Course wise Teaching Plan for Session : Summer 2018

Course : Machine Design II

Faculty : skumbhalkar - Skumar S

Unit	Topic Code	Topic Covered	Date	Course	Section
3	22	Dimensions of tooth profile, sprocket.	25/01/2018	BMEL314	B
4	23	UNIT 4:-Review of kinematics of gears and terminology.	29/01/2018	BMEL314	B
4	24	Interference, tooth profiles.	30/01/2018	BMEL314	B
4	25	Formative number of teeth etc. Buckingham equation.	31/01/2018	BMEL314	B
4	26	Design of spur gear drive.	01/02/2018	BMEL314	B
4	27	Helical gear drive.	05/02/2018	BMEL314	B
4	28	Hypoid gear.	06/02/2018	BMEL314	B
4	29	Spiral gear.	07/02/2018	BMEL314	B
4	30	Numerical	12/02/2018	BMEL314	B
5	31	UNIT 5:- Worm gear drive, force analysis .	14/02/2018	BMEL314	B
5	32	Types and proportion of worm and worm gear.	15/02/2018	BMEL314	B
5	33	Beam strength of worm gear teeth, dynamic tooth load, wear load.	26/02/2018	BMEL314	B
5	34	Thermal rating of worm gear, design of worm and worm gear.	27/02/2018	BMEL314	B
5	35	Bevel gear drive ; types of bevel gear.	28/02/2018	BMEL314	B
5	36	Proportions of bevel gear, force analysis of bevel gear.	01/03/2018	BMEL314	B
5	37	Drive design of bevel gear drive.	05/03/2018	BMEL314	B
5	38	Numerical	06/03/2018	BMEL314	B
6	39	UNIT 6:-Introduction to haulage system,	07/03/2018	BMEL314	B
6	40	Design of wire rope.	08/03/2018	BMEL314	B
6	41	Numerical	15/03/2018	BMEL314	B
6	42	Numerical	19/03/2018	BMEL314	B



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## Course wise Teaching Plan for Session : Summer 2018

Course : Machine Design II

Faculty : skumbhalkar - Skumar S

Unit	Topic Code	Topic Covered	Date	Course	Section
6	43	Numerical	20/03/2018	BMEL314	B
6	44	Numerical	21/03/2018	BMEL314	B
6	45	Sheave and drums.	22/03/2018	BMEL314	B
6	46	Electric motor rating.	26/03/2018	BMEL314	B
6	47	Controls, selection motors.	27/03/2018	BMEL314	B
6	48	Advance topic on the subject	28/03/2018	BMEL314	B
6	49	Advance topic on the subject	29/03/2018	BMEL314	B

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**DEPARTMENT OF MECHANICAL ENGINEERING**  
**B.E. (Mechanical Engineering)**  
**TEACHING PLAN**

<b>Name of Faculty</b> : Prof. S. K. BHAGAT	<b>Subject Code/ Subject Name:</b> BMEL505/ Advanced Manufacturing Techniques
<b>Semester / Section</b> : VIII-A,B,C,D	<b>Session</b> : 2017-18 (Even Semester)

Lecture No.	Date	Topic to be covered
1	12/06/2017	Discussions on CO,PO,PEO's
2	12/07/2017	Introduction to topic
3	12/08/2017	Introduction to Nuclear Engineering: Binding Energy, Energy release
4	12/09/2017	, Nuclear reactions & its initiation Fission,
5	12/13/2017	Component of nuclear reactors & its material,
6	12/14/2017	Numericals based on energy release.
7	12/15/2017	Nuclear Reactors:Types of reactors,
8	12/16/2017	PWR, BWR, CANDU ,Gas cooled liquid metal cooled
9	12/20/2017	Breeder reactor problems of operation
10	12/21/2017	location of nuclear station
11	12/22/2017	present & proposed nuclear plant in India.
12	12/23/2017	Nuclear Waste Disposal: Effects of nuclear waste on environment, its disposal to soil
13	12/27/2017	Revision
14	12/28/2017	test
15	12/29/2017	Hydrology : Rainfall , Runoff, Hydrograph , flow duration curve , mass curve.
16	12/30/2017	Hydroelectric power plant : Site selection ,classification of hydroelectric power
17	01/03/2018	general arrangement,
18	01/04/2018	details of different components prime movers
19	01/05/2018	governing, model & model testing advantages,
20	01/06/2018	comparison with other power plant.
21	01/10/2018	Revision
22	01/11/2018	test
23	01/12/2018	Introduction to topic
24	01/13/2018	Introduction: Coal – its properties,
25	01/17/2018	handling & storage, , power plant layouts, pollution from steam power plant.
26	01/18/2018	fuel firing methods ash & dust handling boiler accessories
27	01/19/2018	high pressure boiler
28	01/20/2018	draught system
29	01/24/2018	steam turbine
30	01/25/2018	condenser, cooling towers
31	01/26/2018	Water treatment, steam pipes
32	01/27/2018	power plant layouts, pollution from steam power plant
33	01/31/2018	



