Welcome

Welcome (or welcome back!) to the School of Engineering at UBC Okanagan. Whether you are a 1st-year student, in the final year of your program, or somewhere in between, I encourage you to take advantage of the opportunities the School provides.

Our goal at the School is to prepare you for engineering work or research by providing a unique learning experience. The undergraduate program emphasizes experiential and interdisciplinary learning – throughout your studies, you will participate in problem-based learning projects where you will work in teams with students from the Civil, Electrical, and Mechanical programs. As you progress, you will have opportunities for industry-related training and research, as well as to travel and study abroad. In your final year of study, you will complete Capstone, a team design project for an actual engineering problem that may lead to offers of employment.

We pride ourselves on excellence in teaching, research, and community engagement. Our close-knit learning environment facilitates engagement with both course material and instructors, and our faculty members – many of whom have received campus-wide awards for teaching – have an open-door policy. We work closely with industry partners, communities, governments, and non-governmental organizations at the local, regional, and international levels to continuously pursue cutting-edge research in a wide range of fields and disciplines. You can find more details of our research initiatives on our website: engineering.ok.ubc.ca/research.html.

This Handbook provides information you will need to succeed as a student in the School. The first four sections lay the foundation for professional training and practice: Inclusivity, Ethics, Communication, and Health & Safety. The next sections describe the Undergraduate Program, including its Objectives, your Degree Path, and Advising. Finally, there are details of the Co-op Program, Awards, Academic Support, and Contact Information within the School.

It is an exciting time to be part of the School of Engineering. We continue to grow, increasing in both population (students, faculty, and staff) and programs of study (undergraduate, graduate, and professional). As a student in the School, you will actively participate in your own training as an engineer as well as in the development of the School, and we look forward to growing with you.

I hope you find this Handbook useful, and I wish you the best in your Engineering studies.

Dr. Rehan Sadiq, P. Eng.
Professor and Associate Dean
Faculty of Applied Science
Inclusivity

UBC’s School of Engineering is committed to providing the ideal environment for students, faculty, and staff to learn, research, and work. UBC strives to realize this vision by establishing employment and educational practices that respect the dignity of individuals and make it possible for everyone to live, work, and study in a positive and supportive environment, free from harmful behaviours such as bullying and harassment.

**UBC Statement: The Respectful University Environment**

In the context of an academic community, responsibility for maintaining a respectful environment falls on all community members, including students, faculty, staff, and members of the public who participate in University-related activities. Excellence in learning, research, and work in the University community is fostered by promoting the freest possible exchange of information, ideas, beliefs, and opinions in diverse forms, and it necessarily includes dissemination and discussion of controversial topics and unpopular points of view. Respect for the value of freedom of expression and promotion of free inquiry are central to the University’s mission.

However, these freedoms cannot exist without an equally vigorous commitment to recognition of and respect for the freedoms of others, and concern for the well-being of every member of the University community. Excellence in scholarship, teaching, and employment activities flows from active concern and respect for others, including their ability to participate meaningfully in the exchange of information, ideas, beliefs, and opinions. Therefore, freedom of expression and freedom of inquiry must be exercised responsibly, in ways that recognize and respect the dignity of others, having careful regard to the dynamics of different relationships within the university environment, such as between professor and student, or supervisor and employee.

A respectful environment is a climate in which the human dignity of each individual is valued, and the diverse perspectives, ideas and experiences of all members of the community are able to flourish.

**Women in Engineering**
The School’s Women in Engineering (WiE) committee helps young women succeed in the applied sciences by supporting them through their university careers and preparing them for work and research. WiE is affiliated with Engineers Canada. More information is available at engineering.ok.ubc.ca/current/women-in-engineering and www.engineerscanada.ca/diversity/women-in-engineering.

**Global Engineering Community**
The School’s Global Engineering Community (GEC) supports international Engineering students on UBC’s Okanagan campus. GEC aims to unite, strengthen, and support the community through events and casual interactions, and GEC’s student leaders are happy to share their experience. For more information, visit the GEC Facebook page: www.facebook.com/UBCO-globalengineeringcommunity
Our dedication to promoting the highest ethical standards is symbolized in the Iron Pin Ceremony and our commitment to uphold academic honesty.

Iron Pin Ceremony
In 2015, the School of Engineering and the Engineering Society partnered to launch the Iron Pin Ceremony. This annual event promotes professionalism and ethics within our community of students, faculty, and staff. Participants in the ceremony pledge to:

• Uphold the academic integrity of the university and of the UBC Engineering degree, submitting work only when it is founded upon honest efforts and personal achievement.
• Commit [themselves] to advance [their] body of knowledge, engage in professional development, and acknowledge the importance of lifelong learning.
• Conduct [themselves] with respect and integrity when interacting with all members of our community and society at large and give credit where credit is due.
• Report any hazardous, illegal, or unethical decisions or practices by any member of our community.
• Create and maintain an environment where equity, inclusion, and diversity are valued.

