ENGINEERING 9999: Sample Engineering Course

Instructor	**Instructor Name**	**Teaching Assistants**	**TA Name**
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Phone	**864-0000**	**Phone**	**864-1111**
Office Location	**EN-0000**	**Office Location**	**EN-1111**
Office Hours	**TBD**	**Office Hours**	**TBD**

Website ***www.instructorwebsite.ca***

Communication

Statement of preferred method of contact: email, D2L, website, MUN email, etc.

CALENDAR ENTRY:

This section of the standard course outline would contain course information taken directly from Memorial University's calendar, including pre-requisites, co-requisites, lab hours, other requirements, etc. as it appears in the Calendar.

Example:

1020 Introduction to Programming *is an introduction to algorithmic problem solving techniques and computer programming, including basic program control structures (sequence, call, branch, loop) and data representations, functional decomposition, and design by contract. Exercises and examples are drawn from a variety of engineering disciplines and are implemented using a standard modern programming language.*

CR: *the former ENGI 2420*
LH: *at least four 2-hour sessions per semester*
PR: *eligibility to register for Mathematics 1000*

Below is a legend from the University Calendar, which describes what you may see in the course Calendar Entry:

AR = Attendance requirement; CH = Credit hours are 3 unless otherwise noted; CO = Co-requisite(s); CR = Credit can be retained for only one course from the set(s) consisting of the course being described and the course(s) listed; LC = Lecture hours per week are 3 unless otherwise noted; LH = Laboratory hours per week; OR = Other requirements of the course such as tutorials, practical sessions, or seminars; PR = Prerequisite(s); UL = Usage limitation(s).

LAB EXPERIENCE:

Lab type (choose one: hands on, simulation, problem, project, demo, other), AND is lab safety taught and/or examined?

CREDIT VALUE: *Example: 3 credits*

COURSE TYPE: *(Compulsory or Elective?)*

ACCREDITATION UNITS:
Contact hours/week on average over 12 weeks (Lecture/Lab/Tutorial):

FOR EXAMPLE:
Three 50-minute lecture hours (or equivalent) gives "3" for the first section.
Six 2-hour lab sessions gives 12 hours for this course, divided by 12 weeks gives "1" for this section
One tutorial hour per week gives "1", meaning:
Contact hours/week: ***3/1/1***

CONTENT CATEGORIES: (expressed as %, no category can be 0 < c < 25)

Math	Natural science	Complementary Studies	Engineering Science	Engineering Design
			75%	25%

Decide how much course content fall under the above categories. Do not include categories that are less than 25% of course content.

COURSE DESCRIPTION:

This section is OPTIONAL and would contain a further elaboration about the course. Instructors might choose to provide a more detailed description, or clarification of information contained in the calendar description.

SCHEDULE:

LECTURE: Room:
TUTORIAL: Room:
LABORATORY: Room:

RESOURCES:

TEXT BOOK

- *Publisher's information about text.*

REFERENCES

- *Other required resources, and information about how to access them.*

Notes

- *Lecture slides or notes provided by the Instructor*

MAJOR TOPICS:

- Introduction
- Major Topic 1
- Major Topic 2
  - Significant subtopic 2.1
  - Significant subtopic 2.2
- Major Topic 3
- Major Topic 4

LEARNING OUTCOMES:

Course Level Graduate Attribute Focus:

Choose up to three Graduate Attributes that reflect the most course content. Rate them at a level of I, D, or A (Introduced, Developed, Applied, respectively). (List of GA Definitions and abbreviations attached for your reference).
Example:
KB-I, Des-D, Team-A.

Learning Outcomes Column:
"A small number of outcomes (general measurable skills acquired) are expected – brief entries 0-85 characters – not a list of content."
(CEAB 2015 Questionnaire Instructions)
-Identify what the students will be able to do when the course is completed,
-Refer to observable and measurable skills, knowledge and attitudes
-Focus on results; the end, not the means.

Graduate Attributes.Level Column:
Link each Learning Outcome to a (or multiple) specific Graduate Attribute(s), and rate that/those Graduate Attribute(s) at a specific level: I=Introductory, D=Developing, A=Applied

Methods of Assessment Column:
Describe where each Learning Outcome is assessed throughout the course

Upon successful completion of this course, the student will be able to:

	LEARNING OUTCOMES	GRADUATE ATTRIBUTES. LEVEL*	Methods of Assessment

1			
2			
3			
4			
5			
6			

*Each Graduate Attribute for each learning outcome is rated at a Content Instructional Level of I=Introduced, D=Developed, or A=Applied.

See www.mun.ca/engineering/undergrad/graduateattributes.pdf for definitions on the 12 Graduate Attributes and the Content Instructional Levels.

ASSESSMENT:

(sample information below – note that according to calendar regulation 5.6.2, due dates and allocation of marks must be provided for all evaluation materials)

		Approximate Due Dates
Assignments	*15% (5% each)*	
Assignment 1		*September 20*
Assignment 2		*October 18*
Assignment 3		*November 15*
Quiz	*10%*	*September 22*
Midterm	*20%*	*October 20*
Design Project	*15%*	*November 25*
Final exam	*40%*	

This section may also contain information about formula sheet regulations, electronic aids policy, late penalties, re-grade policy and information regarding deferrals and examinations outside regular class periods. Instructors are reminded that evaluations outside regular class periods require approval of the Associate Dean of Undergraduate Studies.

