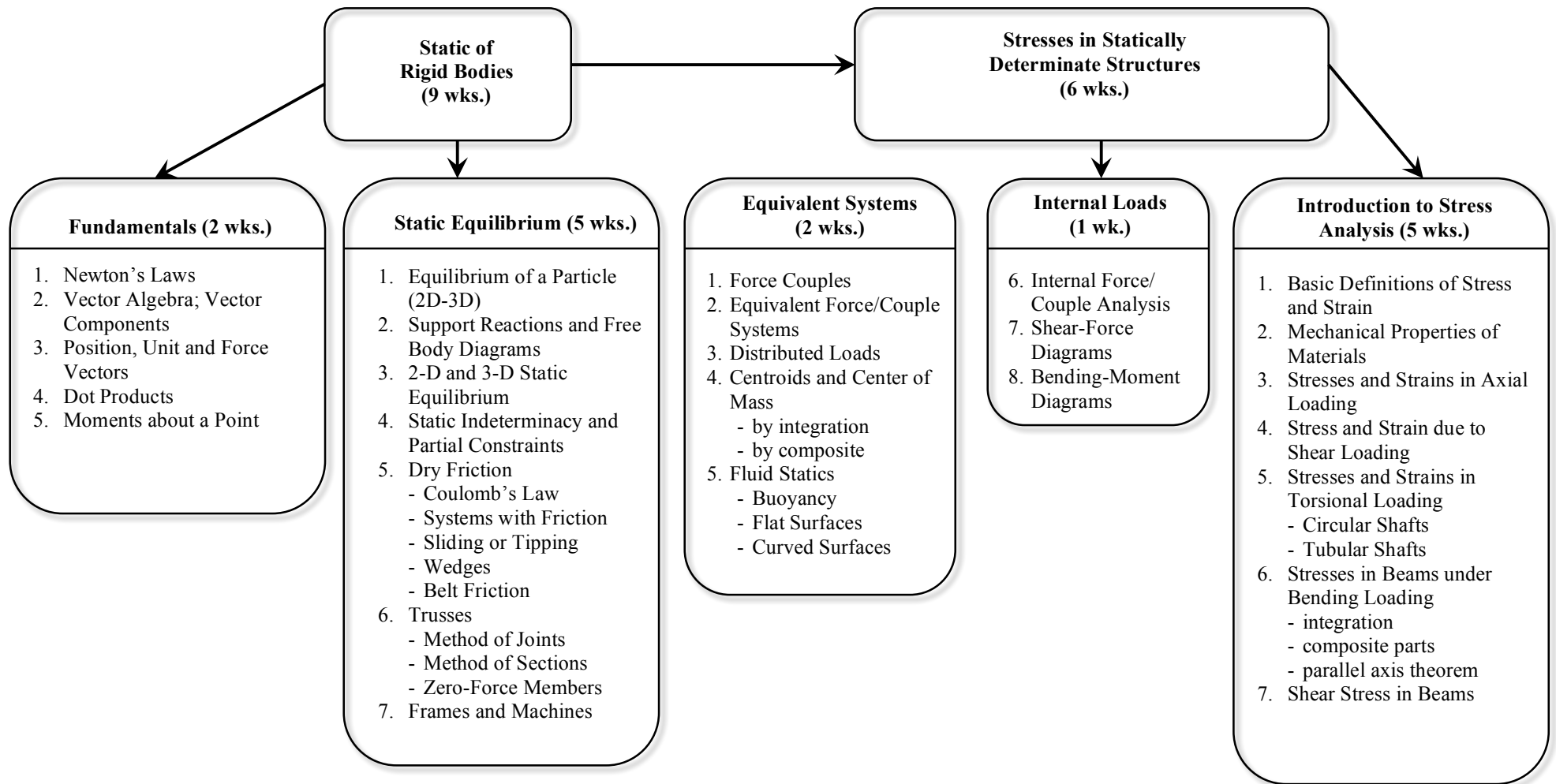


**ME 27000
BASIC MECHANICS I**

Course Outcomes [Related ME Program Outcomes in brackets]

1. Develop an understanding of static *equilibrium* and *Newton's laws of motion* and how to apply them to engineering systems. [1]
2. Learn a systematic approach to problem solving. [1]
3. Foster effective mathematical and graphical *communication skills*. [3]



COURSE NUMBER: ME 2700

COURSE TITLE: Basic Mechanics I

REQUIRED COURSE OR ELECTIVE COURSE: Required

TERMS OFFERED: Fall, Spring, and Summer

TEXTBOOK/REQUIRED MATERIAL:

Statics a Lecture Book by C. Krousgrill and J. Rhoads

PRE-REQUISITIES:

PHYS 17200 – Modern Mechanics and MA 16600 - Analytical Geometry & Calculus II or equivalent

COORDINATING FACULTY: Ilias Billonis

CONCURRENT PRE-REQUISITIES:

MA 26100 – Multivariate Calculus and ENGR 13200-Transforming Ideas to Innovation II

COURSE DESCRIPTION: Vector operations, forces and couples. Free body diagrams equilibrium of a particle and of rigid bodies. Distributed forces. Centers of gravity and centroids. Friction. Trusses, frames and machines. Internal reactions resulting from axial shear, torsional, and bending loading. Stresses and strain analyses and elementary failure criteria.

COURSE OUTCOMES [Related ME Program Outcomes in brackets]:

1. Develop an understanding of static *equilibrium* and *Newton's laws of motion* and how to apply them to engineering systems. [1]
2. Learn a systematic approach to problem solving. [1]
3. Foster effective mathematical and graphical *communication skills*. [3]

ASSESSMENTS TOOLS:

1. Daily homework.
2. Periodic announced or unannounced quizzes during lecture periods.
3. Three, one-hour exams.
4. One comprehensive final exam.

PROFESSIONAL COMPONENT:

1. Engineering Topics: Engineering Science – 3 credits (100%)

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

COMPUTER USAGE: None

COURSE STRUCTURE/SCHEDULE:

Lecture - 3 days per week at 50 minutes

PREPARED BY: Ilias Bilonis (Updated by J.M. Gibert)

REVISION DATE: October 15, 2018