Academic Honesty
The UBC Okanagan Calendar describes academic honesty as follows:

Academic honesty is essential to the continued functioning of the University of British Columbia as an institution of higher learning and research. All UBC students are expected to behave as honest and responsible members of an academic community. Failure to follow the appropriate policies, principles, rules, and guidelines of the University with respect to academic honesty may result in disciplinary action.

It is the student’s obligation to inform himself or herself of the applicable standards for academic honesty. Students must be aware that standards at the University of British Columbia may be different from those in secondary schools or at other institutions. If a student is in any doubt as to the standard of academic honesty in a particular course or assignment, then the student must consult with the instructor as soon as possible, and in no case should a student submit an assignment if the student is not clear on the relevant standard of academic honesty.

One of the most serious academic offences is plagiarism (submitting the work of another person as your own)... When you use the excerpts of someone else’s work in your essay, paper, or presentation, you must acknowledge the original author in a footnote or other accepted manner. You may not copy all or any part of another person’s work and present it as your own.

Procedures for academic misconduct in the School of Engineering
In the School, cases of academic misconduct result in:

• Discussion between the student and instructor;
• Notification of the Associate Director and Engineering Advisor;
• Meeting between the student and the Associate Director; and
• Punishment relative to the severity of the case, and notation in the student’s School file.
Communications

Engineers must be able to communicate effectively to a wide range of audiences, for various purposes, and in many different genres. You will develop the communication skills necessary for success in both academics and industry.

In addition to having excellent technical skills and understandings of the ethics and issues related to engineering, graduates of the School must be able to communicate clearly, think critically, and act creatively, whether in study, practice, or research.

The first-year Engineering Communication course (APSC 176) provides opportunities for you to develop writing, analysis, research, and presentation skills. The second-year Technical Communication course (APSC 201) builds on the foundation provided in APSC 176 and introduces you to report preparation and business correspondence. The learning outcomes for these courses are shaped by the Canadian Engineering Accreditation Board’s Graduate Attributes*, including:

- The ability to work effectively in teams, as a member and leader, in multi-disciplinary settings.
- The ability to communicate complex engineering concepts within the profession and with society at large. This includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.
- An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.
- An ability to analyze social and environmental aspects of engineering activities. This includes an understanding of the interactions that engineering has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions, and the concepts of environmental stewardship and sustainable design and development.
- An ability to identify and to address your own educational needs in a changing world in ways sufficient to maintain your competence and to allow you to contribute to the advancement of knowledge.

*See page 8 in this Handbook for more details of CEAB’s Graduate Attributes.
Health & Safety

Health & Safety is an integral part of engineering practice. The School complies with the Workers’ Compensation Act and all related legislation, and has adopted a Workplace Hazardous Materials Information System (WHMIS).

Responsibilities:
As a student, you will work and learn in several labs. You are responsible for following all lab-specific safety rules which include, but are not limited to:
• Properly using appropriate Personal Protective Equipment (PPE);
• Obeying all warning signs;
• Not operating equipment that you have not been trained on;
• Not accessing labs after hours or on weekends, unless you have formal permission;
• Never working alone;
• Not engaging in distracting activities (e.g. horseplay, smartphones);
• Not taking shortcuts in your work – following all instructions and procedures fully;
• Maintaining good housekeeping practices at all times in your work space; and
• Not bringing food or beverages inside the labs.

Prevention:
The three most common causes of incidents and injuries are:
1. Excessive and dangerous chemical exposure due to inadequate PPE;
2. Slips, trips or falls (often due to poor housekeeping), leading to cuts, bruises, sprains, and broken bones;
3. Improper material handling (e.g. lifting and moving things) causing back injuries.

Taking adequate safety measures requires that you:
• Observe all established safety rules and procedures;
• Be safety-conscious in all activities (i.e. work, study or recreational);
• Report any accident, injury, unsafe / insecure conditions, or threats to personal security.

Note: UBC has several procedures in place to cover emergency situations. Check emergency.ubc.ca for the most up-to-date versions of these procedures.
The School is accredited by the Canadian Engineering Accreditation Board (CEAB). As a graduate of the School, you will meet the academic requirements for licensure as a professional engineer in Canada.