34	02/01/2018	Introduction, classification
35	02/02/2018	various components, different arrangement, governing
36	02/03/2018	methods to improve efficiency, comparison with other power plant.
37	02/07/2018	Diesel Electric Power Plant:
38	02/08/2018	Introduction, Outline, type of engines,
39	02/09/2018	different components, performance
40	02/10/2018	plant layout comparison with other power plant.
41	02/14/2018	Introduction to unconventional power sources – Solar, wind, Tidal, geothermal,
42	02/15/2018	Revision
43	02/16/2018	test
44	02/17/2018	Introduction to topic
45	02/21/2018	Peak load plants, waste heat recovery system
46	02/22/2018	various energy storage – systems like pumped hydro
47	02/23/2018	compressed au. Flywheel, battery storage,
48	02/24/2018	thermal sensible & latent heat storage
49	02/28/2018	chemical energy storage.
50	03/01/2018	Automation & Instrumentation
51	03/02/2018	Measurement of water purity, O <sub>2</sub> , CO <sub>2</sub> measurement
52	03/03/2018	analysis,
53	03/07/2018	smoke & dust measurement,
54	03/08/2018	moisture measurement, nuclear measurement
55	03/09/2018	Revision
56	03/10/2018	test
57	03/14/2018	Introduction to topic
58	03/15/2018	Fluctuating Load: Load curves, various terms & definition
59	03/16/2018	effect of fluctuating load
60	03/17/2018	Economic Analysis: Tariffs
61	03/21/2018	load division, and cost of electric energy.
62	03/22/2018	Combined Operation: Need, division
63	03/23/2018	combination of different plant & their coordination
64	03/24/2018	advantages.
65	03/28/2018	Advance topic on the subject
66	03/29/2018	Revision
67	03/30/2018	test

Prof. S. K. BHAGAT  
Asst. Professor

HoD  
Mechanical Engineering

**G.H. Raisoni College of Engineering, Nagpur.**  
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**Department of Mechanical Engineering.**  
**Teaching Plan**  
**Even Semester: 2017-18**

<b>Name of Faculty:</b> Prof. S. D. Chavhan		<b>Subject Code/Subject Name:</b> BMEL-318 / Renewable Energy Sources	
<b>Semester/Section:</b> VI/B		<b>Session:</b> 2017-18	
<b>Lecture No.</b>	<b>Topic</b>		
1.	<b>Unit-I: Solar Energy:-</b> Energy Sources, convectional energy sources		
2.	prospects of Renewable & non Renewable energy sources		
3.	Solar radiation & its measurement		
4.	calculation of incident angle, global radiations		
5.	solar day length and its prediction		
6.	Flat plate collectors		
7.	focusing collectors		
8.	<b>working video on different types of collector</b>		
9.	<b>Unit-II:</b> Performance of flat plate, cylindrical parabolic		
10.	concentric collectors		
11.	solar central receiver system		
12.	Heliostats and Receiver – Heat transport system		
13.	solar distributed receiver system		
14.	sensible heat storage using solids and liquids		
15.	Packed bed storage – Latent heat storage – working principle		
16.	Other solar devices – stills, air heaters, dryers		
17.	Solar Ponds & Solar Refrigeration. Active and Passive heating systems		
18.	solar cells – performance		
19.	<b>Working videos on Solar devices</b>		
20.	<b>Unit-III: Wind Energy :-</b> Introduction, Basic principles		
21.	classification of WECS Systems, wind data & energy estimate		
22.	site selection, wind machines, energy storage, environmental aspects		
23.	Wind velocities, wind speed, profiles, wind speed data		
24.	Power in the wind, wind power development		
25.	Types of wind mill, performance of wind mills		
26.	Application for pumping and power generation		
27.	<b>video on actual working of Wind Mills</b>		
28.	<b>Unit-IV:</b> Introduction, Biomass conversion Technology		
29.	biogas generation, biogas plant		
30.	materials used, site selection, fuel property of biogas		
31.	Methods for obtaining biomass ,gasification		
32.	Fuel Cell, design & principle of operation, classification, types, applications		
33.	MHD power generation, methods, MHD design problems, status		
34.	Thermo electrical power		
35.	Thermionic generation		
36.	<b>Unit-V: Ocean Energy:</b> Ocean currents and wave, ocean wave power		
37.	conversion of wave energy, pneumatic and oscillating wave converters		
38.	Tidal power: power developed, single basin and two basin power plants		

