TO: The Engineering Faculty

FROM: The Faculty of the School of Mechanical Engineering

RE: New Course – ME 19900 How Stuff Works

The Faculty of the School of Mechanical Engineering has approved allowing new course ME 19900 How Stuff Works. This action is now submitted to the Engineering Faculty with a recommendation for approval.

ME 19900 – How Stuff Works

Credit Hours: 1.00. An introduction to Mechanical Engineering for First-Year Engineering students interested in exploring a career in ME. The course is student led and involves a mix of presentations from successful alumni about their chosen careers coupled with fun hands-on experiences related to the invited industries leading to a better understanding of the broad career opportunities available to students with an ME degree. Little or no mechanical experience is required. A variety of common products are dissected to learn the underlying engineering design and fabrication fundamentals. Students are also introduced to the standard engineering terminology used in common products.

Rationale

First-Year Engineering students frequently struggle with the decision as to which professional School to pursue. ME 19900 is a fun and insightful course that serves as an effective introduction to Mechanical Engineering for First-Year Engineering students interested in exploring a career in ME. The course has a mix of presentations from successfully alumni coupled with hands-on experiences related to the invited industries. Recent enrollments have run 60-90 students per semester with further expansion planned and can be instrumental in helping students to understand the broad career opportunities available in ME. This course is ME's version of the ENGR 10300 courses many other Professional Schools offer FYE students.

James D. Jones, Associate Head/Professor
School of Mechanical Engineering

ME 19900
HOW STUFF WORKS

Course Outcomes

1. To become familiar with *common products* and how they work. [A2]
2. Gain *hands-on experience* and develop your *mechanical aptitude* by dissecting products, studying the basic engineering and operation of the products and reassembling the products. [A2]
3. Become familiar with *common engineering terminology* used in describing the various parts and assemblies of products. [A2]

Industry Speakers (Sample of Invited Industries)

1. Design
2. Biotechnology
3. Pharmaceuticals
4. Mechanics
5. Automotive
6. Electronics
7. Construction
8. Controls
9. Consumer Products
10. Energy
11. Nuclear
12. Aerospace

Mechanical Sciences (5 wks)

1. Suspensions & Differentials
2. Transmissions
3. Door Lock
4. Power Drill
5. Two-Stroke Engine
6. Hand Mixers

Thermal/Fluid Sciences (3 wks)

1. Hair Dryer
2. Water Pump
3. Toaster
4. Nuclear Reactor
5. ReNEWW House
6. Fish Tank Pump
7. Nerf Guns

Systems, Measurements & Cntls. (4 wks)

1. Speaker
2. Door Bell
3. Solenoids
4. Particle Accelerator

Pick Your Own Product (2 wks)

1. Disassemble, Study, Reassemble
2. Prepare brief presentation on Product Picked.

Revision Date: 11/15/18

COURSE NUMBER: ME 19900 **COURSE TITLE:** How Stuff Works

REQUIRED COURSE OR ELECTIVE COURSE: Elective

TERMS OFFERED: Fall and Spring

TEXTBOOK/REQUIRED MATERIAL: None

PRE-REQUISITES: First-Year Engineering Status

COORDINATING FACULTY: J. Jones

COURSE DESCRIPTION: Credit Hours: 1.00. An introduction to Mechanical Engineering for First-Year Engineering students interested in exploring a career in ME. The course is student led and involves a mix of presentations from successful alumni about their chosen careers coupled with fun hands-on experiences related to the invited industries leading to a better understanding of the broad career opportunities available to students with an ME degree. Little or no mechanical experience is required. A variety of common products are dissected to learn the underlying engineering design and fabrication fundamentals. Students are also introduced to the standard engineering terminology used in common products.

ASSESSMENTS TOOLS:

1. Class attendance and participation.
2.

PROFESSIONAL COMPONENT:

1. Engineering Topics: Engineering Science –1 credit (100%)

NATURE OF DESIGN CONTENT: N/A

COMPUTER USAGE: N/A

COURSE STRUCTURE/SCHEDULE:

1. Laboratory – 1 day per week at 100 minutes.

COURSE OUTCOMES:

1. To hear from successful alumni about their *career paths* and common products that they have helped to design and market. [1,2]
2. To become familiar with *common products* and how they work. [1,2]
3. Gain *hands-on experience* and develop your *mechanical aptitude* by dissecting products, studying the basic engineering and operation of the products and reassembling the products. [1]
4. Become familiar with *common engineering terminology* used in describing the various parts and assemblies of products. [1]

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

PREPARED BY: J. Jones **REVISION UPDATE:** Nov. 15, 2018