OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE: September 2014
COURSE REVISED IMPLEMENTATION DATE:
COURSE TO BE REVIEWED: September 2020
(six years after UEC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

ENGR 390	Physics	3
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

Mechatronics
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

This is the capstone course of the Engineering Physics diploma in Mechatronics. Students will apply the knowledge gained in prior courses to specific projects. Typically, students will complete several projects. Students will function as if they are in the industry, with many interim reports given to the instructor as projects progress. Students will deliver oral presentations on their projects to the class, and will be graded on the quality of their presentation as well as the quality of their project and their written report.
The students will assemble the robots and program them using feedback control strategies to make them fulfill tasks such as obstacle avoidance, trajectory planning, and material pick up.

PREREQUISITES: ENPH 320, ENGR 330, PHYS 392, or ENPH 360
COREQUISITES:
PRE or COREQUISITES:

SYNONYMOUS COURSE(S):
(a) Replaces:
(b) Cross-listed with:
(c) Cannot take: for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 75
STRUCTURE OF HOURS:

Lectures:		Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field experience:		Hrs
Student directed learning:		Hrs
Other (specify): projects	75	Hrs

TRAINING DAY-BASED INSTRUCTION:
Length of course:
Hours per day:

OTHER:
Maximum enrolment: **18**
Expected frequency of course offerings: annually
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☒ Yes	☐ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☐ Yes	☒ No

Course designer(s): **Xiaolin Long**

Department Head:	**Derek Harnett**	Date approved:	**August 26, 2013**
Campus-Wide Consultation (CWC)		Date of meeting:	**June 28, 2013**
Curriculum Committee chair:	**Dave Fenske**	Date approved:	**September 20, 2013**
Dean/Associate VP:	**Lucy Lee**	Date approved:	**September 20, 2013**
Undergraduate Education Committee (UEC) approval		Date of meeting:	**October 25, 2013**

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

- Synthesize knowledge gained in previous courses to build creative solutions to real-world mechatronics problems.
- Exhibit professionalism, strong organizational skills, and effective time management.
- Collaborate, in both leadership and subordinate roles, in small teams to complete major projects.
- Demonstrate advanced oral and written communication skills.
- Show their confidence and competence to future employers.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Projects including oral presentations and written reports

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☐ Examination(s) ☐ Portfolio assessment ☐ Interview(s)

☐ Other (specify):

☒ PLAR cannot be awarded for this course for the following reason(s):
This is the capstone course for the diploma.

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

SUPPLIES / MATERIALS:

Projects and materials designed/supplied by the instructor.

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Project #1 (including write-up and oral presentation): 30%
Project #2 (including write-up and oral presentation): 30%
Project #3 (including write-up and oral presentation): 40%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

1. Robots: assembly and programming
2. Obstacle avoidance
3. Trajectory planning
4. Picking up objects