UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: September 2014
REVISED COURSE IMPLEMENTATION DATE: January 2019
COURSE TO BE REVIEWED: (six years after UEC approval) February 2024
Course outline form version: 09/15/14

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: ENPH 390	**Number of Credits:** 3 Course credit policy (105)
Course Full Title: Mechatronics **Course Short Title (if title exceeds 30 characters):**	
Faculty: Faculty of Science	**Department (or program if no department):** Physics

Calendar Description:

In this practical application-based course, students will apply knowledge and skills gained in prior courses to design and build specific mechatronics-based projects. The interfacing between electronics and robotics will be emphasized with an eye towards industrial/practical applications.

Prerequisites (or NONE):	ENPH 320, (one of COMP 150 or COMP 152), and (one of ENGR 330 or PHYS 382).
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	ENGR 151

Equivalent Courses (cannot be taken for additional credit)
Former course code/number: **ENGR 390**
Cross-listed with:
Equivalent course(s):
Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.

Transfer Credit
Transfer credit already exists: ☐ Yes ☒ No
Transfer credit requested (OReg to submit to BCCAT):
☐ Yes ☒ No (if yes, fill in transfer credit form)
Resubmit revised outline for articulation: ☐ Yes ☒ No
To find out how this course transfers, see **bctransferguide.ca**.

Total Hours: 75
Typical structure of instructional hours:

Lecture hours	5
Seminars/tutorials/workshops	70
Laboratory hours	
Field experience hours	
Experiential (practicum, internship, etc.)	
Online learning activities	
Other contact hours:	
Total	**75**

Special Topics
Will the course be offered with different topics?
☐ Yes ☒ No
If yes, different lettered courses may be taken for credit:
☐ No ☐ Yes, repeat(s) ☐ Yes, no limit
Note: The specific topic will be recorded when offered.

Maximum enrolment (for information only): 18

Expected frequency of course offerings (every semester, annually, every other year, etc.): Annually

Department / Program Head or Director: Jeff Chizma	**Date approved:**	November 17, 2017
Faculty Council approval	**Date approved:**	December 1, 2017
Campus-Wide Consultation (CWC)	**Date of posting:**	February 2, 2018
Dean/Associate VP: Greg Schlitt	**Date approved:**	December 1, 2017
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	February 23, 2018

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 strong organizational skills as well as effective time and cost management by taking a project from the design phase through to its completion.
- Collaborate, in both leadership and subordinate roles, in small teams to complete major projects.
- Demonstrate advanced oral and written communication skills.

Prior Learning Assessment and Recognition (PLAR)

☐ Yes ☒ No, PLAR cannot be awarded for this course because this is the capstone course for the diploma.

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

Projects including oral presentations and written reports.

Grading system: Letter Grades: ☒ Credit/No Credit: ☐ Labs to be scheduled independent of lecture hours: Yes ☐ No ☐

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (if more space is required, download Supplemental Texts and Resource Materials form)

	Author (surname, initials) Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.		☐		
2.		☐		
3.		☐		
4.		☐		
5.		☐		

Required Additional Supplies and Materials (software, hardware, tools, specialized clothing, etc.)

Projects and materials designed/supplied by the instructor.

Typical Evaluation Methods and Weighting

Final report:	40%	Project weekly reports:	20%	Midterm exam:	%	Practicum:	%
Project proposal:	20%	Project presentation:	20%	Field experience:	%	Shop work:	%
						Total:	100%

Details (if necessary): Projects include write-up and oral presentation

Typical Course Content and Topics

1. Robotic arms and hexapod robots: mechanical and control system design, and programming
2. Industry driven projects (such as agricultural technology and automation)
3. Community driven projects (such as medical device)
4. Students initiative driven projects