

McMaster University

2022 Summer Programs



"I was really inspired by what my professors taught me about how to evaluate and create an innovative startup. Our innovation competition really helped me understand successful practices - and my team won the 1st prize!"
- business major at Fudan University

Advanced Engineering with AI Technology Focus

This program is designed to provide participants with a foundation of concepts, skills and language relevant to engineering studies in AI and related technologies.

While practicing and improving skills, participants will have an opportunity to learn essential concepts and practices in the area of electric drive and electric hybrid vehicle design, biomechanical engineering and robotics.

Program Features:

- Lectures by expert faculty from McMaster's Graduate School of Engineering Practice
- Progress Report and Certificate of Graduation
- Access to university facilities and services
- Visit to Cultural/historical/recreational places
- Welcome / Farewell ceremonies

Program Dates: July 10 - August 7, 2022

Program Fee: \$5,800.00 CAD

fees include: tuition, accommodation, meal cards, airport pick-up and drop-off, access to university facilities and university health insurance

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Web: [https://global.mcmaster.ca/about-us/](https://global.mcmaster.ca/about-us/#tab-content-summer-programs)
#tab-content-summer-programs

Founded in 1887, our purpose at McMaster is the discovery, communication and preservation of knowledge. In our teaching, research and scholarship, we are committed to creativity, innovation and excellence

- One of only four Canadian universities **ranked among top 100** in the world
 - Ranked 69th in the Times Higher Education World University Rankings 2021
 - Ranked 98th in the Shanghai Jiao Tong Ranking of World Universities 2020
- Consistently ranked as Canada's most research-intensive, medical-doctoral university by Research Infosource since 2017
- The McMaster Model, a student-centered, problem-based, transdisciplinary approach to learning that has been adopted worldwide
- Home of **three Nobel prize-winners**: McMaster Professor Bertram Brockhouse (Physics in 1994), McMaster graduates Myron Scholes (Economics, 1997), Donna Strickland (Physics, 2018)
- Top rated programs in: **Business, Engineering, Health Sciences, Humanities, Science, and Social Sciences**

W Booth School of Engineering Practice and Technology is an innovative multi-disciplinary school within the Faculty of Engineering. We blend our focus between academic theory, engineering practice and understanding how to leverage technology to create solutions and produce value for society.



OFFICE OF
INTERNATIONAL AFFAIRS

2022 Advanced Engineering with AI Technology Focus

July 10 - August 7, 2022

| | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|-------------------|---|---|--|--|---|---|---------------------------|
| | | | | | | | July 10 |
| | | | | | | | Arrival |
| | July 11 | July 12 | July 13 | July 14 | July 15 | July 16 | July 17 |
| Week One | <p>9:30 am – 10:00 am Program Briefing</p> <p>10:00 am - 12:00 pm Introduction of AI Technology in Engineering</p> <p>2:00 pm – 4:30 pm Campus & Neighborhood Tour</p> | <p>9:00 am – 12:00 pm Electric Drive Vehicles: Alternate vehicular power systems: electric hybrid and fuel cell technology</p> <p>12:00 pm Welcome Reception</p> <p>1:30 pm – 4:30 pm Lab Visit</p> | <p>9:00 am – 12:00 pm Electric Drive Vehicles: Alternate vehicular power systems: electric hybrid and fuel cell technology</p> <p>1:30 pm – 4:30 pm Lab Activities</p> | <p>9:00 am – 12:00 pm Electric Drive Vehicles: Current and future vehicular powertrain design and control</p> <p>1:30 pm – 4:30 pm Bertrand Russell Archives & Tutorial</p> | <p>9:00 am – 12:00 pm Electric Drive Vehicles: principles for hybrid vehicles; conversion of combustion engine vehicles in electric and hybrid vehicles.</p> <p>1:30 pm – 4:30 pm Independent Study</p> | <p>9:00 am Toronto CN Tower</p> <p>12:00 pm Eaton Centre</p> | Free Activities |
| | July 18 | July 19 | July 20 | July 21 | July 22 | July 23 | July 24 |
| Week Two | <p>9:00 am – 12:00 pm Conceptual design & Electric and Hybrid Electric Vehicles Automotive manufacture and assembly</p> <p>1:30 pm – 4:30 pm Workshop</p> | <p>9:00 am – 12:00 pm Conceptual design & Electric and Hybrid Electric Vehicles Automotive testing; standards for safety and emissions; environmental assessment</p> <p>1:30 pm – 4:30 pm Lab activity</p> | <p>9:00 am – 12:00 pm Conceptual design & Electric and Hybrid Electric Vehicles research methods and design of experiments, diagnostics; ergonomics</p> <p>1:30 pm – 4:30 pm Nuclear Reactor Tour</p> | <p>9:00 am – 12:00 pm Conceptual design & Electric and Hybrid Electric Vehicles Vehicle acoustics; vehicle safety and accident analysis</p> <p>1:30 pm – 4:30 pm Lab Activity</p> | <p>9:00 am – 12:00 pm Conceptual design & Electric and Hybrid Electric Vehicles research methods and design of experiments, diagnostics; ergonomics; vehicle safety and accident analysis</p> <p>1:30 pm – 4:30 pm Independent Study</p> | <p>9:00 am Niagara Falls</p> <p>1:00 pm Niagara-on-the-lake Outlet Mall</p> | Free Activities |
| | July 25 | July 26 | July 27 | July 28 | July 29 | July 30 | July 31 |
| Week Three | <p>9:00 am – 12:00 pm Biomedical Engineering An introduction to biomedical engineering.</p> <p>1:30 pm – 4:30 pm Lab Activity 1</p> | <p>9:00 am – 12:00 pm Biomedical Engineering The biological, chemical, electrical, and mechanical principles involve the design and operation of medical devices and bioprocesses</p> <p>1:30 pm – 4:30 pm Independent Study</p> | <p>9:00 am – 12:00 pm Biomedical Engineering The research themes of the School of Biomedical Engineering</p> <p>1:30 pm – 4:30 pm Lab Activity</p> | <p>9:00 am – 12:00 pm Biomedical Engineering Biomaterials and tissue engineering biomedical technology (e.g. biophotonics and medical robotics)</p> <p>1:30 pm – 4:30 pm Lab Activity</p> | <p>9:00 am – 12:00 pm eHealth Standards (Dr. Norm Archer)</p> <p>1:30 pm – 4:30 pm eHealth Case - Research 5</p> | <p>9:00 am Breakfast</p> <p>10:00 am Toronto Centre Island Picnic</p> | Free Activities |
| | Aug 1 | Aug 2 | Aug 3 | Aug 4 | Aug 5 | Aug 6 | Aug 7 |
| Week Four | <p><i>Civic Holiday</i></p> <p>Free Activities</p> | <p>9:00 am – 12:00 pm Introduction to Robotics Fundamental theory and practical applications of robotic manipulators and mobile robots</p> <p>1:30 pm – 4:30 pm Lab Activity</p> | <p>9:00 am – 12:00 pm Introduction to Robotics Basic Understanding of Equations of motion, robot dynamics and statics</p> <p>1:30 pm – 4:30 pm Lab Activity</p> | <p>9:00 am – 12:00 pm Introduction to Robotics Motion planning introduction to machine vision, basics of robot programming.</p> <p>1:30 pm – 4:30 pm Lab Activity</p> | <p>9:00 am – 12:00 pm Student Presentations Program Wrap-up</p> <p>12:15 pm Graduation/Farewell University Faculty Club</p> | <p>9:00 am Canada's Wonderland</p> | 12:00 pm Departure |