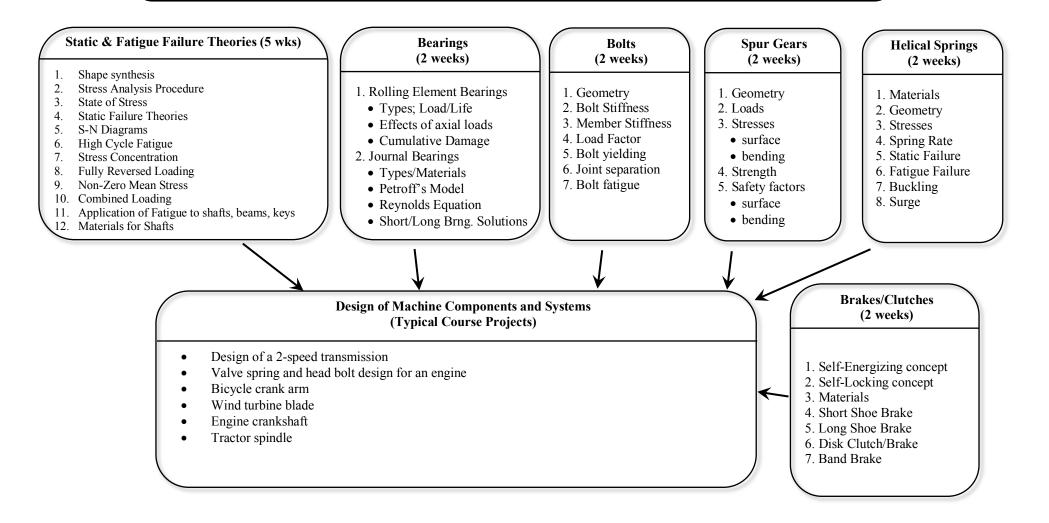
ME 35400 MACHINE DESIGN

Course Outcomes [Related ME Program Outcomes in brackets]

- 1. Apply Statics, Dynamics, and Strength of Materials to the realization of machine components. [1, 2]
- 2. Understand fatigue failure mechanisms [1]
- 3. Apply fatigue failure theories to create reliable mechanical components. [1, 2]
- 4. Select standard machine components and materials. [2]
- 5. Enhance problem-solving and communication skills through design projects. [3]



COURSE NUMBER: ME 35400	COURSE TITLE: Machine Design (3 credits)
REQUIRED COURSE OR ELECTIVE COURSE: Required	TERMS OFFERED: Fall and Spring
TEXTBOOK/REQUIRED MATERIAL: R.G. Budynas and J. Keith Nisbett, <i>Shigley's Mechanical Engineering Design</i> , 10 th ed, McGraw-Hill, 2015.	PRE-REQUISITIES: ME 263 Introduction to Mechanical Engineering Design, Innovation, and Entrepreneurship
COORDINATING FACULTY: TBD	ME 274 Basic Mechanics II ME 323 Mechanics of Materials
COURSE DESCRIPTION: Design, analysis, and selection of machine components for fluctuating loading. Application of design fundamentals to mechanical components and integration of components to form systems. Openended design projects reinforce the design process.	 COURSE OUTCOMES [Related ME Program Outcomes in brackets]: 1. Apply Statics, Dynamics, and Strength of Materials to the realization of machine components. [1, 2] 2. Understand fatigue failure mechanisms. [1]
 ASSESSMENTS TOOLS: 1. Weekly homework. 2. Design project reports. 3. Exams and Class Tests. 	 Apply fatigue failure theories to create reliable mechanical components. [1, 2] Select standard machine components and materials. [2] Enhance problem-solving and communication skills through design projects. [3]
NATURE OF DESIGN CONTENT: Design of machine components such as shafts, keys, gears, journal bearings, springs, brakes, and clutches, and selection of components such as roller element bearings to meet machine performance requirements.	RELATED ME PROGRAM OUTCOMES: 1. Engineering fundamentals 2. Engineering design 3. Communication skills 4. Ethical/Prof. responsibilities 5. Teamwork skills 6. Experimental skills 7. Knowledge acquisition
PROFESSIONAL COMPONENT: 1. Engineering Topics: Engineering Science – 50% Engineering Design – 50%	
COMPUTER USAGE : The design projects require students to write computer programs to conduct analysis studies.	
COURSE STRUCTURE/SCHEDULE: Lecture - 3 days per week at 50 minutes	
PREPARED BY: Jitesh Panchal	REVISION DATE: December 18, 2019