

CBEPS NATIONAL SYLLABUS & ACCREDITATION PROCESS MAJOR UPDATES

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THE CANADIAN BOARD OF EXAMINERS
FOR PROFESSIONAL SURVEYORS

CBEPS

The Canadian Board of Examiners for Professional Surveyors establishes, assesses and certifies the academic qualifications of individuals who apply to become land surveyors and/or geomatics professionals in Canada

CBEPS

Canada has 11 self-governing land surveying associations. All, except for Quebec and sometimes Ontario, require a CBEPS Certificate of Completion for candidates to start their articling/training period for the professional designation.

NEW NATIONAL SYLLABUS

- CBEPS worked for 2 years plus developing a new syllabus and accreditation process
- Why
 - The Syllabus was 10 to 15 years old and many new technologies affecting surveying have emerged since
 - The degree granting institutions are teaching new elements that the syllabus did not require
 - Aligning the timing of accreditation with the engineering accreditation would make sense as many of the documents required are the same

TOLD PROJECT STEERING TEAM

The TOLD project involved 25 to 40 academics and professional land surveyors from across the country in designing the new syllabus and accreditation process.

TOLD PROJECT

- The new syllabus, accreditation process, and online degree work were all made possible through a grant for Employment and Social Development Canada (ESDC).
- The project called TOLD (Towards an OnLine Degree) is aimed squarely at foreign trained candidates.
- Through the work of this project, candidates can now complete the CBEPS requirements from their country of origin.
- And it also makes it easier for Canadian candidates who cannot, for various reasons such as location, family, or work, attend university.

CBEPS NATIONAL SYLLABUS PRE - 2023

The CBEPS National Syllabus for the last 15 years was:

- C1 – Mathematics
- C2 – Least Squares Estimation and Data Analysis
- C3 – Advanced Surveying
- C4 – Coordinate Systems and Map Projections
- C5 – Geospatial Information Systems
- C6 – Geodetic Positioning (including survey astronomy)
- C7 – Remote Sensing & Photogrammetry
- C8 – Cadastral Studies
- C9 Survey Law
- C10 – Land Use Planning & Economics of Land Development
- C11 – Business Practices & the Profession
- C12 – Hydrography

**CBEPS
NATIONAL
SYLLABUS
PRE - 2023**

And **ONE** of the following electives:

- Spatial Databases & Land Information Systems
- Environmental Management
- Advanced Remote Sensing
- Advanced Photogrammetry

For a total of 13 different subjects.

TOLD
PROJECT
NATIONAL
SYLLABUS
TEAM

The syllabus needed to be modernized and reflect what the institutions were teaching especially with respect to new technologies and processes.

CBEPS NATIONAL SYLLABUS 2023

CBEPS 2023 National Syllabus

- S1 – Mathematics and Sciences
- S2 – Modeling and Analysis
- S3 – Geodesy
- S4 – Surveying
- S5 – Remote Sensing
- S6 – Geospatial Information Systems
- S7 – Law, Tenure, Boundaries, Cadastres and Planning
- S8 – Professional Practice

CBEPS NATIONAL SYLLABUS

- The new syllabus was sent to all Canadian land surveying associations for comments.
- Comments received were reviewed in the clusters for each sections for discussion, approval or rejection, and the new sections were then sent back to the associations for approval.
- Once approval from associations was received, approval was requested from the CBEPS Board of Directors.

Then the new syllabus was posted on CBEPS website and in force as of January 2023.

CBEPS NATIONAL SYLLABUS

- SI – Mathematics and Sciences:
 - Probability & statistics
 - Numerical methods
 - Calculus
 - Matrices & linear algebra
 - Physics


CBEPS NATIONAL SYLLABUS

- S2 – Modeling & Analysis
 - Modeling & prediction
 - Estimation & approximation
 - Filtering
 - Statistical Data Analysis

CBEPS NATIONAL SYLLABUS

- S3 – Geodesy
 - Reference systems, geodetic coordinate computations & map projections
 - Gravity fields & height systems
 - Satellite positioning systems

CBEPS NATIONAL SYLLABUS



- S4 – Surveying
 - Instrumentation testing & utilization
 - Observable types & quality assessment
 - Data collecting including field procedures
 - Common survey types (cadastral, topographic, control, etc.)
 - Survey design, simulation & analysis
 - High precision surveying

CBEPS NATIONAL SYLLABUS

- S5 – Remote Sensing
 - Introduction to remote sensing
 - Remote sensing platforms (ground based, airborne, space borne)
 - Passive remote sensing:
 - Sensors
 - Image processing & manipulation
 - Image analysis & interpretation
 - Applications

