

Mechanical Eng

PROPOSAL NUMBER: 99- 457

CURRICULUM PROPOSAL FORM

*DEADLINES:

REGULAR COURSE PROPOSALS: OCTOBER 23, 1998 FOR FALL, 1999 AND FEBRUARY 19, 1999 FOR SPRING, 2000
SHORT-TERM COURSE PROPOSALS: DECEMBER 11, 1998 FOR FALL, 1999 AND MARCH 26, 1998 FOR SPRING 2000

PROPOSAL TITLE: Mechanical Design and Synthesis (0910.341)
SPONSOR/S: Minor change in prerequisites and typical outline
DEPARTMENT: ENGINEERING
Jawaharlal Mariappan
0910.341

CHECK ALL THAT APPLY:
 UNDERGRADUATE GRADUATE
COLLEGE: ENGINEERING
If LAS: History/Humanities
 Math/Sciences
 Social/Behavioral Sciences

TYPE OF PROPOSAL (Check ALL that Apply)
 General Education New Course (NOT Gen. Ed.)
 New Course in Bank Name Change (Dept., School, Major)
 Existing course, Add To Bank Changes in Degree Requirements
 Multicultural/Global Designation Changes Involve Gen. Ed. requirements
 Writing Intensive Designation Minor Changes to Existing Courses
 New Minor/Concentration/Specialization Course is NOT General Education
 New Major/Degree Program Course IS General Education
 Short Term Course Proposal

DEPARTMENT (SIGNATURE INDICATES APPROVAL)
DEPT. CURRICULUM CHAIR / DATE: [Signature] 3/8/99
DEPT. CHAIRPERSON / DATE: [Signature] 3/8/99

COLLEGE CURRICULUM COMMITTEE
DATE OF OPEN HEARING (if necessary) 4/20/99
 APPROVED
 NOT APPROVED
Comments:
[Signature] [Signature]
SIGNATURE DATE SIGNATURE (Academic Dean) DATE
SIGNATURE (Graduate Dean) DATE

UNIVERSITY CURRICULUM COMMITTEE

DATE OF OPEN HEARING (if necessary) 2.22/99 (College level)

APPROVED

NOT APPROVED

Comments:

James Rice 5/7/99

SIGNATURE DATE

SENATE

Date announced at Senate 4/30/99

Voted upon at Senate: _____ Approved _____ Not Approved _____ Date: _____

EXECUTIVE VICE PRESIDENT/PROVOST

APPROVED

NOT APPROVED If no, reasons are as follows:

STUDENT CREDIT HOURS _____ FACULTY LOAD HOURS _____ EQUALIZED CREDIT HOURS _____

OFFICIAL COPY & APPROVAL SHEET FILED (DATE): _____

DATE/SIGNATURE EXECUTIVE VICE PRESIDENT/PROVOST [Signature]

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED _____

HEGIS TAXONOMY & COURSE NUMBER ASSIGNED 0910.341

DATE/SIGNATURE OF REGISTRAR Robert A. Kulat 7/6/99

NOTIFICATION FORWARD:

SENATE CURRICULUM COMMITTEE CHAIRPERSON

DEPARTMENT CHAIRPERSONS

ACADEMIC DEAN(S)

REGISTRAR

SPONSOR(S)

[Signature] 7/6/99

Minor Change

Change in prerequisites and the course topics

1. Details

- a) Course Title: Mechanical Design and Synthesis (0910.341)
 - b) Sponsor: Dr. Jawaharlal Mariappan and School of Engineering Curriculum Committee
 - c) Credit Hours: 4 Credit Hours
 - d) Course Level: Junior for Mechanical Engineering
 - e) Curricular Effect: Required course for mechanical engineering majors
 - f) Prerequisites: Machine Design (0910.241)
 - g) Suggested Time: Fall 1998
- Scale of Implementation: One section in Fall

2. Rationale:

The proposed course is part of the Engineering Curriculum Proposal approved by the College Senate in December 1994. The proposed course is consistent with the establishment of the School of Engineering approved by the Board of Trustees in February 1995.

The proposed course is a core requirement for Mechanical Engineering disciplines. The proposed course meets the Engineering Topics requirement of the Accreditation Board for Engineering and Technology (ABET) for engineering programs.

3. Essence of the Course:

Objectives:

Topics pertaining to machine elements will be covered in this course. These topics will be covered by the machine design course.

a) Objectives

New:

Upon completion of the course, students will be able to

1. Understand the mechanical design and synthesis process.
2. Design linkage and cam mechanisms.
3. Apply CAE software packages for design analysis.
4. Implement a complete mechanical design project from scratch.

b) Topical outline

New:

The topics to be covered are listed below. The instructor will supply the students with a syllabus during the first week of classes. The instructor will assess any technology advances in the subject matter prior to the course and make topic changes deemed to be appropriate to maintain the level and currency of instruction.

Introduction to Mechanical Design

Mechanisms and Machinery Design

Type and dimensional Synthesis

Four bar and six bar linkages

Path, function, and motion generation

Graphical analytical synthesis of linkage mechanisms

Instant centers

Position, velocity and acceleration analysis

Cam design

Dynamic Analysis and Synthesis

curriculum review by appropriate faculty.

Catalog Description:

Mechanical Design and Synthesis (0910.341)

Prerequisites: Machine Design (0910.241)

This course introduces the students to mechanical design process, synthesis techniques, and modern analysis tools. It focuses on synthesis of linkage and cam mechanisms. Laboratory experience will include computer simulation and analysis. Design experience will be synergistically integrated throughout the curriculum and culminate in a design project.