AGENDA

1. PROGRAM INFORMATION
2. CAPSTONE PROJECT
3. KEY CONTACTS AND ASSISTANCE
4. CO-OPERATIVE EDUCATION
5. QUESTION/ANSWER
1. PROGRAM INFORMATION
MENG IN BIOMEDICAL SYSTEMS

1. TECHNICAL COURSES
   1. 5 CORE COURSES
   2. 4 ELECTIVES

2. PROJECT (BME598)
MENG

- Nominally over 2 years
- Electives can be augmented*

Check website regularly for updates and changes

Up to date info:
https://www.uvic.ca/calendar/

Program requirements
The MENG Biomedical Systems program provides students with knowledge and experience in biomedical systems and biomedical devices. Human physiology on scales from cells to organ systems will be applied to medical device design. All MEng students will be under the supervision of the program director.

Compulsory core courses
- Complete all of:
  - BME500 - Medical Device and System Design for Clinical Engineers (1.5)
  - BME501 - Biosensors and Imaging for Medical Device Design (1.5)
  - BME505 - Quantitative Human Physiology (1.5)
  - BME520 - Human Factors and Usability Engineering for Medical Devices (1.5)
  - BME598 - MEng Technical Project (3.0)

Note
- Students can register in the Technical Project in any term.

Elective courses
- Complete 6 units from:
  - BME510 - Bioprinting and 3D Printing Human Body Parts (1.5)
  - BME515 - Biomaterials and Tissue Engineering (1.5)
  - BME552 - Microfluidics for Biomedical and Energy Applications (1.5)
  - BME548 - Introduction to Musculoskeletal Mechanics (1.5)
  - ECE545 - Nanotechnology (1.5)
  - ECE547 - Electronic Devices (1.5)
  - ECE591 - Professional Foundation (1.0)
  - MECH510 - Mechanics and Energy Conversion in Living Cells (1.5)
  - MECH536 - Microfluidics (1.5)
  - MECH555 - Micro-ElectroMechanical Systems (1.5)
  - MECH576 - Introduction to Electron Microscopy (1.5)

Note
- Not all elective courses are necessarily offered in each academic year. The student should contact the department that offers a particular elective course for scheduling information.
2. CAPSTONE PROJECT
BME 598
BME 598

• Application of course theory in engineering project
• Partnership with Faculty mentor
• Onus on student to find project and mentor

Recommendations:

• Contact Program Director for assistance in identifying project/mentor
• Begin process one academic semester before starting BME 598
• Registration questions? Ms. Katharine Waring: bme.coord@uvic.ca
• Project requirements? Dr. Christopher Dennison: bmedirector@uvic.ca

Final Project
The topic of the project (BME 598) for the MEng program is subject to approval of the department.
The work leading to the project must be performed under the direction of an academic supervisor who is a member of the department’s graduate faculty. A detailed description of the project will be presented in a formal report written by the student.
Each student’s program is subject to the approval of the department.

Oral Examination
MEng students will be required to defend their completed project in a final oral examination which is open to the public.

Up to date info:
https://www.uvic.ca/calendar/
BIOMECHANICS, MEDICAL ROBOTS, PROSTHETICS

Relevant skills and prerequisite areas: Control, digital control, embedded systems, robotics, electrical motors, kinematics, dynamics, mechanics, advanced manufacturing, additive manufacturing, biomechanics, material selection.
BIOMEDICAL SIGNAL PROCESSING, INSTRUMENTATION, BIOSENSING

Relevant skills and prerequisite areas: Electronics (digital, analog), Amplification, denoising, digitization, sampling, microfluidics, real-time systems, embedded systems, programming, Signal processing, software development.
BIOMATERIALS, TISSUE ENGINEERING, THERAPIES

Relevant skills and prerequisite areas: Biomaterials, 3D-printing, microfluidics, nanomaterials, programming, electromagnetics, photonics, nuclear medicine, propagation, absorption, scattering, mass transfer, fluid mechanics, heat transfer.
CO-OP

BME co-op:
Ash Senini
asenini@uvic.ca

Inquire with co-op for eligibility, key-dates, and procedures

---

Final Project
The topic of the project (BME 598) for the MEng program is subject to approval of the department.
The work leading to the project must be performed under the direction of an academic supervisor who is a member of the department's graduate faculty. A detailed description of the project will be presented in a formal report written by the student.
Each student's program is subject to the approval of the department.

