ECE 4810 ECE Senior Design I
Syllabus for Fall 2019

Instructor: Dr. Dean Johnson
Office: B-228 West Parkview
Email: johnson@wmich.edu
Hours: M & W 3:30 - 4:30 p.m.

Course Objectives:
Students will be responsible for formulating a project in a two-person design team and writing a
formal design proposal, which describes the project design and implementation. Lectures and
assignments will examine topics relating to engineering design such as: needs, specifications,
patents, feasibility, design methodology, project scheduling and human factors engineering. Topics
critical to the practice of engineering, such as engineering ethics, public welfare, global and
societal concerns will also be covered.

Course Contents:
Introduction: Finding a Project
MathWorks System Design Software
The Design Process
Requirements Analysis
Systems Design
Managing the Design Project, Goals and Tasks
Patents
Public Health, Safety and Welfare Issues
Ethics & Professional Concerns
Global, Cultural and Societal Concerns

Course Policies:
Assignments/Quizzes 30% 91 - 100 A (95%)
Oral/Written Presentation 10% 87 - 90 BA (88%)
Topic & Design Evaluation1 20% 80 - 86 B (83%)
Proposal Evaluation by Faculty2 40% 74 - 79 CB (76%)
100% 68 - 73 C (70%)
Bonus, course contributions (1,2,3)% 63 - 67 DC (65%)
1 See Elearning ID components 58 - 62 D (60%)
2 Grade percentage (xy%) shown at right 0 - 57 E (0-55%)

Attendance: Class attendance is mandatory on days MWF when class is scheduled. Class may meet
more than twice a week. Other days or times may also be scheduled. Attendance will be taken during
lecture through participation in an iClicker session. Missed attendance results in an average
loss of course grade for each occurrence.

Mon/Wednesday: 4:30 - 5:20 pm / 4:30 – 6 pm if extended class is needed.
Friday: 4:30 - 5:20 pm, reserved for alternate lecture times, seminars (guest speakers), special meetings.
Meetings may be scheduled as late as the night prior. Do not schedule non-class activities (such as out-of-town trips) that may overlap with these times.

WMU Honesty Policy: Attempting to obtain credit for work (lab, hw, exams) done by somebody else is
illegal and punishable in this class. You are responsible for making yourself aware of and understanding
the policies and procedures in the Undergraduate Catalog that pertain to Academic Honesty.
http://catalog.wmich.edu/content.php?catoid=24&navoid=974 These policies include cheating,
fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse.

Materials Used in the Class:
2. **MathWorks System Design Software:** (See ECE 3710) Simulink & Simscape is required
   for making system designs and simulations of your projects in this course.
3. **Piazza:** This is a Q & A web service designed
to post questions and get help from other class members. Just post your questions (or
   discoveries) on Piazza. Sign up here:
   https://piazza.com/wmich/fall2019/ece4810/home
4. **i>Clicker App:** Reef subscription on
   iPhone/Android/laptop is required
   (~$15/sem). Physical remote can’t be used.
5. **Elearning:** At GoWMU login. Can view your
   assignment and project scores here.
6. **References:**
   Design of Devices and Systems, by W.H.
   Middendorf & R.H. Engelman, Marcel
   Dekker, 3rd Ed., 1998
   *Little, Brown Essential Handbook*, by J. E. Aaron,
   Longman, 7th Ed., 2010

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Course Documents and Forms (Courtesy of Dr. Damon A. Miller):

1. Characteristics of an Ideal ECE Senior Design Project
2. Policy on Patents and Release of Reports
3. Senior Design Style and Grammar Conventions
4. Project Topic Application Cover Sheet
5. Project Topic Application Grading Form
6. Proposal Evaluation Form
7. Sponsor Acknowledgment of Receipt and Evaluation of Final Project Proposal

Course Specific Links

3. www.nssn.org (Search Engine for Standards)
5. “Preparation of Papers for IEEE TRANSACTIONS and JOURNALS (May 2013),” use as example of how to format references.

Useful Links:

1. http://www.automow.com/ (specifications example)
2. Electronic Design: http://www.electronicdesign.com
5. TechOnline (includes design, learning, and product center): http://www.techonline.com
7. IC datasheets: http://icmaster.com
10. MATLAB, Simulink with Arduino and Raspberry Pi: http://hardware.mathworks.com/
11. MathWorks Raspberry-Pi Workshop

University Library Links:

a. LINK TO LIBRARY GUIDE FOR ENGINEERING by Mr. Eckel
   http://libguides.wmich.edu/engineering

b. ASTM STANDARDS

c. Engineering Subject Guide
   http://libguides.wmich.edu/engineering

d. WMU Writing Center:
   http://www.wmich.edu/casp/writingcenter/ (Ellsworth Hall, room 1343)

Resume & Employment Search:
   http://www.wmich.edu/career/ (Bronco Jobs)