39.	Ocean thermal energy conversion systems: ocean temperature profile, OTE power plant development
40.	Geothermal energy resources
41.	power generation methods, Such as vapour dominated and water dominated systems
42.	<b>video on actual working of tidal power generation plant</b>
43.	<b>Unit-VI: Economical analysis of renewable energy system</b>
44.	problem on Economical analysis
45.	problem on Economical analysis
46.	Advance topic
47.	Advance topic
48.	Advance topics

**Signature of Faculty**



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## Course wise Teaching Plan for Session : Summer 2018

Course : Industrial Engineering

Faculty : vskhangar - Mr. Vipin

Suresh Rao Khangar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Productivity Measures partial & Total	06/12/2017	BMEL316	B
1	2	Method study flowchart	13/12/2017	BMEL316	B
1	3	Flow chart	20/12/2017	BMEL316	B
1	4	Two handed process chart	03/01/2018	BMEL316	B
2	5	Time study- equipment, Number of cycles to be timed	10/01/2018	BMEL316	B
2	6	Standard time calculation	17/01/2018	BMEL316	B
2	7	Work sampling Numericals	24/01/2018	BMEL316	B
3	8	design of seating display,	31/01/2018	BMEL316	B
3	9	Work Measurement Numericals	07/02/2018	BMEL316	B
3	10	Maynards operation sequence technique	14/02/2018	BMEL316	B
4	11	Moving Avrage Method	21/02/2018	BMEL316	B
5	12	mechanics of MRP-I	28/02/2018	BMEL316	B
5	13	Quality circles,	07/03/2018	BMEL316	B
6	14	Reliability and maintainability	21/03/2018	BMEL316	B
6	15	reliability, MTBT, MTTR,	28/03/2018	BMEL316	B



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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : rsshelke - Dr. Rupesh

Suresh Rao Shelke

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Engine type and their operation	04/12/2017	BMEL312	C
1	2	Introduction and Historical Perspective	05/12/2017	BMEL312	C
1	3	Engine classification	06/12/2017	BMEL312	C
2	4	Engine classification	07/12/2017	BMEL312	C
2	5	Engine operating cycle	11/12/2017	BMEL312	C
2	6	Engine component	12/12/2017	BMEL312	C
2	7	Lubricating and Cooling System	13/12/2017	BMEL312	C
2	8	Lubricating and Cooling System	14/12/2017	BMEL312	C
2	9	Frictional losses, Blowby losses, Pumping losses	18/12/2017	BMEL312	C
2	10	Factors affecting mechanical Friction	19/12/2017	BMEL312	C
3	11	S.I. engine fuel Characteristics	20/12/2017	BMEL312	C
3	12	S.I. engine fuel Characteristics	21/12/2017	BMEL312	C
3	13	C.I. engine fuel Characteristics	26/12/2017	BMEL312	C
3	14	Rating of engine fuels	27/12/2017	BMEL312	C
3	15	Rating of engine fuels	28/12/2017	BMEL312	C
3	16	Carburetors, modern Carburetors	01/01/2018	BMEL312	C
3	17	Carburetors, modern Carburetors	02/01/2018	BMEL312	C
4	18	SPFI MPFI Direct injection	03/01/2018	BMEL312	C
4	19	Fuel injection pump, fuel injectors	08/01/2018	BMEL312	C
4	20	Swirl, Squish, combustion stages	09/01/2018	BMEL312	C
4	21	Swirl, Squish, combustion stages	10/01/2018	BMEL312	C
4	22	Flame propagation, cyclic variation in combustion	11/01/2018	BMEL312	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : rsshelke - Dr. Rupesh  
Suresh Rao Shelke

