

MECHANICAL ENGINEERING PROGRAM

ABET COURSE SYLLABUS

ME 462: Vehicle Design Projects (3 credit): Elective Course

Course Description (2008-2010 Catalog):

Students design and build a vehicle for entry into a national or regional collegiate competition such as Mini-Baja or Human Powered Vehicle. Design topics may include structural analysis, composite materials, aerodynamics, engine performance, occupant safety, drive train, suspension systems, project management, team building, technical report writing, and oral presentations.

Prerequisite Course: Junior Standing

Prerequisite by Topic:

- Junior Standing

Textbook: N/A

Other Reference Material: N/A

Course Coordinator: Brendan O'Toole, Associate Professor

Course learning outcomes:

- Understand engineering design and fabrication issues related to vehicles including: statics, machine design, materials, power systems, control systems, safety
- Appreciate importance of time management and decision making in pressure situations with limited time and information
- Learn about individual and team dynamics and responsibilities in a large group project
- Learn about the realities of obtaining parts from suppliers or making parts in the machine shop in a short time-frame
- Learn to present problems clearly and succinctly in weekly group design meetings.

Relationship of Course to Mechanical Engineering Program Educational Outcomes:

Goal 1: Provide mechanical engineering graduates with technical capabilities.					Goal 2: Prepare the mechanical engineering graduates to have effective workplace skills.				Goal 3: Instilling a sense of responsibility as a professional member of society.			
1.a	1.b	1.c	1.d	1.e	2.a	2.b	2.c	2.d	3.a	3.b	3.c	3.d
H	H	H	M	M	H	H	H	M	L	L	L	L

(L)ow

(M)edium (H)igh

Topics Covered:

1. Design process
2. Materials and Structures
3. Power Supply Systems
4. Steering, Stability, and Control Systems
5. Time Management and Scheduling
6. Parts Suppliers and fabrication
7. Presentation of design projects

Laboratory Projects: This is a group project class focused on the design and fabrication of a vehicle system.

Class/Laboratory Schedule: 170 minutes lecture one session per week

Assessment of Student Progress toward Course Objectives

Weekly Progress reports, Written Overall Design Report, Written Report on Testing and Performance Evaluation

Class/Laboratory Schedule: F 10:00 – 12:50 PM (Spring Semester)

Contribution of Course for meeting Professional Component:

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| (a) Mathematics and basic sciences: | 0 credit |
| (b) Engineering Topics (Design/Science): | 3 credit |
| (c) General Education: | 0 credit |
| (d) Others: | 0 credits |

Prepared By:

Brendan O'Toole

Date:

October 12, 2009