Accreditation: The Graduate Attributes
CEAB has mandated twelve attributes that all graduates from an accredited program must possess:

- A knowledge base for engineering
- Problem analysis
- Investigation
- Design
- Use of engineering tools
- Individual and team work
- Communication skills
- Professionalism
- Impact of engineering on society and the environment
- Ethics and equity
- Economics and project management
- Life-long learning

Detailed descriptions of the attributes are available at www.engineerscanada.ca/accreditation.

The School creates well-rounded engineers prepared for professional practice and further study. When you graduate, you will have:
- A broad understanding of engineering principles;
- Training in design, leadership, teamwork, problem analysis, and communication; and
- An understanding of the professional and ethical responsibilities of a professional engineer.

Complementary Studies
In addition to mathematics, natural sciences, engineering science, and engineering design, you will take complementary studies courses in the areas of:
- Humanities
- Management
- Communication
- Engineering Economics
- Professional Development
- Impact of Technology on Society
Degree Path

Your path to a Bachelor of Applied Science (BASc) degree begins with a “common core” foundational learning model, continues with a disciplinary specialization, and concludes with Capstone.

Engineering One & Two
This foundational learning model – distinct among Canadian universities – is rooted in project-based, team learning. The “common core” curriculum, in which all students complete the same courses, provides more interdisciplinary approaches to engineering education, which strengthens design teams and their projects.

The first-year curriculum, Engineering One, offers students opportunities to work on design projects that incorporate 3-D printing, computer-aided design and manufacturing (CAD / CAM), and sustainable engineering practices.

The second-year curriculum, Engineering Two, includes both “common core” and engineering specialization courses. It culminates with a year-end, competitive design project that draws on the skills developed through the foundation courses.

Specializations: Civil, Electrical, Mechanical
During your second year, you will choose a specific program: Civil, Electrical, or Mechanical Engineering. There are no quotas or caps on these programs.

Civil Engineering – Program Coordinator: Dr. Shahria Alam
Civil Engineers analyze, plan, design, construct, and maintain facilities that shape and protect our environment and community.

Electrical Engineering – Program Coordinator: Dr. Jonathan Holzman
Electrical Engineers combine knowledge of hardware and software to design systems and devices based on electrical power.

Mechanical Engineering – Program Coordinator: Dr. Rudolf Seethaler
Mechanical Engineers apply principles of physics for analysis, design, manufacturing, and maintenance of mechanical systems.

Manufacturing Engineering (PENDING APPROVAL) - Program Coordinator: Dr. Homayoun Najjaran
Manufacturing Engineering seeks to uncover materials and systems to transform tomorrow’s applications including aerospace, automotive, energy, machinery and medical device industries.

Capstone
All fourth-year engineering students participate in Capstone, a two-semester course that links academic training with professional practice. Students work in multi-specialization teams of 3-5 to design a solution to a project they have proposed or has been submitted by an industry or non-governmental partner. Each project provides opportunities for you to transition from university to workplace, and from academic contexts to real-world applications of your engineering knowledge. Every year, several Capstone projects end in employment opportunities for graduating students.
Our advising office provides services to support your academic success, professional development, and personal goals at UBC Okanagan.

You should contact our Engineering Advising Office regarding:
- 5 year degree or off-cycle degree planning options
- Interpreting your Degree Navigator report
- Selection of 4th year electives
- Transfer credit from other institutions
- Letter of permission for enrolment in courses outside of UBC
- Registration issues
- Personal counseling and academic accommodation / concession
- International exchange programs

You will find the answers to general questions regarding courses and degree requirements in UBC’s Academic Calendar – Bachelor of Applied Science section: http://www.calendar.ubc.ca/okanagan/index.cfm?tree=18,317,989,0

The School of Engineering’s website provides many resources, including forms for fourth-year advising, prerequisite waivers, and appeals, as well as information on student clubs and other opportunities within the School. For more information, visit engineering.ok.ubc.ca.

Course Planning & Registration
First- and Second-year students select their courses via the Student Service Centre. First-year students must complete the Engineering One curriculum, and Second-year students select their required lectures, labs, and tutorials based on Year Two degree requirements. Information for both years of study is available in the Calendar: http://www.calendar.ubc.ca/okanagan/

Students also select one Humanities elective (3 credits) from the following list of eligible courses:
- Anthropology
- Art History
- Cultural Studies
- Economics
- English (not ENGL 112)
- Geography 128 or 129
- History
- Indigenous Studies
- Philosophy (not PHIL 120, or 125)
- Political Science
- Psychology
- Sociology

Third- and fourth-year students follow the same process as in Year Two to register for courses.

Fourth-year students choose their courses using program-specific advising sheets available on our website engineering.ok.ubc.ca
Co-op & Awards

UBC Okanagan and the School of Engineering provide professionalization opportunities and financial awards.

