

BME/CENG/ELEC/SENG 499: Design Project and Technical Project Courses

SUBJECT: 499 COURSE INFORMATION

Also posted at: <http://www.ece.uvic.ca/499/> under “**Course Information**”

Dr.T. Ilamparithi, Coordinator, Email: ilampari@uvic.ca, tel. 250-721-8679

Course TA: Philip

1. Important Dates (Summer 2017):

May 11 Team Selection to be completed

May 18: Idea Pitch - 1 min. per team

May 25: Idea Pitch - 1 min. per team

June 1: Guest Lecture

June 8: Progress Presentation - 3 minutes per team.

June 15: Progress Presentation - 3 minutes per team.

June 19: Report #1, Bi-weekly Work Log, and Proposed Milestones to be submitted to Supervisor and TA

June 22: Progress Presentation - 3 minutes per team.

June 29: Guest Lecture

July 6: Reading Break

July 10: Report #2, Bi-weekly Work Log, and Proposed Milestones to be submitted to Supervisor and TA

July 13: Equipment Loan List for Public Presentation to TA

July 20: Web Page/ Web Site Presentation to TA

July 27: Public Presentation starts at 16:00, Engineering Lab Wing Lobby; Setup starts at 13:00

August 3: Final Report, Bi-weekly Work Log, Revised Milestones to be submitted to Supervisor and TA;

August 18: Coordinator receives marks from Supervisors for Progress Reports and Final Report, and Website evaluations from panel of judges.

2. Course Objectives

The Design Project course is intended to provide students an opportunity to acquire formal design experience by working on projects in a team of normally 4 or 5 persons. Each team needs a supervisor from the Engineering faculty. Projects may originate from faculty members, students in the teams, companies, or other external sources. They can be of a diverse nature (such as: theoretical investigations, practical designs, measurements, software developments, etc.) and serve diverse goals (research, undergraduate laboratory experiments, demonstrations, feasibility studies of technical

interest to local companies, etc.). For multi-disciplinary projects or projects originated external to the Department, a faculty supervisor from ECE, ME, or CSC Department will be appointed. 2

3. Course offerings

The 499 courses are offered in the summer terms and compulsory for Biomedical Engineering (BME 499), Computer Engineering (CENG 499), Electrical Engineering (ELEC 499) and Software Engineering (SENG 499) programs. The SE Program is offered jointly by the ECE and CSC Departments and students taking SENG 499 can approach both CSC and ECE faculty members as potential supervisors/co-supervisors.

4. Project Selection

Available projects are listed at: www.ece.uvic.ca/~elec499/ that also documents past projects. Students must form teams of normally 4 or 5 persons and select a project from the list of pre-approved projects (<http://www.ece.uvic.ca/~elec499/2016-summer/projects.shtml>). A team is to be formed similar to a private company having a company name, a logo and a motto. Students may also select a project originated from an industrial or external organization. Teams formed with students from other Departments are encouraged but only students registered in the 499 courses will be evaluated by the ECE Department. Notify the Coordinator your selected project by completing the **Project Selection form** (using the template) at the end of this document.

If you intend to propose your own project, provide the Coordinator with an appropriate description of the project; the resources needed; and the name of the Faculty Supervisor you have approached and who agreed to supervise your project. Since some projects may require specialized components/parts, it is important that you submit a proposal with a request for components/parts and get it approved by the Coordinator prior to the Project Selection deadline.

Students failing to submit an approved project by the deadline will be de-registered from the course.

In any email correspondence related to this course, please include the group (project) number (to be assigned) in the subject line.

5. Requirements

It is expected that systematic effort be put into this course comparable to that of other courses in the ECE Department with a full laboratory component, namely approximately 9 hours/week.

Due to the unstructured nature of this course, students are expected to show a great deal of self-discipline and initiative. During the term, each team will be required to give two 2-min. pitch presentations and three 5-min. progress presentations.

In addition, the following are the specific minimum requirements:

a) Progress Reports

Two progress reports are required and must be submitted electronically on the specified dates to the Supervisor and TA for comments and evaluation.

