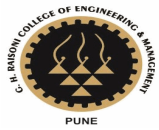


**Course wise Teaching Plan for Session : Summer 2019****Course : ADVANCED HEAT TRANSFER****Faculty : dipak.patil@raisoni.net - DIPAK SUDAM PATIL**

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to heat transfer, different mode of heat transfer	03/12/2018	MHPL507	A
1	1	Transient heat conduction using Heisler and Grober charts	04/12/2018	MHPL507	A
1	2	Governing laws	06/12/2018	MHPL507	A
1	3	quasi-linearization of the stefan-Boltzmann law	08/12/2018	MHPL507	A
1	4	Applications of heat transfer	10/12/2018	MHPL507	A
1	2	Transient heat conduction using Heisler and Grober charts	11/12/2018	MHPL507	A
1	5	Simple problems for recapitulation	13/12/2018	MHPL507	A
1	6	General Heat Conduction equation in cartesian co-ordinate system	15/12/2018	MHPL507	A
1	7	General Heat Conduction equation in polar co-ordinate system	17/12/2018	MHPL507	A
2	3	Combined Natural and Force convection heattransfer	18/12/2018	MHPL507	A
1	8	General Heat Conduction equation in spherical co-ordinate system	20/12/2018	MHPL507	A
1	9	Initial and boundary conditions	22/12/2018	MHPL507	A
1	10	Different kinds of boundary conditions with examples	24/12/2018	MHPL507	A
2	11	Stedy state one-dimentional heat conduction problems with and without heat generation in cartesian system	27/12/2018	MHPL507	A
2	12	Stedy state one-dimentional heat conduction problems with and without heat generation in cartesian system	29/12/2018	MHPL507	A
2	13	Stedy state one-dimentional heat conduction problems with and without thermal conductivity in cartesian system	31/12/2018	MHPL507	A
2	4	Combined Natural and Force convection heattransfer	01/01/2019	MHPL507	A
2	14	Stedy state one-dimentional heat conduction problems with and without heat generation in cylindrical system	03/01/2019	MHPL507	A
2	15	Stedy state one-dimentional heat conduction problems with and without heat generation in cylindrical system	05/01/2019	MHPL507	A

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Unit	Topic Code	Topic Covered	Date	Course	Section
2	16	Steady state one-dimensional heat conduction problems with and without thermal conductivity in cylindrical system	07/01/2019	MHPL507	A
3	5	Radiation Heat transfer in two surface enclosure	08/01/2019	MHPL507	A
2	17	Steady state one-dimensional heat conduction problems with and without heat generation in spherical system	10/01/2019	MHPL507	A
2	18	Steady state one-dimensional heat conduction problems with and without heat generation in spherical system	12/01/2019	MHPL507	A
2	19	Steady state one-dimensional heat conduction problems with and without thermal conductivity in spherical system	14/01/2019	MHPL507	A
4	20	Steady state two dimensional heat conduction problems in cartesian coordinate system	19/01/2019	MHPL507	A
4	21	Steady state two dimensional heat conduction problems in cylindrical system	21/01/2019	MHPL507	A
3	6	Radiation Heat transfer in two surface enclosure	22/01/2019	MHPL507	A
4	22	Use of Bessel's functions, numerical	24/01/2019	MHPL507	A
4	23	Transient heat conduction, different cases-Negligible internal thermal resistance	28/01/2019	MHPL507	A
4	7	Heat transfer augmentation techniques	29/01/2019	MHPL507	A
4	24	Transient heat conduction, different cases-Negligible surface resistance	31/01/2019	MHPL507	A
4	25	Comparable internal thermal and surface resistances	02/02/2019	MHPL507	A
4	26	Lumped body	04/02/2019	MHPL507	A
4	8	Heat transfer augmentation techniques	05/02/2019	MHPL507	A
4	27	Infinite plate of finite thickness and semi infinite solid, Numerical problem	07/02/2019	MHPL507	A
4	28	Heisler and grober charts for transient conduction	09/02/2019	MHPL507	A

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Unit	Topic Code	Topic Covered	Date	Course	Section
4	29	One dimensional, two dimensional and three dimensional problems using the charts, Numerical problems	11/02/2019	MHPL507	A
5	9	Numerical method in heat conduction	12/02/2019	MHPL507	A
3	30	Uniform fins, like straight, rectangular and circular fins, nonuniform fins like annular fins and triangular fins	14/02/2019	MHPL507	A
3	31	Corrected fin length concept of Haper and Brown	16/02/2019	MHPL507	A
3	32	Fin efficiency	21/02/2019	MHPL507	A
3	33	Fin effectiveness, Numerical	23/02/2019	MHPL507	A
5	34	Force convection flow over a flat plate, boundary layer theory, velocity and thermal, prandtl number	25/02/2019	MHPL507	A
5	10	Numerical method in heat conduction	26/02/2019	MHPL507	A
5	35	Governing equations- continuity, Navier stokes and energy equations, boundary layer assumption	28/02/2019	MHPL507	A
5	36	Turbulent flow, various empirical solutions, Force convection flow over cylinders and spheres	02/03/2019	MHPL507	A
6	11	Numerical method in heat convection	05/03/2019	MHPL507	A
5	37	Internal flow convection flow-constant wall temperature and constant heat flux, laminar and turbulent flow solutions	07/03/2019	MHPL507	A
5	38	Laminar and turbulent flows, analytical and empirical solutions, Numerical problems.	09/03/2019	MHPL507	A
6	39	Prevost's Theories of propagation of thermal radiation, fundamental principle, white, opaque, transparent, black and gray bodies	11/03/2019	MHPL507	A
6	12	Numerical method in heat convection	12/03/2019	MHPL507	A
6	40	Spectral and total emissive power, Wien's, Rayleigh-Jeans and Plank's law	18/03/2019	MHPL507	A
6	13	Revision	19/03/2019	MHPL507	A



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Unit	Topic Code	Topic Covered	Date	Course	Section
6	41	Spectral energy distribution of a black body, Stefan Boltzmann law for the total emissive power of a black body	23/03/2019	MHPL507	A
6	42	Type of emissivity, View factor, view factor algebra	25/03/2019	MHPL507	A
6	14	Revision	26/03/2019	MHPL507	A
6	43	Summation rule, reciprocity theorem, Hottel's crossed-string method	28/03/2019	MHPL507	A
6	44	Electrical resistance concept to tackle two-body enclosures, Numerical problems	30/03/2019	MHPL507	A