Unit	Topic Code	Topic Covered	Date	Course	Section
4	23	Ignition fundamental conventional ignition system	15/01/2018	BMEL312	C
4	24	Abnormal combustion, knocking	16/01/2018	BMEL312	C
5	25	Abnormal combustion, knocking	17/01/2018	BMEL312	C
5	26	Knock fundamental ,Surface ignition	18/01/2018	BMEL312	C
5	27	Turbo-charging supercharging Scavenging	22/01/2018	BMEL312	C
5	28	Combustion in direct and indirect injection	23/01/2018	BMEL312	C
5	29	Combustion in direct and indirect injection	24/01/2018	BMEL312	C
5	30	Fuel spray behavior	25/01/2018	BMEL312	C
5	31	Combustion in C.I. engine	29/01/2018	BMEL312	C
5	32	Auto ignition, Ignition delay, Factors affecting delay	30/01/2018	BMEL312	C
6	33	Effect of fuel properties on Abnormal combustion	31/01/2018	BMEL312	C
6	34	Supercharging , Turbo charging in C.I engine	01/02/2018	BMEL312	C
6	35	Stratified charge engine, adiabatic engines	05/02/2018	BMEL312	C
6	36	Stratified charge engine, adiabatic engines	06/02/2018	BMEL312	C
6	37	Free piston engine pollutant formation and control	07/02/2018	BMEL312	C
6	38	Nature and extent of problem formation of NO <sub>2</sub>	12/02/2018	BMEL312	C
6	39	Nature and extent of problem formation of NO <sub>2</sub>	14/02/2018	BMEL312	C
6	40	NO formation in S.I engine	15/02/2018	BMEL312	C
6	41	NOX formation in C.I engine	26/02/2018	BMEL312	C
6	42	Carbon monoxide and unburned hydrocarbon emission in S.I and C.I engine	27/02/2018	BMEL312	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : rsshelke - Dr. Rupesh  
Suresh Rao Shelke

Unit	Topic Code	Topic Covered	Date	Course	Section
6	43	Particulate emission, Catalytic converter, particulate traps	28/02/2018	BMEL312	C
6	44	Particulate emission, Catalytic converter, particulate traps	01/03/2018	BMEL312	C
6	45	Indicated work per cycle, mechanical efficiency, mean effective pressure	05/03/2018	BMEL312	C
6	46	Specific fuel consumption, air fuel ratio, volumetric efficiency	06/03/2018	BMEL312	C
6	47	Specific emission and emission index	07/03/2018	BMEL312	C
6	48	Specific emission and emission index	08/03/2018	BMEL312	C
6	49	Measurement of friction, indicated, brake power	15/03/2018	BMEL312	C
6	50	Measurement of friction, indicated, brake power	19/03/2018	BMEL312	C
6	51	Performance parameter and characteristics	20/03/2018	BMEL312	C
6	52	Engine performance characteristics, engine efficiency	21/03/2018	BMEL312	C
6	53	Variable affecting performance characteristics	22/03/2018	BMEL312	C
6	54	Extra Class	26/03/2018	BMEL312	C
6	55	Extra Class	27/03/2018	BMEL312	C
6	56	Extra Class	28/03/2018	BMEL312	C
6	57	Extra Class	29/03/2018	BMEL312	C



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CRPF Gate No.3, Hingna Road, Digdoh Hills, Nagpur. Maharashtra-440016 (India)

## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : vpkalbande - Vednath P  
Kalbande

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Review of thermodynamics	04/12/2017	BMEL315	C
1	2	Introduction, Importance and Scope of Subject introduction of CO	05/12/2017	BMEL315	C
1	3	Prerequisites for learning Subject	06/12/2017	BMEL315	C
1	4	Basic terminologies used in Heat Transfer	07/12/2017	BMEL315	C
1	5	Modes of Heat transfer, Basic laws of Heat transfer	08/12/2017	BMEL315	C
1	6	1-D Steady state Heat transfer ,General heat conduction Equation	11/12/2017	BMEL315	C
1	7	Details of Conduction Heat transfer , Fourier's law ,Conductivity and diffusivity	12/12/2017	BMEL315	C
1	8	Application of general heat conduction equation to plane wall	13/12/2017	BMEL315	C
1	9	Application of general heat conduction equation to cylinders	14/12/2017	BMEL315	C
1	10	Application of general heat conduction equation to Spheres	15/12/2017	BMEL315	C
1	11	Concept of critical thickness of insulation	18/12/2017	BMEL315	C
2	12	Concept of Thermal contact resistance and variable thermal conductivity	19/12/2017	BMEL315	C
2	13	Conduction with internal Heat Generation -Basic equations	20/12/2017	BMEL315	C
2	14	Application of Conduction equations for plain wall, cylinders, spheres with internal heat generation	21/12/2017	BMEL315	C
2	15	Concept and necessity of Extended Surface with Practical applications	22/12/2017	BMEL315	C
2	16	General Mathematical Treatment for Fin Analysis	01/01/2018	BMEL315	C
2	17	Fin Analysis for Variety of practical applications	02/01/2018	BMEL315	C
2	18	Estimation of error in temperature measurement	03/01/2018	BMEL315	C