*The **first progress report** should clearly define the problems associated with the project, the team members involved ("company"- with contact information), the intended scope of the project, the proposed solution(s), the assigned tasks, the anticipated milestones and progress made (if any).*

It should also include a project summary to be used for the Poster Presentation in layman's language. 3

REQUIRED INFORMATION IN THE FIRST PROGRESS REPORT

Project Number: (to be assigned)

Project Title: (selected by the team and agreed by the Supervisor)

Personnel (to include email address and mobile phone of a contact person):

Faculty Supervisor's name and Department

Project Summary (approximately 200 words) – please use simple language

*The **second progress report** (to be included in the appendix of the final report) should indicate progress made and form the basis of the final report.*

The two progress reports are to be returned to the team by the Supervisor with comments and graded within one week.

b) Public Presentation

Project demonstrations and presentation will be made to the Faculty and University community and the general public. Each team will be provided with a 6'x 4'table for the demo and display of the prototype in the ELW Lobby (to be booked from 1:00 pm on the day of the demo).

Each display should include the names of the team members, the project supervisor and the sponsor (if applicable). Team members are expected to be present during demonstrations and presentation to answer questions and offer explanations to relevant queries from the attendees. In addition, each team is required to prepare pamphlets to be given out. The design should be similar to that of a commercial product.

The event is sponsored by the IEEE Victoria Section and co-sponsored by other organizations with cash prizes for the best projects.

Loan of Equipment on the Public Presentation Day: Each team must send to the TA a list of equipment required for the demo three business days prior to the Public Presentation Day. This includes lab equipment, computers, monitors, internet access and facilities (such as: compressed air, water, outdoor setup, etc.)

c) Web Presentation

Web presentation similar to formal public presentation and demonstration is required. This should include a project description and results obtained. The Web pages will be set up on the students' Engineering accounts and the Web presentations will be archived on the Departmental Website.

The following requirements will apply:

- i. Heading of Web pages should clearly indicate that they are for the Design Project/Technical Project course BME/CENG /ELEC/SENG 499 and include the name of the Supervisor and when applicable, the name of the Sponsor.
- ii. Web pages will be available in the public domain. Check with your Supervisor and Sponsor to obtain approval for the contents of your presentation.
- iii. Test your Web pages to ensure that they work properly with common browsers such as Internet Explorer, Safari, Firefox and accessible via various platforms, such as: PCs, Macs, and UNIX.
- iv. Avoid using plug-ins that are non-standard or normally not installed with browsers by default.
- v. The Web pages should be location-independent and, therefore, work properly when transferred to the ECE Web page. To avoid problems with location you should use relative links rather than absolute links. For example, if your Web page resides at address "http://www.ece.uvic.ca/~student1" and you have pictures for the Web page residing in a directory called "images", the Web page should link to the pictures using "images/picture1.jpg" rather than "http://www.ece.uvic.ca/~student1/images/picture1.jpg." To test your page you can transfer the page to the UNIX home directory of another student.
- vi. It is desirable that the Web pages be properly designed and not just a Power Point Presentation or Word document converted to HTML.
- vii. The final version of your web content should be put in a ZIP format, and provided to the 499 coordinator, for the purpose of Engineering Accreditation Review and the Past Projects page. If for some reason, you don't want your 499 project on the public web site at some point, simply email the Department."
- viii. **Zero (0) mark will be given to Web presentation if any of the above is not satisfied.**

d) Final Report

A final report is required for each project. It should be typewritten, bound and organized according to the following format:

- i. Project Title
- ii. Executive Summary – A brief overview of the project goal, description of the project and the final design, performance and recommendations/modification and future work. Do not exceed one page.
- iii. Introduction – Includes motivation, objectives, review of existing solutions and alternative designs, deliverables and technical specifications.
- iv. Detailed Design Description – Provides a comprehensive description of the full design and the prototype. Include a detailed description of the testing of the prototype, performance and results, discussions and impact of the results on the design process, recommendations and limitations. Tables and figures can be added for illustration.
- v. Project and team Management – Provides a detailed breakdown of the tasks and scheduled responsibility completed by the individual team members.

vi. Conclusions and Recommendations – Provides a clear and concise summary that summarizes the outcome. Suggests possible improvements and/or future work.

vii. Include a section on references

viii. Appendix – add Cost Analysis and Parts List. Use tables to provide detailed cost and source information.

The final report **must** be submitted on the required deadline date to the project Supervisor and TA for evaluation. It will not be returned to the team after evaluation.

e) Milestones

Each team should include the initial milestones in their first progress report and a revised version every two weeks thereafter, reflecting progress and modifications made. 5

f) Work Log

Each team should submit a Work Log every two weeks starting with the first progress report. The Work Log should specify the tasks and hours spent performed by each team member over the period. Each member must sign and date the Work Log confirming the information included in the Work Log.

g) Technical and Progress Meetings

Students are expected to attend all technical and progress meetings as scheduled.

