



PHYSICS
Civil Engineering Technology
Civil Engineering Physics I

203-912-DW (all sections)
Winter 2018

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Pre-requisites None

Co-requisites None

Ponderation 2-2-2 (2 hours of lecture, 2 hours of labs, and 2 hours of work outside class per week)

Course objectives This course teaches the students of Civil Technology the basic principles of statics, forces and structures with an emphasis on applications. This course prepares the students for more advanced courses like structural analysis. Students are required to apply the basic laws of mechanics to a range of phenomena of importance in civil engineering, to model these phenomena and to analyze experimental data.

Detailed information regarding the objectives and standards for the competencies related to this course and the specific performance criteria is available at <https://www.dawsoncollege.qc.ca/oad/professional-development/mini-sterial-program-documents/>.

Course competencies This course will allow the student to partially achieve the competency:

O1XC: To analyze the structural reactions of engineering works.

1. To examine data on the work.
2. To establish the internal stresses of the structural elements.
3. To determine the strength of structural elements.
4. To determine any deformations in structural elements.
5. To have the analysis results approved.

Evaluation The Institutional Student Evaluation Policy (ISEP) is designed to promote equitable and effective evaluation of student learning and is therefore a crucial policy to read and understand. The policy describes the rights and obligations of students, faculty, departments, programs, and the College administration with regard to evaluation in all your courses, including grade reviews and resolution of academic grievance. ISEP is available on the Dawson website.

Assignments and quizzes	20%
Laboratory activities	20%
Class tests ^y	30%
Final examination	30%

^yYour teacher will provide a tentative test schedule during the first week of class.

In order to pass the course, students must show a basic understanding of the course material at the level covered in the lectures and in the lab. This is achieved by attaining a final grade of at least 60%, calculated according to the evaluation scheme above. **Note: course work not submitted by the due date may be penalized at the teacher's discretion.**

Reference materials 1. **Statics & Strength of Materials**, 7th edition, by H.W. Morrow and R.P. Kokernak, Pearson.

Teaching methods

Attendance & participation

Although class attendance is not compulsory, students should make every effort to attend all classes. In the event that a class is missed, the student is responsible for all material covered or assigned during that class. **Attendance during laboratory experiments and for class tests is however compulsory.** In the rare event that a student for valid reason (*e.g.* due to an intensive course, illness, *etc.*) is or anticipates

**Course
content**

The material to be covered is contained in the following chapters and sections of the text.

Weeks	Topics	Chapter & Section
1{2	Units, conversion of units, errors, math review	Ch.1: all
2{3	Resultant of concurrent forces in a plane	Ch.2: all
4{5	Equilibrium of concurrent forces in a plane	Ch.3: all
6{7	Resultant of non-concurrent forces in a plane	Ch.4: all
9{11	Equilibrium of a rigid body	Ch.5: all
12	Friction (dry and rolling)	Ch.8: 1{3 (4{8 optional)
13{14	Centre of gravity, centroids, and moments of inertia of areas	Ch.9: all
15	Internal reactions: Stress for axial loads	(Ch.10: 1{9 optional)

Labs have been designed to give you a hands-on opportunity to learn about key physical concepts. The following experiments will be performed:

1. Measurement of density and error analysis
2. Force table
3. The boom
4. Static friction

**Questions
outside class**

All regular day program teachers will be available in their respective offices to their students during posted office hours. In the first week, your teacher will inform you of their schedule and will post it outside their office.

Room 7A.1 is the physics study room. At scheduled times, a teacher or peer tutor will be on duty there to answer your questions. The schedule of teachers and peer tutors will be posted outside of 7A.1 in the 2nd or 3rd week of term.