Course Specification

EE - 3901
Design Fundamentals

Curricular Designation:  EE: required  CpE: required

Catalog Description:
EE 3901 – Design Fundamentals The design process. Includes team design activities and studies project management, ethics, and professionalism. 
Credits: 2.0 Lec-Rec-Lab: (2-0-0)  Semesters Offered: Fall, Spring  Restrictions: Must not be enrolled in one of the following Class(es): Freshman, Sophomore  Pre-Requisite(s): UN 1015 and EE 3131(C).

Textbooks(s) and/or Other Required Materials:
1. NSPE Code of Ethics
2. IEEE Code of Ethics
3. Order of the Engineer “Obligations”

Prerequisites by Topic:
1. A minimum of two years coursework in electrical engineering or computer engineering.

Course Objectives:
1. Learning how to organize a team.
2. Taking on a new project and getting it underway.
3. Application of basic scheduling, budgeting and project management.
4. Developing effective leadership skills.

Topics Covered:

1. Laboratory Safety
2. Budgeting basics.
3. Scheduling, Gantt Charts, critical path and Microsoft scheduling software.
4. Leadership essentials.
5. Brainstorming, competing designs and the Pugh Method.
6. Design standards.
7. Technical writing and specifications.
9. Career development – transitioning from a college student to an engineering professional.
### Relationship of the Course Content to Program Outcomes:

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<th>Outcome</th>
<th>Important</th>
<th>Moderately</th>
<th>Minimally</th>
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<tr>
<td>a an ability to apply knowledge of mathematics, science and engineering</td>
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<td>b an ability to design and conduct experiments, as well as to analyze and interpret data</td>
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<td>c an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, health and safety, manufacturability and sustainability</td>
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<td>d an ability to function on multi-disciplinary teams</td>
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<td>e an ability to identify, formulate and solve engineering problems</td>
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<td>f an understanding of professional and ethical responsibility</td>
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<td>g an ability to communicate effectively</td>
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<td>h the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context</td>
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<td>i a recognition of the need for, and an ability to engage in life-long learning</td>
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<td>j a knowledge of contemporary issues</td>
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<td>k the ability to use the techniques, skills, and modern engineering tools necessary for the practice of electrical engineering</td>
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### Contribution of Course to Meeting Degree Requirements:

2 Credit Hours – Engineering Topics

### Class/Laboratory Schedule (note: 1 hour = 50 minutes):

Lecture: 42 hours = 3 hours/week for 14 weeks

### Prepared by:

Duane Bucheger, Professor of Practice, December 22, 2016