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## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : vpkalbande - Vednath P  
Kalbande

Unit	Topic Code	Topic Covered	Date	Course	Section
3	19	Introduction to unsteady state heat transfer, Lumped Heat Capacity Analysis	08/01/2018	BMEL315	C
3	20	Applications of Lumped Parameter Analysis	09/01/2018	BMEL315	C
3	21	Necessity and Utility of Heisler Charts	10/01/2018	BMEL315	C
3	22	Introduction to Convection Heat Transfer, Introduction to Basic terms Involved.	11/01/2018	BMEL315	C
3	23	Concept of Thermal Boundary Layers	12/01/2018	BMEL315	C
3	24	Concept of Thermal Boundary Layers	15/01/2018	BMEL315	C
3	25	Empirical Correlations For Convective Heat transfer Analysis	16/01/2018	BMEL315	C
3	26	Application of Empirical Correlations for various situations of forced convection heat transfer	17/01/2018	BMEL315	C
3	27	Application of Empirical Correlations for various situations of forced convection heat transfer	18/01/2018	BMEL315	C
3	28	Theory	19/01/2018	BMEL315	C
3	29	basics of fins	22/01/2018	BMEL315	C
4	30	Introduction to Free Convection, Introduction to Basic terms Involved.	23/01/2018	BMEL315	C
4	31	Empirical Correlations For Convective Heat transfer Analysis	24/01/2018	BMEL315	C
4	32	numericals	25/01/2018	BMEL315	C
4	33	numericals	29/01/2018	BMEL315	C
4	34	Numericals	30/01/2018	BMEL315	C
4	35	Application of Empirical Correlations for various situations of forced convection heat transfer	31/01/2018	BMEL315	C
4	36	Estimation of error in temperature measurement	01/02/2018	BMEL315	C
4	37	Concept of Boiling And Condensation Heat Transfer	02/02/2018	BMEL315	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : vpkalbande - Vednath P  
Kalbande

Unit	Topic Code	Topic Covered	Date	Course	Section
4	38	Concept of Heat Pipe and Its Practical Applications	05/02/2018	BMEL315	C
5	39	Numericals	06/02/2018	BMEL315	C
5	40	Introduction to Radiation Heat Transfer, Introduction to Basic terms Involved.	07/02/2018	BMEL315	C
5	41	Basic Laws of Radiation Heat Transfer	12/02/2018	BMEL315	C
5	42	Numericals	14/02/2018	BMEL315	C
5	43	Applications of Radiation laws	15/02/2018	BMEL315	C
5	44	Applications of Radiation laws	16/02/2018	BMEL315	C
5	45	Radiation Networks	19/02/2018	BMEL315	C
5	46	Fin Analysis for Variety of practical applications	20/02/2018	BMEL315	C
5	47	Fin Analysis for Variety of practical applications	21/02/2018	BMEL315	C
6	48	Idea of Shape Factor and reciprocity Theorem	22/02/2018	BMEL315	C
6	49	Concept and Applications of radiation Shields	23/02/2018	BMEL315	C
6	50	Introduction to Heat Exchangers, Classification and applications	26/02/2018	BMEL315	C
6	51	LMTD method of Heat Exchanger Analysis for Different Arrangements	27/02/2018	BMEL315	C
6	52	NTU method of Heat Exchanger Analysis, Effectiveness of Heat Exchangers	28/02/2018	BMEL315	C
6	53	Design Aspects of Heat Exchangers	01/03/2018	BMEL315	C
6	54	Concept of Compact Heat Exchangers and Recent Developments in Heat Exchangers	05/03/2018	BMEL315	C
6	55	Numericals	06/03/2018	BMEL315	C
6	56	Numericals	07/03/2018	BMEL315	C
6	57	Revision	08/03/2018	BMEL315	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Heat Transfer

Faculty : vpkalbande - Vednath P  
Kalbande

Unit	Topic Code	Topic Covered	Date	Course	Section
6	58	Revision	09/03/2018	BMEL315	C
6	59	Revision	15/03/2018	BMEL315	C
6	60	Revision	16/03/2018	BMEL315	C
6	61	Revision	19/03/2018	BMEL315	C
6	62	Revision	20/03/2018	BMEL315	C
6	63	Revision	21/03/2018	BMEL315	C
6	64	Revision	22/03/2018	BMEL315	C
6	65	Revision	23/03/2018	BMEL315	C
6	66	Revision	26/03/2018	BMEL315	C
6	67	Revision	27/03/2018	BMEL315	C
6	68	Revision	28/03/2018	BMEL315	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : rsshelke - Dr. Rupesh