LAB SAFETY:

Not required if there is no lab component in the course. Additional comments and descriptions relating to the course are encouraged

Students are expected to demonstrate awareness of, and personal accountability for, safe laboratory conduct. Appropriate personal protective equipment (PPE) must be worn (e.g. steel-toed shoes, safety glasses, etc.) and safe work practices must be followed as indicated for individual laboratories, materials and equipment. Students will immediately report any

concerns regarding safety to the teaching assistant, staff technologist, and professor.

ACADEMIC INTEGRITY AND PROFESSIONAL CONDUCT:

Students are expected to conduct themselves in all aspects of the course at the highest level of academic integrity. Any student found to commit academic misconduct will be dealt with according to the Faculty and University practices. More information is available at http://www.mun.ca/engineering/undergrad/academicintegrity.php

Students are encouraged to consult the Faculty of Engineering and Applied Science Student Code of Conduct at http://www.mun.ca/engineering/undergrad/academicintegrity.php and Memorial University's Code of Student Conduct at http://www.mun.ca/student/conduct/.

Instructors are encouraged (but not required) to include more detailed, course specific comments such as expectations for group/individual work on assignments or labs.

INCLUSION AND EQUITY:

Students who require accommodations are encouraged to contact the Glenn Roy Blundon Centre, http://www.mun.ca/blundon/about/index.php. The mission of the Blundon Centre is to provide and co-ordinate programs and services that enable students with disabilities to maximize their educational potential and to increase awareness of inclusive values among all members of the university community.

The university experience is enriched by the diversity of viewpoints, values, and backgrounds that each class participant possesses. In order for this course to encourage as much insightful and comprehensive discussion among class participants as possible, there is an expectation that dialogue will be collegial and respectful across disciplinary, cultural, and personal boundaries.

STUDENT ASSISTANCE: Student Affairs and Services offers help and support in a variety of areas, both academic and personal. More information can be found at www.mun.ca/student.

ADDITIONAL INFORMATION:

This section is available for instructor's to include additional information. This section could include information about expectations of students, expectations of instructors, instructions for using supplementary resources, etc.

The 12 Graduate Attributes*:

1. **(KB) A knowledge base for engineering**: Demonstrated competence in university level mathematics, natural sciences, engineering fundamentals, and specialized engineering knowledge appropriate to the program.

2. **(PA) Problem analysis**: An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems in order to reach substantiated conclusions

3. **(Inv.) Investigation**: An ability to conduct investigations of complex problems by methods that include appropriate experiments, analysis and interpretation of data and synthesis of information in order to reach valid conclusions.

4. **(Des.) Design:** An ability to design solutions for complex, open-ended engineering problems and to design systems, components or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and economic, environmental, cultural and societal considerations.

5. **(Tools) Use of engineering tools**: An ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern engineering tools to a range of engineering activities, from simple to complex, with an understanding of the associated limitations.

6. **(Team) Individual and teamwork**: An ability to work effectively as a member and leader in teams, preferably in a multi-disciplinary setting.

7. **(Comm.) Communication skills**: An ability to communicate complex engineering concepts within the profession and with society at large. Such ability includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.

8. **(Prof.) Professionalism**: An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.

9. **(Impacts) Impact of engineering on society and the environment**: An ability to analyze social and environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.

10. **(Ethics) Ethics and equity**: An ability to apply professional ethics, accountability, and equity.

11. **(Econ.) Economics and project management**: An ability to appropriately incorporate economics and business practices including project, risk, and change management into the practice of engineering and to understand their limitations.

12. **(LL) Life-long learning**: An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge

Content Instructional Level**:

I = Introductory

At the introductory level, the students learn the working vocabulary of the area of content, along with some of the major underlying concepts. Many of the terms need defining, and the ideas are often presented in a somewhat simplified way.

D = Intermediate Development

At the intermediate development level, the students use their working vocabulary and major fundamental concepts to begin to probe more deeply, to read the literature, and to deepen their exploration into concepts. At this level, students can begin to appreciate that any field of study is a complex mixture of sub-disciplines with many different levels of organization and analysis.

A = Advanced Application

At the advanced application-level the students approach mastery in the area of content. They explore deeply into the discipline and experience the controversies, debate, and uncertainties that characterize the leading edges of any field. An advanced student can be expected to be able to relate course material to different courses, to begin to synthesize and integrate and achieve fresh insights. Students at this level are working with the knowledge very differently, perhaps even creating new knowledge through independent investigation.

*Engineers Canada (2015). Accreditation Criteria Procedures 2015 [PDF]. Pg.13. Retrieved from https://www.engineerscanada.ca/sites/default/files/accreditation_criteria_procedures_2015.pdf

**Engineers Canada (2015). Questionnaire for Evaluation of an Engineering Program. Pg. 2. Retrieved from http://www.engineerscanada.ca/accreditation-resources