Oral Examination
MEng students will be required to defend their completed project in a final oral examination which is open to the public.

Program Length
The program length for MEng is guided by time limits established by the Faculty of Graduate Studies. Typically, the Department of Mechanical Engineering MEng students are expected to complete program requirements within 24 months as it should take between 12 and 16 months to complete the program, which may be extended due to co-op.

Co-operative education
Participation in the optional Co-operative Education program, which enables students to acquire knowledge, practical skills and workplace experience, is optional for full-time Master's students. Students require permission from their academic supervisor and the Co-op coordinator to participate in the Co-op program. Permission may be granted for additional work terms typically to a maximum of four. Interested students should contact the Engineering and Computer Science Co-op office during their first year. Students should also consult Co-operative Education.
3. KEY CONTACTS & ASSISTANCE
CONTACTS & ASSISTANCE

Program Director: Dr. Christopher Dennison (bmedirector@uvic.ca)
Program Co-Ordinator: Ms. Katharine Waring (bme.coord@uvic.ca)
MECH Grad Secretary: Ms. Keri Kingsley (mech.grad@uvic.ca)
Master of Engineering in Biomedical Systems
Student Handbook

https://www.uvic.ca/ecs/biomedical/assets/docs/bisy-handbook.pdf
4. NEXT: CO-OP INFORMATION

BME co-op:
Ash Senini
asenini@uvic.ca
QUESTIONS?

Follow up questions:
bme.coord@uvic.ca
bmedirector@uvic.ca
CAREERS IN MASTERS OF ENGINEERING
BIOMEDICAL SYSTEMS

Ash Senini
Co-op Coordinator, Biomedical Engineering Undergrad
The average salary for those with a Biomedical Systems or BME graduate degree is quite high.

A graduate degree in this field will greatly prepare you for work in the private or public sector.
JOBS INCLUDE...

- Medical instrumentation,
- Pharmaceutical,
- Hospitals/Hospital Administration,
- Medical/Scientific research facilities,
- Educational institutions (such as Uvic)

IN CANADA...

- BC,
- Saskatchewan,
- Manitoba,
- Ontario and Quebec,
- Nova Scotia and New Brunswick
WHAT IS CO-OPERATIVE EDUCATION

Graduate programs
As a graduate student, you can take part in the optional co-op or work experience program.

Program facts
Master's students: complete 2 work terms (8 months of work) to receive a co-op designation, or 1 work term to receive a "work experience" endorsement on your degree
How to apply

Submit the graduate co-op application form, by Sept 21st

https://www.uvic.ca/coop/explore-programs/engineering/graduate-application-form/index.php

International students should apply at least 2 semesters before the intended work term to ensure that there is enough time to receive a co-op work permit.
CO-OP APPLICATION CTND.

Application requirements

• Grad supervisor's permission to participate in the co-op program and each specific work term
• You must complete your first co-op work term before the academic term in which you complete your academic requirements (defend your thesis or equivalent)
• You must complete regular work term requirements (including Introduction to Professional Practice, competency assessments and all work term assignments)
CO-OPERATIVE EDUCATION PROGRAM

Limited enrollment (for now)
Applications due Sept 21st
All applicants will be reviewed
  • Resume
  • Interview with Co-op Coordinator
Decision reached by Friday, Sept 29th
Co-op training/IPP begins shortly, successful completion leads to co-op access.