CBEPS NATIONAL SYLLABUS

- S5 – Remote Sensing (cont.)
 - Active remote sensing, sensors & applications:
 - LIDAR technology (ground based, airborne, spaceborne)
 - RADAR technology
 - SONAR technology & hydrography
 - Information from optical & range data:
 - Photogrammetric computer vision
 - Mobile mapping applications

CBEPS NATIONAL SYLLABUS

- S6 – Geospatial Information Systems
 - Fundamentals of GIS
 - Data visualization & map making
 - Spatial databases & models
 - Data acquisition & manipulation
 - Geospatial data analysis & analytical modeling
 - Digital Elevation Model (DEM)
 - Building Information Modeling (BIM)

CBEPS NATIONAL SYLLABUS

- S6 – Geospatial Information Systems (cont.)
 - Web/Cloud GIS & mapping
 - Geospatial programming
 - GIS project design & implementation

CBEPS NATIONAL SYLLABUS

- S7 – Law, Tenure, Boundaries, Cadastres and Planning
 - Law, tenure, boundaries & cadastral systems
 - Land use planning
 - Economics
 - If planning to practice in Quebec, specific added requirements due to the different legal system

CBEPS NATIONAL SYLLABUS

- S8 – Professional Practice
 - Business law & practices
 - Management & business skills
 - Health & Safety (intro)
 - Professionalism & Ethics
 - Project Management
 - Communications
 - Diversity, equity and inclusion (int

CBEPS NATIONAL SYLLABUS

MAJOR CHANGE

A Certificate of Completion can be obtained in 2 ways:

- Completing a degree from an accredited university program (survey engineering for example) through in person or online courses
- Completing all CBEPS National Syllabus components through in person or online courses recognized by CBEPS as satisfying its requirements

CBEPS NATIONAL SYLLABUS

To be accepted as a candidate:

- Graduation from a 2-year geomatics program at a technical institute recognized by CBEPS. Applicants from technical institute will receive recognition for the courses taken that meet some of CBEPS requirements.
- Graduation from a degree program at a CBEPS accredited university program automatically receive the CBEPS Certificate of Completion upon completing the necessary application and submitting transcripts.
- Other applicants are assessed on a case-by-case basis.

CBEPS NATIONAL SYLLABUS

CURRENT STATE


CBEPS will operate with both the pre-2023 syllabus and the 2023 syllabus until the end of October 2026.

There may be some exceptions for candidates needing one or two subjects to finish under the pre-2023 syllabus and these will be handled on a case-by-case basis.

CBEPS will honour all candidates' exemptions under the pre-2023 syllabus when they move over to the 2023 syllabus after the end of October 2026.

ACCREDITATION PROCESS

The accreditation process uses the following criteria:

- 
1. Support for students
 2. Curriculum content
 3. Faculty
 4. Facilities
 5. Graduating Students
 6. Sustainability

ACCREDITATION PROCESS

The accreditation process will proceed:

2024

University of Calgary (UCalgary)

2025

University of New Brunswick
(UNB)

2026

British Columbia Institute of
Technology (BCIT)

ACCREDITATION PROCESS

Accreditation will be valid for:

6 years

Full accreditation

3 years

Accreditation where some issues need to be addressed

1 year

Accreditation where many issues need to be addressed

For the 3 or 1 year accreditation, the follow-up accreditation will be for 3 and 5 years respectively

ONLINE DEGREE

The following institutions are all involved in providing surveying and geomatics courses and some also provide degree granting programs:

- British Columbia Institute of Technology
- University of Calgary
- York University
- Toronto Metropolitan University
- Université Laval
- University of New Brunswick
- Memorial University

ONLINE DEGREE



All institutions requires a student to have taken 50% or more of their courses at the institution who will be granting the degree.

50% or less of the required courses can be taken somewhere else with permission of host institution.

ONLINE DEGREE

- UNB has a Bachelor of Geomatics with a Cadastral Surveying option which is now available where all courses are online with practical components done during a survey camp environment or with a practicing land surveyor.
- Most other institutions have some courses available online.

WHAT NOW?

To reiterate:

- CBEPS will be running the 2 – **until October 2026.**
- There may be some exceptions for candidates needing one or two subjects to finish and these will be handled on a case-by-case basis.
- CBEPS will honour all candidates' exemptions under the pre-2023 syllabus when they move over to the 2023 syllabus after the end of October 2026.
- CBEPS does accept candidates with a degree in a related area on a case-by-case basis.

WHAT NOW?

NEW WEBSITE:

- CBEPS has a new website with a more modern and simpler feel.
- A new Candidate Handbook for the 2023 syllabus is now available on the website.
- The pre-2023 syllabus will be available until the end of October 2026 and
- The new website will, until the end of October 2026 have information, forms, requirements, etc. on both the pre-2023 syllabus and the 2023 syllabus systems.
- The new website is live and of course bilingual.

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Questions?

