

Course Outline (F2016)

BME323: STATICS AND MECHANICS OF MATERIALS

Instructors	<p>Dr. Donatus Oguamanam Office: EPH301 Phone: (416) 979-5000 ext. 7490 Email: doguaman@ryerson.ca Office hours: TBA</p> <p>Dr. Scott Tsai Office: EPH338B Phone: (416) 979-5000 ext. 6424 Email: scott.tsai@ryerson.ca Office hours: TBA</p> <p>Dr. Marcello Papini Office: EPH327 Phone: (416) 979-5000 ext. 7655 Email: mpapini#@ryerson.ca Office hours: TBA</p>
Prerequisites	<p>MEC323: MTH 240, PCS 211, CPS 125, MTH 141, MEC 222 and MTL 200</p> <p>BME323: BME 100 and CHY 102 and CPS 125 and ELE 202 and MTH 141 and MTH 240 and PCS 125 and PCS 211, Antirequisite: MEC 323</p>
Compulsory Texts:	<ol style="list-style-type: none"> 1. <i>Engineering Mechanics: Statics</i>, 2nd edition, Costanzo, F., Plesha, M.E., Gray, G.L., McGraw-Hill, 2013. (EMS) 2. <i>Mechanics of Materials</i>, 3rd edition, Roy R. Craig Jr., John Wiley & Sons, 2011. (MM)
Calendar Description	<p>The statics will cover rigid body equilibrium, including: two and three-force members, trusses, frames and machines. Mechanics of materials will cover introductory stress and strain, Hooke's Law, axial and torsional loading and statically indeterminate problems.</p>
Learning Objectives	<p>At the end of this course, the successful student will have demonstrated that s/he:</p> <ol style="list-style-type: none"> 1. Exhibits scientific knowledge, and competency in modeling and solving engineering problems. (1c) 2. Formulates mathematical models using scientific and engineering principles. (2b) 3. Justifies model assumptions and understands their limitations. (2b) 4. Selects and uses an appropriate method for problem definition. (4b) 5. Illustrates concepts in graphical form. (7d) <p>Note: Numbers in parentheses refer to the graduate attributes required by the Canadian Engineering Accreditation Board. For more information, see: rdhttp://www.ryerson.ca/feas/programs/qa/gradattributes.html</p>
Course Organization	<p>4 hours of lecture per week 1 hour of lab/tutorial per week</p>

Course Evaluation	Midterm exam	35%
	Computer Assignments	5%
	Quizzes	5%
	Final exam	55%
	Total	100%

NOTE: The assignments mark is only added in the determination of the final grade once a passing mark (i.e., minimum 45/90) is achieved in the combined midterm and final exams.

Examinations Midterm exam in Week 7, two hours, closed book (covers Weeks 1-6).
Final exam, during exam period, three hours, closed-book (covers Weeks 1-13).

Course Content

1. Force system resultants (including distributed forces)
2. Centroids and Composite Bodies
3. Equilibrium of a rigid body
4. Plane Trusses, Frames and Machines
5. Internal forces developed in structural members
6. Friction
7. Stress and Strain
8. Axial deformation
9. Torsion

Laboratory/Tutorials

Week	Title	Room
2,3	Force resultants (& distributed forces), Centroids and Composite Bodies	TBA
4,5,6	Equilibrium of rigid body	TBA
7,8	Plane trusses, frames and machines, internal forces	TBA
9,10	Friction, stress and strain	TBA
11	Axial deformation	TBA
12	Torsion	TBA

Faculty Course Survey:

Students will be required to complete this survey in either week 10, 11 or 12 of the term.

Important Notes

1. Committing academic misconduct, such as plagiarism and cheating, will trigger academic penalties, including failing grades, suspension and possibly expulsion from the University. As a Ryerson student, you are responsible for familiarising yourself with the Student Code of Academic Conduct, which can be found online at

