

ANNEXURE -IX

ME 435..... COMPOSITE MATERIALS

INTRODUCTION

Introduction to composite materials, types of reinforcement, types of matrices, roles of reinforcement and matrix in different types of composites, classification of composites.

NANO COMPOSITES

Introduction to nano reinforcements, types of nano composites, preparation, properties and applications.

DISPERSION AND PARTICLE REINFORCED COMPOSITES

Reinforcing mechanism, choice of dispersoids, preparation, properties and applications of dispersion reinforced composites, particulate composites, cermets, properties and applications.

COMPOSITES WITH SHORT REINFORCEMENTS

Whiskers, whisker reinforced composites, directionally solidified eutectic composites, composites with discontinuous fibers.

COMPOSITES WITH CONTINUOUS REINFORCEMENTS

Different types of continuous reinforcements such as glass, carbon, Kevlar fibers, metal filaments, ceramic fibers, composites, preparation, properties and applications.

References:

1. K. K. Chawla, *Composite Materials Science and Engineering*, 3rd edition, Springer Verlag, 2012.
2. F. L. Matthews and R. D. Rawlings, *Composite Materials Engineering and Science*, Woodhead Publishing, 1999.
3. Deborah P. L. Chung, *Composite Materials Science and Applications*, Springer, 2nd edition, 2010.
4. D. Hull and T. W. Clyne, *An Introduction to Composite Materials*, Cambridge University Press, 1996.
5. T. W. Clyne and P. J. Withers, *An Introduction to Metal Matrix Composites*, Cambridge University Press, 1995.

This global elective be offered by Prof. Prabhakaran Ramamurthy, Professor Eminence, ODU Virginia, USA

By On Line Video Lecture, twice a day, Between 5PM and 6.30PM, tentatively on Tuesday and Thursday at LHC 7. Maximum students permitted is 100.