Suresh Rao Shelke

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Engine type and their operation	04/12/2017	BMEL312	D
1	2	Introduction and Historical Perspective	05/12/2017	BMEL312	D
1	3	Engine classification	06/12/2017	BMEL312	D
2	4	Engine classification	07/12/2017	BMEL312	D
2	5	Engine operating cycle	11/12/2017	BMEL312	D
2	6	Engine component	12/12/2017	BMEL312	D
2	7	Lubricating and Cooling System	13/12/2017	BMEL312	D
2	8	Lubricating and Cooling System	14/12/2017	BMEL312	D
2	9	Frictional losses, Blowby losses, Pumping losses	18/12/2017	BMEL312	D
2	10	Factors affecting mechanical Friction	19/12/2017	BMEL312	D
3	11	S.I. engine fuel Characteristics	20/12/2017	BMEL312	D
3	12	S.I. engine fuel Characteristics	21/12/2017	BMEL312	D
3	13	C.I. engine fuel Characteristics	26/12/2017	BMEL312	D
3	14	Rating of engine fuels	27/12/2017	BMEL312	D
3	15	Rating of engine fuels	28/12/2017	BMEL312	D
3	16	Carburetors, modern Carburetors	01/01/2018	BMEL312	D
3	17	Carburetors, modern Carburetors	02/01/2018	BMEL312	D
4	18	SPFI MPFI Direct injection	03/01/2018	BMEL312	D
4	19	Fuel injection pump, fuel injectors	08/01/2018	BMEL312	D
4	20	Swirl, Squish, combustion stages	09/01/2018	BMEL312	D
4	21	Swirl, Squish, combustion stages	10/01/2018	BMEL312	D
4	22	Flame propagation, cyclic variation in combustion	11/01/2018	BMEL312	D



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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : rsshelke - Dr. Rupesh  
Suresh Rao Shelke

Unit	Topic Code	Topic Covered	Date	Course	Section
4	23	Ignition fundamental conventional ignition system	15/01/2018	BMEL312	D
4	24	Abnormal combustion, knocking	16/01/2018	BMEL312	D
5	25	Abnormal combustion, knocking	17/01/2018	BMEL312	D
5	26	Knock fundamental ,Surface ignition	18/01/2018	BMEL312	D
5	27	Turbo-charging supercharging Scavenging	22/01/2018	BMEL312	D
5	28	Combustion in direct and indirect injection	23/01/2018	BMEL312	D
5	29	Combustion in direct and indirect injection	24/01/2018	BMEL312	D
5	30	Fuel spray behavior	25/01/2018	BMEL312	D
5	31	Combustion in C.I. engine	29/01/2018	BMEL312	D
5	32	Auto ignition, Ignition delay, Factors affecting delay	30/01/2018	BMEL312	D
6	33	Effect of fuel properties on Abnormal combustion	31/01/2018	BMEL312	D
6	34	Supercharging , Turbo charging in C.I engine	01/02/2018	BMEL312	D
6	35	Stratified charge engine, adiabatic engines	05/02/2018	BMEL312	D
6	36	Stratified charge engine, adiabatic engines	06/02/2018	BMEL312	D
6	37	Free piston engine pollutant formation and control	07/02/2018	BMEL312	D
6	38	Nature and extent of problem formation of NO <sub>2</sub>	12/02/2018	BMEL312	D
6	39	Nature and extent of problem formation of NO <sub>2</sub>	14/02/2018	BMEL312	D
6	40	NO formation in S.I engine	15/02/2018	BMEL312	D
6	41	NOX formation in C.I engine	26/02/2018	BMEL312	D
6	42	Carbon monoxide and unburned hydrocarbon emission in S.I and C.I engine	27/02/2018	BMEL312	D



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## Course wise Teaching Plan for Session : Summer 2018

