Syllabus

(2-1) 3 Credits – Prerequisite: CEE 353 or permission of instructor

Catalogue Description: Basic properties and principles of advanced composite materials such as fiberglass and graphite, and aramid fibers. Design and testing of primary structural members including prestressing elements. Application of composite materials to engineering.

Instructor: Dr. Anil K Patnaik (Room CM 243)

Course Meeting Time and Location

Lectures: W – 8:30 AM to 9:50 AM and TH – 10:00 to 11:30 AM. Attendance is required. Laboratory: TBD.

Reference Material

(2) “Guide for the Design and Construction of Concrete Reinforced with FRP Bars” (ACI 440.1R-06) Reported by ACI Committee 440, (2006) American Concrete Institute, Farmington Hills MI.
(3) “Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Concrete Structures” (440.2R-02), (2002), Reported by ACI Committee 440, (1996) American Concrete Institute, Farmington Hills MI.
(12)Handout and Reports.
(13)Internet resources.
Grading System: Assignments 15% Grading Bracket: A 91-100
             Two tests  50%                   B  81-90
             One paper  10%                   C  71-80
             Lab work & reports  15%         D  64-70
             Final Project  10%               F  <  64
             No final examination for this course

Format for reports, papers, homework assignments, project and presentations

All the student reports must be prepared and submitted in a professional manner. Use a suitable word processor to write reports and EXCEL to draw graphs. Use pictures and figures in electronic format. Use engineering calculation pads, AutoCAD for drawings and sketches, most economical sections in design problems, cite references to the source of the reported material, refer to relevant specifications, and state all the assumptions.

All student presentations must be made using PowerPoint.

Topics to be covered

It is intended to cover the following topics on advanced composites in this course (time permitting):

(1) Introduction
(2) Composites for structural applications
(3) Terminology and processes
(4) Mechanics of composites
(5) Composites as internal reinforcement in concrete
(6) Composites as external reinforcement and for strengthening structural members
(7) Design of pultruded members (?)

ADA Statement:
Students with special needs or requiring special accommodations should contact the instructor A.K. Patnaik at 394-2442 and/or the campus ADA coordinator, Jolie McCoy at 394-1924 at the earliest opportunity.

Freedom in Learning:
Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.