Geodesy and Geomatics Engineering

Diversity Within Our Program
• 30 Ph.D. students
• 15 M.Sc. students
• 10 M.Eng. students
• International enrollment from more than 20 different countries

A Well-Funded Research Program
• $16 million in funds since 2009
• #1 in research ranking at UNB

Numerous Research Collaborations
• Natural Resources Canada
• NASA Jet Propulsion Laboratory
• Cisco Systems Canada
• European Space Agency

Top-Ranked Journal Publications
• IEEE Transactions on Geoscience and Remote Sensing
• GPS Solutions
• Transactions in GIS
• American Geophysical Union journals
• Computers, Environment and Urban Systems

About UNB

Canada’s oldest English-language university and among the oldest public universities in North America

More than 11,000 graduate and undergraduate students

International students originating from more than 100 different countries

Ranked sixth in Maclean’s list of top 15 most comprehensive universities in Canada (2016)

Ranked the most entrepreneurial university in Canada by Startup Canada (2015)

Geodesy and Geomatics Engineering
University of New Brunswick
15 Dineen Drive, PO Box 4400
Fredericton, NB E3B 5A3 Canada

(506) 453-4698

Contact: gge@unb.ca

Go to: go.unb.ca/GGE

Like: /UNBFGGE

Geodesy and Geomatics Engineering
GRADUATE PROGRAM
Graduate Degree Programs

Master of Engineering (M.Eng.)

The M.Eng. graduate degree program is intended for students who wish to study one or more fields of geomatics engineering at an advanced level with exposure to new geospatial technologies and a variety of application domains. The course-based M.Eng. consists of 30 credit hours of course work. The degree is designed to be completed in 3 or 4 academic terms, depending on the student’s background.

Master of Science in Engineering (M.Sc.E.)

The M.Sc.E. graduate degree program requires the completion of an approved thesis on original research as well as 5 graduate-level courses relating to a selected area of specialization and two seminar papers/presentations. The degree is intended to be completed within 6 academic terms.

Doctor of Philosophy (Ph.D.)

Candidates for the Ph.D. degree normally hold a Master’s degree in geodesy and/or geomatics. For some research fields, consideration will be given to applicants whose previous degrees are not in geodesy and/or geomatics, but in appropriate related disciplines. The Ph.D. is a research degree for which a dissertation on original research is required. Completion of 5 graduate-level courses in the area of the selected major, 2 courses in the area of a selected minor, and 2 seminar papers/presentations are also required. Following acceptance, a program of study is laid down by an appropriate supervisory committee for each candidate. The degree is intended to be completed within 12 academic terms.

Geodesy

- Geoid determination
- Downward continuation algorithms for gravity measurements
- Gravity field monitoring
- Numerical methods

Remote Sensing

- Analysis of digital imagery
- Motion detection via photography
- Unmanned aerial vehicle photogrammetric techniques
- 3D visualization of Google Earth imagery

GIS

- Mobile mapping and location-based services
- Spatial information infrastructure
- Data generalization
- Web mapping and geospatial web
- Spatial analysis, decision support, and geovisualization
- Geospatial application development

Ocean Mapping

- Multibeam sonar mapping and application development
- Hydrodynamic numerical modelling
- Autonomous underwater and surface vehicles (AUV/ASV)

Big Data

- Real-time data streaming
- Spatio-temporal data mining
- Map-as-interface for internet of things (IoT)
- IoT use cases
- Visual analytics

Geodesy and Geomatics Engineering Program Faculty

Dr. Robert W. Kingdon
GGE Director of Undergraduate Studies
Ph.D., University of New Brunswick
Email: robert.kingdon@unb.ca
Ph.: (506) 453-5143
Geoid determination, gravity field modeling, numerical methods

Dr. Ian Church
Ph.D., University of New Brunswick
Email: ian.church@unb.ca
Ph.: (506) 447-8116
Ocean mapping and hydrodynamic modelling

Dr. Richard B. Langley
Ph.D., York University
Email: lang@unb.ca
Ph.: (506) 453-5142
Terrestrial, aerial, and spacecraft applications of precise point positioning using global navigation satellite systems (GNSS) and the use of GNSS for atmospheric remote sensing

Dr. Marcelo C. Santos
GGE Department Chair
Ph.D., University of New Brunswick
Email: msantos@unb.ca
Precise point positioning, unmanned aerial vehicle navigation and sensor integration, atmospheric remote sensing

Dr. David J. Coleman
Ph.D., University of Tasmania
Email: dcoleman@unb.ca
Ph.: (506) 451-6977
Spatial data infrastructure, geographic information management, geomatics operations management

Dr. Monica Wachowicz
NSERC/Cisco Industrial Research Chair
Ph.D., University of Edinburgh
Email: monicaw@unb.ca
Ph.: (506) 447-8113
Streaming analytics, mobility data mining, internet of things, experience mapping design

Dr. Dr. Peter Dare
Ph.D., University of East London
Email: dare@unb.ca
Ph.: (506) 447-3016
GNSS deformation monitoring, atmospheric remote sensing, 3D terrestrial laser scanning

Dr. Yun Zhang
Canada Research Chair
Ph.D., Free University of Berlin
Email: yunzhang@unb.ca
Ph.: (506) 453-5140
Remote sensing, photogrammetry, computer vision