Course : Advanced I.C. Engines

Faculty : rsshelke - Dr. Rupesh  
Sureshrao Shelke

Unit	Topic Code	Topic Covered	Date	Course	Section
6	43	Particulate emission, Catalytic converter, particulate traps	28/02/2018	BMEL312	D
6	44	Particulate emission, Catalytic converter, particulate traps	01/03/2018	BMEL312	D
6	45	Indicated work per cycle, mechanical efficiency, mean effective pressure	05/03/2018	BMEL312	D
6	46	Specific fuel consumption, air fuel ratio, volumetric efficiency	06/03/2018	BMEL312	D
6	47	Specific emission and emission index	07/03/2018	BMEL312	D
6	48	Specific emission and emission index	08/03/2018	BMEL312	D
6	49	Measurement of friction, indicated, brake power	15/03/2018	BMEL312	D
6	50	Measurement of friction, indicated, brake power	19/03/2018	BMEL312	D
6	51	Performance parameter and characteristics	20/03/2018	BMEL312	D
6	52	Engine performance characteristics, engine efficiency	21/03/2018	BMEL312	D
6	53	Variable affecting performance characteristics	22/03/2018	BMEL312	D
6	54	Extra Class	26/03/2018	BMEL312	D
6	55	Extra Class	27/03/2018	BMEL312	D
6	56	Extra Class	28/03/2018	BMEL312	D
6	57	Extra Class	29/03/2018	BMEL312	D



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## Course wise Teaching Plan for Session : Summer 2018

Course : Machine Design II

Faculty : svkochhar - Sandeep V.  
Kochhar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Objectives of the subject, Course Outcomes	05/12/2017	BMEL314	C
1	2	UNIT-1:-Coupling: types of shaft coupling.	06/12/2017	BMEL314	C
1	3	Design of flange coupling.	06/12/2017	BMEL314	C
1	4	Flexible bush coupling.	07/12/2017	BMEL314	C
1	5	Flywheel: coefficient of fluctuation of energy ,speed, .	08/12/2017	BMEL314	C
1	6	Energy store in flywheel.	12/12/2017	BMEL314	C
1	7	Stresses in flywheel.	13/12/2017	BMEL314	C
1	8	Design of flywheel.	14/12/2017	BMEL314	C
2	9	Unit-2:-Surface finish, friction wear, lubrication, oil seals.	15/12/2017	BMEL314	C
2	10	Design of journal bearings for radial and thrust loads.	19/12/2017	BMEL314	C
2	11	Ball and roller bearing for radial and thrust loads.	20/12/2017	BMEL314	C
2	12	Failures of antifriction bearing.	21/12/2017	BMEL314	C
2	13	Design of hydrostatic pocket type thrust bearing.	22/12/2017	BMEL314	C
2	14	Circular step thrust bearing, bearing housing.	26/12/2017	BMEL314	C
3	15	UNIT 3:-Flat belt drive: types of belts and belt material.	27/12/2017	BMEL314	C
3	16	Analysis of belt tension, condition for transmitting maximum power.	28/12/2017	BMEL314	C
3	17	Design of flat belt.	29/12/2017	BMEL314	C
3	18	Flat belt pulley.	02/01/2018	BMEL314	C
3	19	V belt drive : types of V-belt, analysis of V-belt tension	03/01/2018	BMEL314	C
3	20	Design of V belt pulley, Roller change drive.	09/01/2018	BMEL314	C
3	21	Velocity ratio and length of chain, design of chain.	10/01/2018	BMEL314	C



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## Course wise Teaching Plan for Session : Summer 2018

Course : Machine Design II

Faculty : svkochhar - Sandeep V.  
Kochhar

Unit	Topic Code	Topic Covered	Date	Course	Section
3	22	Dimensions of tooth profile, sprocket.	11/01/2018	BMEL314	C
4	23	UNIT 4:-Review of kinematics of gears and terminology.	12/01/2018	BMEL314	C
4	24	Interference, tooth profiles.	16/01/2018	BMEL314	C
4	25	Formative number of teeth etc. Buckingham equation.	17/01/2018	BMEL314	C
4	26	Design of spur gear drive.	18/01/2018	BMEL314	C
4	27	Helical gear drive.	19/01/2018	BMEL314	C
4	28	Hypoid gear.	23/01/2018	BMEL314	C
4	29	Spiral gear.	24/01/2018	BMEL314	C
4	30	Numerical	25/01/2018	BMEL314	C
5	31	UNIT 5:- Worm gear drive, force analysis .	30/01/2018	BMEL314	C
5	32	Types and proportion of worm and worm gear.	31/01/2018	BMEL314	C
5	33	Beam strength of worm gear teeth, dynamic tooth load, wear load.	01/02/2018	BMEL314	C
5	34	Thermal rating of worm gear, design of worm and worm gear.	02/02/2018	BMEL314	C
5	35	Bevel gear drive ; types of bevel gear.	06/02/2018	BMEL314	C
6	46	Electric motor rating.	06/02/2018	BMEL314	C
5	36	Proportions of bevel gear, force analysis of bevel gear.	07/02/2018	BMEL314	C
5	37	Drive design of bevel gear drive.	13/02/2018	BMEL314	C
5	38	Numerical	14/02/2018	BMEL314	C
6	39	UNIT 6:-Introduction to haulage system,	15/02/2018	BMEL314	C
6	40	Design of wire rope.	16/02/2018	BMEL314	C
6	41	Numerical	23/02/2018	BMEL314	C