<http://www.ryerson.ca/senate/policies/pol60.pdf>

2. All of the required course-specific written reports will be assessed not only on their technical/academic merit, but also on the communication skills exhibited through these reports.
3. All assignment, project and lab/tutorial reports must have the standard cover page which can be completed and printed from the Department website at <http://www.ryerson.ca/mie/documents/index.html>
The cover page must be signed by the student(s) prior to submission of the work. Submissions without the cover pages **will not** be accepted.
4. Should a student miss a mid-term test or equivalent (e.g. studio or presentation), with appropriate documentation, normally a make-up will be scheduled as soon as possible in the same semester, and, where possible, before the last date to drop the course. Where a missed mid-term, assignment or other assessment is one of only two assessments in a course (e.g. there is one mid-term and a final), or when the assessment is worth more than 30% of the final course grade, the provision of a make-up is required. Where a missed mid-term, assignment or other assessment is part of a number of assessments given throughout the term, and when it can be shown that the objective of the missed work is assessed in some other way, then the instructor and student may agree, in writing, to distribute the weight of the missed work to the final exam, or other assessment or group of assessments. The redistribution of the weight of missed work may not cause the final exam or any single assessment to be worth more than 70% of the student's final grade. Where there is no agreement, the student may consult the Chair or Director for assistance. Where it is not possible to schedule the missed work or mid-term because, for example, it was presented in a group, it requires that a lab studio or other set-up be recreated; the weight may be distributed to the final exam or other assessment or group of assessments. In this case, the redistribution of the weight of missed work should normally not cause the final exam or any single assessment to be worth more than 70% of the student's final grade. If it will, an alternate assignment should be considered on a case by case basis.
5. Make-up of final exams: Students who miss a final exam for a verifiable reason and who cannot be given a make-up exam prior to the submission of final course grades, must be given a grade of INC (as outlined in the Grading Promotion and Academic Standing Policy) and a make-up exam (normally within 2 weeks of the beginning of the next semester) that carries the same weight and measures the same knowledge, must be scheduled.
6. Provision of a second make-up: On a case by case basis, a second make-up may be scheduled at the discretion of the instructor. The student may be required to provide a detailed rationale supported by appropriate documentation for consideration. If a student misses a scheduled make-up of a mid-term, assignment or other assessment for verifiable reasons, the grade may be distributed over other course assessments even if that makes the grade on the final exam worth more than 70% of the final grade in the course. If a student misses a scheduled mid-term make-up test or assignment, without a verifiable reason, a grade of "0" may be assigned. Final Exam: Except where there are verifiable reasons, and the student and instructor have agreed to a rescheduled make-up exam, students who miss a scheduled make-up of a final exam will receive a "0" for that exam.
7. Medical or Compassionate documents for the missing of an exam must be submitted within 3 working days of the exam. Students are responsible for notifying the instructor that they will be missing an exam as soon as possible. Documentation must clearly and unequivocally demonstrate that the student was unable to meet his/her academic obligations.
8. Requests for accommodation of specific religious or spiritual observance must be presented to the instructor no later than two weeks prior to the conflict in question (in the case of final examinations within two weeks of the release of the examination schedule). In extenuating circumstances this deadline may be extended. If the dates are not known well in advance because they are linked to other conditions, requests should be submitted as soon as possible in advance of the required observance. Given that timely requests will prevent difficulties with arranging constructive accommodations, students are strongly encouraged to notify the instructor of an observance accommodation issue within the first two weeks of classes.

9. The results of the first regularly scheduled test or mid-term exam will be returned to students before the deadline to drop an undergraduate course in good Academic Standing.
10. Students are required to adhere to all relevant University policies including:
 - Undergrad. Grading, Promotion and Acad. Standing, <http://www.ryerson.ca/senate/policies/pol46.pdf>
 - Student Code of Academic Conduct, <http://www.ryerson.ca/senate/policies/pol60.pdf>
 - Student Code of Non-Academic Conduct, <http://www.ryerson.ca/senate/policies/pol61.pdf>
 - Academic Integrity Office for additional policy information, <http://www.ryerson.ca/academicintegrity/>
 - Undergraduate Academic Consideration and Appeals, <http://www.ryerson.ca/senate/policies/pol134.pdf>
 - Examination Policy, <http://www.ryerson.ca/senate/policies/pol135.pdf>
 - Accommodation of Student Religious, Aboriginal and Spiritual Observance, <http://www.ryerson.ca/senate/policies/pol150.pdf>
 - Establishment and Use of Student Email Accounts for Official University Communication, <http://www.ryerson.ca/senate/policies/pol157.pdf>
 - Academic Accommodation of Students with Disabilities, <http://www.ryerson.ca/senate/policies/pol159.pdf>
11. Students are required to obtain and maintain a Ryerson Matrix e-mail account for timely communications between the instructor and the students.
12. Any changes in the course outline, test dates, marking or evaluation will be discussed in class prior to being implemented.
13. Students in this course may be required to submit electronic file versions of their work to an electronic plagiarism detection service at <https://www.turnitin.com> . Students who do not want their work submitted to this plagiarism detection service must, by the end of the second week of class, consult with the instructor to make alternate arrangements. **Please note:** Even when an instructor has not indicated that a plagiarism detection service will be used, or when a student has opted out of the plagiarism detection service, if instructor has reason to suspect that an individual piece of work has been plagiarized, the instructor is permitted to submit that work in a non-identifying way to any plagiarism detection service.
14. Attendance at scheduled Laboratory sessions is compulsory. **Laboratory marks will only be recorded for students in attendance. Lab marks will be added to a student's course grade in accordance with conditions specified in the Course Evaluation section.**
15. Posting of grades for projects, labs, tests, and exam is normally done using *Blackboard Gradebook*. However, your final grade (numerical or letter) will not be posted. In some cases grades may be posted by *hardcopy* in a non-identifying way. Students who wish not to have their grades posted in *hardcopy* format must inform the instructor in writing.

Prepared by: _____
 Dr. D. Oguamanam

Date: _____

Prepared by: _____

Date: _____

Dr. S. Tsai

Prepared by: _____
Dr. M. Papini

Date: _____

Approved by: _____
Dr. J. Friedman

Date: _____

UNDERGRADUATE GRADING SCALE

Performance Description	Letter Grade	Conversion Range Percentage Scale to Letter Grades	Ryerson GPA
Excellent	A+	90 - 100	4.33
	A	85 - 89	4.00
	A-	80 - 84	3.67
	B+	77 - 79	3.33
Good	B	73 - 76	3.00
	B-	70 - 72	2.67
	C+	67 - 69	2.33
Satisfactory	C	63 - 66	2.00
	C-	60 - 62	1.67
	D+	57 - 59	1.33
Marginal	D	53 - 56	1.00
	D-	50 - 52	0.67
Unsatisfactory	F	0 - 49	0
