Course Code : **ME 731**

Course Title : **Advanced heat & mass transfer**

Credit Hours : **3**

Course Description

3-dimentional time-dependent heat transfer, Graphical method, Finite difference method, Finite difference solution, Convection Radiation heat transfer, Mass transfer, Diffusion in liquids, solids and gases, Mass transfer coefficients, Magneto fluid dynamics systems, Low density heat transfer.

Course Objectives

The aim of this course that the student should be able to deal with any advanced thermodynamic problem.

Course Topics

Week no. 1: 3-dimentional time-dependent heat transfer.

Week no. 2: 3-dimentional time-dependent heat transfer.

Week no. 3: Graphical method.

Week no. 4: Graphical method.

Week no. 5: Finite difference method.

Week no. 6: Finite difference solution.

Week no. 7: Convection / 7th week evaluation.

Week no. 8: Radiation heat transfer.

Week no. 9: Radiation heat transfer.

Week no. 10: Mass transfer.

Week no. 11: Diffusion in liquids, solids and gases.

Week no. 12: Mass transfer coefficients / 12th week evaluation

Week no. 13: Magneto fluid dynamics systems.

Week no. 14: Low density heat transfer.

Week no. 15: Presentation on selected topics.

Week no. 16: Final examination.

References

Energy Technology Handbook – Considine Mc Graw Hill.

Archive W. Culp, “Principles of Energy Conversion”, Mc Graw Hill.

TD Eastop & D.R. Craft, “Energy Efficiency”, Longman.

- MESSAGE – User Manual