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## Course wise Teaching Plan for Session : Summer 2018

Course : Machine Design II

Faculty : svkochhar - Sandeep V.

Kochhar

Unit	Topic Code	Topic Covered	Date	Course	Section
6	42	Numerical	27/02/2018	BMEL314	C
6	43	Numerical	28/02/2018	BMEL314	C
6	44	Numerical	01/03/2018	BMEL314	C
6	45	Sheave and drums.	02/03/2018	BMEL314	C
6	47	Controls, selection motors.	07/03/2018	BMEL314	C
6	48	Advance topic on the subject	08/03/2018	BMEL314	C

**G. H. RAISONI COLLEGE OF ENGINEERING, NAGPUR.**  
(An Autonomous Institution Affiliated to RTMNU Nagpur)  
**DEPARTMENT OF MECHANICAL ENGINEERING**  
**B.E. (Mechanical Engineering)**  
**TEACHING PLAN**

<b>Name of Faculty</b> : Prof. V. N. Kshirsagar	<b>Subject Code/ Subject Name:</b> BMEL403/Operation Research &Management
<b>Semester / Section</b> : VIII-A	<b>Session</b> : 2017-18 (Even Semester)

Lecture No.	Date	Topic to be covered
1	04/12/2017	Discussions on CO,PO,PEO's
2	07/12/2017	OR methodology, Definition of OR
3	08/12/2017	Application of OR to engineering
4	11/12/2017	Features of OR models, Limitation of OR.
5	14/12/2017	LINEAR Programming Definition and basic theory
6	15/12/2017	LINEAR Programming standard form, LINEAR Programming solution space
7	18/12/2017	LINEAR Programming solution – feasible, basic feasible, optimal, infeasible, multiple
8	21/12/2017	LINEAR Programming solution – optimal, Redundancy, Degeneracy,
9	22/12/2017	Big M Method
10	28/12/2017	Formulation of Dual of LPP.
11	29/12/2017	Graphical and simplex methods
12	01/01/2018	Transportation & Assignment Problems Formulation of transportation model,
13	08/01/2018	Basic feasible solution using different methods (North-West corner)
14	11/01/2018	Basic feasible solution using different methods(Least Cost)
15	12/01/2018	Basic feasible solution using different methods (Vogel's Approximation Method)
16	15/01/2018	Optimality Methods
17	18/01/2018	Unbalanced transportation problem, Variants in Transportation Problems
18	19/01/2018	Variants in Transportation Problems, Applications of Transportation problems
19	22/01/2018	Transshipment problems.
20	25/01/2018	Formulation of the Assignment problem
21	29/01/2018	unbalanced assignment problem
22	01/02/2018	typical assignment
23	02/02/2018	Travelling salesman problem.
24	05/02/2018	Project Management Introduction Project Management
25	12/02/2018	concept of Project Management & its definition
26	15/02/2018	classification of projects, project life cycle
27	16/02/2018	project identification, project formulation,
28	23/02/2018	Project scheduling
29	26/02/2018	tools & techniques of projects scheduling
30	01/03/2018	Project planning, Project organization
31	02/03/2018	project audit, project monitoring & control
32	05/03/2018	Project Planning Project Management
33	08/03/2018	Project Management: Drawing of Network
34	09/03/2018	Project Management: Drawing of Network
35	15/03/2018	CPM
36	16/03/2018	PERT
37	19/03/2018	Probability of completion of project, Cost analysis of project
38	22/03/2018	Allocation & updating of Network
39	23/03/2018	Inventory control & simulation Inventory control models
40	26/03/2018	analysis of single product deterministic Models
41	29/03/2018	Simulation :Introduction , advantages , limitations & application of
42	30/03/2018	Monte Carlo Simulation

**Vishal N.Kshirsagar**  
Asst. Professor

**HoD**  
**Mechanical Engineering**