6. Mark Distribution

i. Progress reports during the term: 20% (10% per report)

ii. Class Presentation (Idea Pitch + Progress): 2% + 3%

iii. Web presentations: 20%

iv. Final public presentation + Report + Work Log + Milestones: 55%

Note: Progress Report 1 is marked by the Supervisor and Progress Report 2 is marked by the TA, both of which are marked based on progress as documented in Progress Reports 1 and 2.

Public presentations are graded by markers designated by the Coordinator. Marks will be based on how well the project is communicated in addition to the technical merits of the project.

The following marking criteria are used:

i. Excellent display, demo, and team

ii. Very good, but without “sparkle”

iii. Good, but missing some elements

iv. Hodgepodge job but still acceptable

v. Not acceptable

vi. Very poor

Web presentations are marked by the Coordinator or by designated faculty. The following criteria will be used:

- i. First page impression
- ii. Ease and intuitiveness of navigation
- iii. Esthetic value
- iv. Clarity of presentation
- v. Website operation
- vi. Effort

The Final Report **must** be included in the Web presentation. Final Reports (with Work Logs and Milestones) are marked by the Supervisor and TA. Grading rubrics will be published on the course website. Note that members of the same team may not necessarily receive the same mark as efforts and contributions can vary.

7. Awards

- i. **ECE Department Chair Award** (cash and a certificate) is given to a team for the best project as judged by the ECE Department based on the Final Report.*
- ii. **IEEE Awards** will be given on the demo day based on the quality of the presentation.*
- iii. **Other sponsored Awards** - to be announced.*

8. Project Execution

The ECE Administrative Officer (Mr. Dan Mai), in consultation with the Coordinator and Supervisors, will designate suitable time and laboratory space for lab work related to the projects. The general laboratory is located in **ELW B336**. Students registered in 499 will have card access to this lab.

Resources available in the lab include PCs, scopes, signal generators, multi-meters, etc. IEEE Student Members can also access the soldering facility in the IEEE McNaughton Centre (ELW-B350). A soldering station is available for use under supervision in ELW B320 (ECE tech shop). ECE tech shop has various parts in stock including capacitors, resistors, ICs, and a few development kits (PIC, ATMEL). Signing out equipment, electronic/mechanical components and access to technical data books shall be done in accordance to rules set by the ECE Department. This will be considered to be a part of the course requirements and failure to comply may result in an N grade.

The ECE Department has limited funds for component purchases and Supervisors may also have funding for component purchases. Components purchased by the Department must be authorized in writing by the Supervisor/Coordinator and ordered by ECE technical support staff. Orders are normally placed once per week. Parts bought by ECE Department remain the property of the Department.

ECE/BME technical support staff includes: Rob Fichtner rf@uvic.ca, Paul Fedrigo pfedrigo@uvic.ca, and Brent Sirna brent@uvic.ca. SENG technical support staff includes: Lynn Palmer lpalmer@uvic.ca.

On academic matters BME students should contact Biomedical Engineering Program Director,
Dr. Nikolai Dechev, dechev@uvic.ca.

On academic matters SENG students should contact Software Engineering Program Director,
Dr. Margaret-Anne Storey, mstorey@uvic.ca. 7

MEMORANDUM

Department of Electrical and Computer Engineering

DATE _____

TO: Students registered in BME/CENG/ELEC/SENG 499

Department of Electrical and Computer Engineering (by Email)

FROM: Ilamparithi, coordinator for Design Project/Technical Project Courses

BME/CENG/ELEC/SENG 499, May – July 2017

CONTACT INFO: Email: ilampari@uvic.ca, tel. 250-721-8679, fax. 250-721-6052

SUBJECT: Project Selection

Submit this form to Ilamparithi (ilampari@ece.uvic.ca) and the TA by **May 11 (Thursday), 2017.**

Project Title: _____

Project Number (if selected from list of pre-approved project): _____

Self-proposed project must submit Coordinator's approval with this form.

Faculty Supervisor: _____

External Advisor (if any): _____

(Include Email and/or phone number of external advisor)

Team (normally 4 students)

Family names	First name	Email	Student No.	Registration *
1)	1)	1)	1)	1)
2)	2)	2)	2)	2)
3)	3)	3)	3)	3)
4)	4)	4)	4)	4)

5)

5)

5)

5)

5)