Subject Code	Courses	L	T	P	Hrs.	Credits
ME5EL21	**Advance Heat Transfer**	**4**	**0**	**0**	**4**	**4**

Unit 1

Radiation Heat Transfer:- The view factor, View factor relations, Black Surface, diffuse, grey surface radiation shields, Gas radiation, Radiation effects, Formation of numerical solution, Solar radiation.

Unit 2

Numerical Methods in Heat Coduction: Why Numerical Methods, Finite difference formulation of differential equation, One dimensional steady state conduction, Two dimensional Steady state conduction:- (Finite Element Method) Finite difference formulation, Boundary Nodes, Irregular Boundaries, Transient heat conduction.

Unit 3

Boiling and Condensation: Boiling heat transfer, pool boiling, flow boiling, film condensation- regimes, effect of vapour velocity, dropwise condensation, condensation number.

Unit 4

Lamirar Boundary layer : on a flat plate, energy equation of boundary layer, Thermal boundary layer, Turbulent Heat transfer, turbulent Prandtl number, Free convection Heat transfer on vertical plate, cylinders, inclined surfaces.

Unit 5

Cooling of electronic equipment, Heating & cooling of buildings , Refrigeration of foods, Freezing of foods like fruits, vegetables, poultry & fish etc.

Reference Books:-

1. Heat & Mass Transfer : Yunus A. Cengel & A fshin J. Ghajar, Mc Graw Hill
2. Heat Transfer; J P Holman & Sovik Bhattacharya, Mc Graw Hill
3. Engineering Heat & Man Transfer;Mahesh M. Rathore University Press