

MARINE TECHNOLOGY - NAVIGATION

Program: MNAV

Credential: Ontario College Advanced Diploma, Co-op

Delivery: Full-time

Work Integrated Learning: 3 Co-op Work Terms

Length: 6 Semesters, plus 3 work terms

Duration: 3 Years

Effective: Fall 2025

Location: Owen Sound

Description

This program has been planned in co-operation with Transport Canada Marine Safety and Security (TCMSS) and Canada's shipping companies. You acquire a complete education which will prepare you for the occupation of ship's Navigation Officer. Skills include navigating merchant ships, assisting in cargo operations, and ensuring safety of life at sea and protection of the marine environment. The specialized competencies and work experience also provide you with the skills and knowledge necessary for employment in government and in other marine-related industries.

Career Opportunities

Graduates of this program may find rewarding careers as ship's officers on board commercial vessels throughout Canada and the world. This three year co-operative cadet training program may lead to pathways for career advancement to senior ranks on board ship and to positions of leadership in the marine industry. Graduates are eligible to write examinations for the Transport Canada Watchkeeping Mate Certificate of Competency and can gain employment in domestic and international shipping industries.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

1. monitor and control compliance with legislation to ensure the safety of life at sea and protection of the marine environment;
2. safely and effectively function as a member of a large dynamic team, whose goal is to transport cargo in a safe and environmentally sustainable manner;
3. communicate and manage information in a variety of forms;
4. communicate effectively from ship to ship and ship to shore;
5. plan and conduct a sea passage;
6. determine and monitor the vessels position at all times;
7. maintain a safe navigational watch using modern and traditional navigation skills;
8. forecast weather and oceanographic conditions;
9. maneuver the ship safely and efficiently;
10. inspect the ship for defects and damage;
11. load, transport and discharge cargo to the order of the ship and cargo owner;
12. follow government requirements and maintain the seaworthiness of the ship;
13. apply "hands on" seamanship skills;

14. use modern technology in the performance of shipboard duties and be able to adapt to changes in technology;
15. practice and develop effective, basic management skills.

Practical Experience

All co-operative education programs at Georgian contain mandatory work term experiences aligned with program learning outcomes. Co-op work terms are designed to integrate academic learning with work experience, supporting the development of industry specific competencies and employability skills.

Georgian College holds membership with, and endeavours to follow, the co-operative education guidelines set out by the Co-operative Education and Work Integrated Learning Canada (CEWIL) and Experiential and Work-Integrated Ontario (EWO) as supported by the Ministry of Colleges and Universities.

Co-op is facilitated as a supported, competitive job search process. Students are required to complete a Co-op and Career Preparation course scheduled prior to their first co-op work term. Students engage in an active co-op job search that includes applying to positions posted by Co-op Consultants, and personal networking. Co-op work terms are scheduled according to a formal sequence that alternates academic and co-op semesters as shown in the program progression below.

Programs may have additional requirements such as a valid driver's license, strong communication skills, industry specific certifications, and ability to travel. Under exceptional circumstances, a student may be unable to complete the program progression as shown below. Please refer to Georgian College Academic Regulations for details.

International co-op work terms are supported and encouraged, when aligned with program requirements.

Further information on co-op services can be found at www.GeorgianCollege.ca/co-op (<https://www.georgiancollege.ca/co-op/>)

External Recognition

TCMSS has recognized this program as an approved cadet training program meeting the requirements of TP5562 Nautical Cadet Training Program.

This program is accredited by Co-operative Education and Work-Integrated Learning Canada (CEWIL Canada).

Program Progression

The following reflects the planned progression for full-time offerings of the program.

Fall Intake

- **Sem 1:** Fall 2025
- **Sem 2:** Winter 2026
- **Work Term 1:** Summer 2026
- **Sem 3:** Fall 2026
- **Sem 4:** Winter 2027
- **Work Term 2 (two terms):** Summer 2027 - Fall 2027
- **Sem 5:** Winter 2028

- **Sem 6:** Summer 2028
- **Work Term 3:** Fall 2028

Articulation

A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program co-ordinator for specific details if you are interested in pursuing such an option. Additional information can be found on our website at <https://www.georgiancollege.ca/admissions/credit-transfer/> (<http://www.georgiancollege.ca/admissions/credit-transfer/>)

Admission Requirements

- Ontario Secondary School Diploma (OSSD) or equivalent, or mature student status
- Grade 12 English (C or U)
- Any* Grade 12 Mathematics (C, M, or U)

* A minimum grade of 70% in Grade 12 MAP4C, Foundations for College Mathematics, is required.

Note: Applicants must provide a valid Transport Canada Marine Medical stating 'fit for sea service' or 'fit for sea service with limitations' prior to program start. In the case of an applicant with a certificate 'fit for sea service with limitations', the application will be reviewed. Failure to provide the certificate by the deadline may result in an offer of admission being revoked and withdrawal from courses.

You can find more information on how to obtain a Marine Medical Certificate [here](https://tc.canada.ca/en/marine-transportation/marine-training-certification-individuals/how-obtain-canadian-marine-medical-certificate/#toc1) (<https://tc.canada.ca/en/marine-transportation/marine-training-certification-individuals/how-obtain-canadian-marine-medical-certificate/#toc1>). Please note: once you have applied to the program, admissions will follow up with instructions on how to submit your Marine Medical documentation.