Co-op
The UBC Engineering Co-op Program enhances students’ education with paid, relevant, technical work experience, and launches their engineering careers. The Program links Co-op students and prospective employers who can benefit from engineering students’ skills. Co-op staff facilitate the development of skills that help you secure Co-op employment, and assist during your Co-op career.

The Co-op Program provides opportunities to:
• Develop a well-rounded educational experience by applying your classroom learning to relevant engineering work environments;
• Acquire up to 20 months of technical work experience with diverse employers in a variety of locations;
• Develop a network of professional contacts;
• Refine your existing strengths and develop new professional skills;
• Experience professional development and personal growth; and
• Earn money to finance your education while gaining valuable experience.

Students interested in pursuing the Co-op program will apply in Year 2. Further information can be found on the Engineering Co-op website: www.coop.apsc.ubc.ca.

Awards and Scholarships
Awards and scholarships exist to recognize exceptional students and to support students financially as they work towards achieving their academic and career goals. All full-time students in the School are eligible for awards administered by the School and University, based on their academic qualifications (GPA). Some School- or University-administered awards include other criteria, such as evidence of leadership or community service. Awards such as these require more information, and students who would like to be considered for this type of award should fill in the Scholarship Supplementary Information form available on the School’s website under “Current Students” – “Forms and Links.”

Additional information about School of Engineering- and UBC-administered awards, as well as awards external to the University, is available at students.ok.ubc.ca/finance/financial-support.

Professional Activities Fund (PAF)
The Professional Activities Fund (PAF) supports co-curricular projects and activities – including competitions, conferences, and field trips – that enhance the professional development of undergraduate engineering students. For example, the PAF has supported teams competing in the Great Northern Concrete Toboggan Race, the local chapter of Engineers Without Borders, and Engineering Society retreats. Information and applications are available at engineering.ok.ubc.ca/our-school/forms/paf.html
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Aademic Support

UBC Okanagan and the School of Engineering provide academic support, ranging from help in passing your courses to advanced learning opportunities.

Student Resources
The Applied Science degree can be extremely challenging. If you are facing challenges with your course work, get help early! Make use of faculty and TA office hours, tutorials, peer-learning groups, and tutors. Other on-campus resources include:

Health and Wellness
The Health and Wellness Centre includes a clinic, counselling services, and Campus Health. More information is available at students.ok.ubc.ca/health-wellness/welcome.html

International Programs and Services
International Programs and Services (IPS) provides advising, transition services, and programs for international students. Their office can assist students with issues related to safety, health insurance, employment, and your transition to UBC. More information is available at students.ok.ubc.ca/international/welcome.html

Supplemental Learning
Supplemental Learning (SL) is a voluntary tutoring program offered for APSC 172 and APSC 180. SL Leaders are senior undergraduate students who share with you what they have learned about how to study. More information is available at students.ok.ubc.ca/academic-supports/sl.

Learning Opportunities
UBC and the School of Engineering support several learning opportunities beyond the classroom.

Go Global
Go Global offers student exchange opportunities ranging from 3 weeks during a Summer term to an entire academic year. The School of Engineering recommends that students plan to travel on exchange in Year 3, Term 2. More information is available at students.ok.ubc.ca/global

Coordinated International Experience
UBC’s Coordinated International Experience (CIE) program offers third-year Engineering students a chance to study full-time for one semester at a leading European institution. More information is available at coop.apsc.ubc.ca/coordinated-international-experience/

Undergraduate Research
Faculty members in Civil, Electrical and Mechanical Engineering regularly hire undergraduate students to work on pure and applied research projects in the Winter and Summer terms. Winter term research is typically part-time and Summer is often full-time. Opportunities are also available for industry-sponsored research.
Contact Information

**Resources for current students:** engineering.ok.ubc.ca/current

**Undergraduate Program**
Renee Leboe, Engineering Advisor, EME 3261
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Megan Lochhead, Curriculum, Accreditation, and Transfer Student Coordinator, EME 3253
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Samantha Luckow, Curriculum, Accreditation, and Transfer Student Coordinator, EME 3259
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Tanya Chartrand, Undergraduate Program Assistant, EME 3257
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Dr. Yang Cao, Associate Director for Undergraduate Studies, EME 4235
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**Graduate Program**
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Dr. Lukas Bichler, Associate Director for Graduate Studies, EME 4241
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Health & Safety
Alec Smith, Lab Manager (Interim) Technical Support Staff, EME 0215
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UBC Okanagan Academic Calendar: calendar.ubc.ca/okanagan