

1. *Course number and name*

ENGR 290: Design Methodology

2. *Credits and contact hours*

1 credit hour; Eight 1hr 35m lectures, 7 weeks @ 1 lecture session/week.

3. *Instructor's or course coordinator's name*

Instructor: Dipendra K. Sinha, Professor.

4. *Recommended Reading*

- a. Madhavan, Guru, Applied Minds: How Engineers Think, W.W.Norton & Co. (2015)
- b. Howell, Steven K., Engineering Design and Problem Solving, Prentice Hall (2002)
- b. Pahl, G and W. Beitz, Engineering Design, Springer-Verlag
- c. Cross, Nigel, Engineering Design Methods, John Wiley & Son
- d. Dym, Clive C., Patrick Little, Engineering Design, John Wiley and Sons. Inc. (2004)
- e. Pugh, Stuart, Total Design, Addison Wesley Publishing Co. (1991)
- f. Lewis, L. and Andrew Samuel, Engineering Design, Prentice hall (1998)
- g. Hand outs at "ilearn.sfsu.edu" website.
- h. Sustainable Design DVD cat# 67577
- i. Engineering Design Videotape Cat# 11085 (SFSU Lib.)
- j. Design for Manufacture DVD Cat # 66879 (SFSU Lib.)

5. *Specific course information*

a. *brief description of the content of the course (catalog description)*

Various approaches to design of engineering systems. Systematic approach to engineering design work. Various strategies in resolving mechanical engineering design issues in a teamwork environment are presented and practiced.

b. *prerequisites or co-requisites*

sophomore standing

c. *indicate whether a required, elective, or selected elective course in the program*

Required for Mechanical Engineering students

6. *Specific goals for the course*

- a. *specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*

Student develops a systematic approach to engineering design and problem solving

Student have develops communication skills to present intuitive concepts to design

b.. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

Course addresses ABET Student Outcome(s): a, d, g

7. *Brief list of topics to be covered*

- a. Engineering problem solving
- b. Solving Engineering Analysis Problems
- c. The Design Process
- d. Communicating Solutions
- e. Scheduling and Planning a Design Project