Mature students, non-secondary school applicants (19 years or older), and home school applicants may also be considered for admission. Eligibility may be met by applicants who have taken equivalent courses, upgrading, completed their GED, and equivalency testing. For complete details refer to: www.georgiancollege.ca/admissions/academic-regulations/ (<https://www.georgiancollege.ca/admissions/academic-regulations/>)

Applicants who have taken courses from a recognized and accredited post-secondary institution and/or have relevant life/learning experience may also be considered for admission; refer to the Credit for Prior Learning website for details:

www.georgiancollege.ca/admissions/credit-transfer/ (<https://www.georgiancollege.ca/admissions/credit-transfer/>)

Additional Information

Co-operative Work Term Requirements

This is a fully integrated co-operative education program, wherein the cadet will participate in semesters of academic study at the Owen Sound Campus interspersed with coop work terms on board ships. Hence, undergraduates are involved in work activities directly related to their

educational objectives. TCMSS requires twelve months of Co-op sea service.

Marine Emergency Duties training, which is required before a cadet may proceed to the shipboard work term and for certification as an officer, will be scheduled for students at an extra charge.

The Co-op Education and Career Success department at Georgian College facilitates co-op work terms for cadets. It is the Cadets responsibility to participate in the job search process which includes attending co-op classes, shipping company presentations, and interviews. Cadets must participate in resume and cover letter writing, mock interviews, and maintain a good academic record to qualify for a co-op placement.

International students are encouraged to investigate Co-op opportunities prior to commencing studies. Cadets may be subjected to adverse environmental conditions while on board ship (noise, dirt, dust, confined quarters and heavy lifting). Anyone with known allergies should consult with the Co-op department.

International applicants must sign a letter to acknowledge that Transport Canada does not issue Marine Certificates of Competency (Marine License) to non-Canadians.

Eligibility to enter the U.S.

Although not an admission requirement, all shipping companies, whether Canadian or foreign, which have vessels trading in U.S. ports require that all their shipboard personnel be eligible to legally enter the U.S.

Graduation Requirements

- 40 Program Courses
- 2 Communications Courses
- 3 Co-op Work Terms

Graduation Eligibility

To graduate from this program, the passing weighted average for promotion through each semester, from year to year, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Program Tracking

The following reflects the planned course sequence for full-time offerings of the Fall intake of the program. Where more than one intake is offered contact the program co-ordinator for the program tracking.

Semester 1		Hours
Program Courses		
MARE 1054	Practical Seamanship	44
MARE 1055	Radar Navigation	44
MARE 1056	Chartwork 1	87
MARE 1057	Seamanship	44
MATH 1049	Introduction to Marine Technology Navigation Mathematics	56
METE 1001	Meteorology 1	45
PHYS 1009	Physics	45
Hours		365
Semester 2		
Program Courses		
COMP 1003	Microcomputer Applications	42
MARE 1058	Ship Construction	59
MARE 1059	Celestial Navigation 1	16

MARE 1060	Ship Master's Business 1	44
MARE 1061	Navigation Safety 1	58
MARE 1062	Electronic Positioning Systems	30
MARE 1063	Restricted Operator Certificate - Maritime Commercial	24
MATH 1050	Marine Technology Navigation Mathematics	56
Communications Course		
Select 1 course from the communications list during registration.		42

Hours **371**

Semester 3

Program Courses		
ELEC 2028	Marine Electricity Fundamentals	59
MARE 2044	RADAR Plotting	44
MARE 2045	Cargo Work 1	44
MARE 2046	Navigation Safety 2	16
MARE 2047	Advanced Seamanship	45
MARE 2048	General Ship Knowledge 1	44
METE 2005	Meteorology 2	45
Communications Course		
COMM 2020	Technical Communication	42

Hours **339**

Semester 4

Program Courses		
MARE 2049	Celestial Navigation 2	87
MARE 2050	Chartwork 2	87
MARE 2051	Stability 1	59
MARE 2052	Basic Engineering Knowledge	45
MENG 2026	Applied Mechanics	45
METE 2006	Meteorology 3	45

Hours **368**

Semester 5

Program Courses		
MARE 3056	Celestial Navigation 3	87
MARE 3057	Cargo Work 2	44
MARE 3058	Stability 2	45
MARE 3059	General Ship Knowledge 2	44
MARE 3060	Navigation Safety 3	44
MARE 3061	Navigation Systems and Instruments	73

Hours **337**

Semester 6

Program Courses		
MARE 3053	Electronic Chart Display and Information System (ECDIS)	40
MARE 3055	Leadership and Teamwork	24
MARE 3062	Advanced Engineering Knowledge for Navigation	59
MARE 3063	Signals and Communications	16
MARE 3064	Ship Master's Business 2	59
MARE 3065	Simulated Navigation	78

Hours **276**

Total Hours **2056**

Co-op Work Terms

COOP 1033	Marine Navigation Work Term 1 (occurs after Semester 2)	840
COOP 2031	Marine Navigation Work Term 2 (occurs after Semester 4)	1680
COOP 3012	Marine Navigation Work Term 3 (occurs after Semester 6)	400

Hours **2920**

Total Hours **2920**

credential. After this time, students must be re-admitted into the program, and follow the curriculum in place at the time of re-admission.

Disclaimer: *The information in this document is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs.*

Program outlines may be subject to change in response to emerging situations, in order to facilitate student achievement of the learning outcomes required for graduation. Components such as courses, progression, coop work terms, placements, internships and other requirements may be delivered differently than published.

Graduation Window

Students unable to adhere to the program duration of three years (as stated above) may take a maximum of six years to complete their