

Western University
Department of Mechanical & Materials Engineering

MSE 2213b –Engineering Dynamics

COURSE OUTLINE – 2020-21

CALENDAR DESCRIPTION:	Topics include: rectilinear, angular and curvilinear motion; kinetics of a particle, a translating rigid body and a rigid body in pure rotation; definitions of different energies and energy balance; power and efficiency; and linear impulse and momentum.
COURSE INFORMATION:	Instructor: Prof. Roger Khayat, PhD Room: SEB3086 Tel: 519-661-2111 x88253 Email: rkhayat@uwo.ca Lectures: M 16:30-17:30 Tu 8:30-9:30 W - 14:30-15:30 Tutorials: Tu - 10:30-12:30
PREREQUISITES:	ES 1022a/b/y Unless you have either the requisite for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.
COREQUISITES:	AM 2413b
ACCREDITATION UNITS:	Science = 50%, Engineering Science = 50%
TOPICS:	<ul style="list-style-type: none">• Kinematics of particles• Kinetics of particles• Plane kinematics of rigid bodies• Plane Kinetics of rigid bodies• 3D kinematics and kinetics of rigid bodies
LEARNING OUTCOMES:	Upon successful completion of this course, students will develop a working knowledge of basic dynamics; identify clearly problems where the tools from kinematics, dynamics, energy, and momentum can be used; and analyze simple dynamical systems.
LEARNING OUTCOMES:	Upon completion of this course, students will be able to: <ol style="list-style-type: none">1. apply fundamental theories of classical dynamics, including kinematics and kinetics of particles and rigid bodies; (KB3,PA2)2. identify clearly problems where the tools from kinematics, dynamics, energy, and momentum can be used; (PA2)3. analyze simple dynamical systems; (PA2)
TEXT:	Vector Mechanics for Engineers - Dynamics, ISBN 978-0-07-768734-2, Beer, F.P., Johnson, E.R., Cornwell, P.J, and Self, B.P., 11th Edition in SI Units, McGraw Hill, 2015
EXAMINATIONS AND QUIZZES:	Evaluation will consist of four tutorial exercises, one 2-hour midterm, and one 3-hour final exam. Midterm and final examination are limited open book. Students

will be provided with an information sheet by the instructor; no other information is allowed. A standard scientific calculator is permitted.

UNITS: SI units will be used

EVALUATION: The final grade is computed as follows:

Tutorial quizzes	40%
Quiz 1: 4th Week of Term (10%)	
Quiz 2: 8th Week of Term (10%)	
Quiz 3: 11th Week of Term (10%)	
Quiz 4: 13th Week of Term (10%)	
Mid-term Test	30%
Date to be announced (after reading week)	
Final Examination	30%
The final exam will be scheduled during the final exam period	
If a minimum mark of 50% is not obtained on the final examination, the student cannot receive a final mark greater than 48%.	

ENGLISH: In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on all assignments, tests and examinations for the improper use of English. Additionally, poorly written work with the exception of final examinations may be returned without grading. If resubmission of the work is permitted, it may be graded with marks deducted for poor English and/or late submission.

COURSE POLICIES The following course-specific policies will be strictly enforced throughout the course:

Computer Requirements

- All students are to ensure that they have a functional camera and microphone connected to their computer (irrespective of Windows or Mac-based). These two accessories will be required for all term tests, final exam as well as when asking questions during synchronous/live sessions or when working on in-tutorial assignments.
- The complete hardware specifications for Proctortrack-monitored tests are listed here: <https://www.proctortrack.com/tech-requirements/>

Remote Proctoring

- The primary intent is to use Proctortrack as the sole remote proctoring solution throughout the course. However, if certain temporary difficulties will prevent the use of Proctortrack, Zoom might be used as an alternative term test/exam invigilation tool.
- If Zoom will be used for term test/exam invigilation, you will be required to keep your camera on for the entire session, hold up your student card for identification purposes, and share your screen with the invigilator if asked to do so at any time during the exam. The exam session using Zoom will not be recorded.
- Proctortrack will require you to provide personal information (including some biometric data). The session will be recorded. By taking this course, you are consenting to the use of this software. More information about remote proctoring is available in the Online Proctoring Guidelines at the following link:
<https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>

- Completion of this course will require you to have a reliable internet connection and a device that meets the system and technical requirements for both Zoom and Proctortrack. Information about the system and technical requirements are available at the following links:
<https://www.proctortrack.com/tech-requirements>
<https://support.zoom.us/hc/en-us>

Online Class Demeanor/Netiquette

Some components of this course will involve online interactions. To ensure the best experience for both yourself and your classmates, please abide the following rules:

- All live sessions will take place via Zoom meetings. The links to be accessed for each class will be posted in the OWL calendar of the course.
- You will be required to authenticate in the Zoom meeting with your Western credentials **only** (SSO authentication on the westernuniversity.zoom.us domain). In the event you attempt to authenticate in the Zoom meeting with different credentials, you will be removed from the online session without any warning.
- Please ensure that your Zoom participant name matches the one from the official class roster. Failure to do so will mean that you will be removed from the online session without any warning.
- Please connect to the Zoom sessions on time.
- Please use a Windows or Mac computer to connect to the Zoom meeting as opposed to a mobile device (*i.e.*, cell phone or tablet).
- Please ensure that you are in a private location to protect the confidentiality of the class discussions (if applicable).
- To minimize the background noise, please mute your microphone for the duration of class.
- Please unmute your microphone only if invited to speak. Failure to do so might result in your immediate removal from the meeting.
- Please do not share your screen during the meeting unless asked by the instructor.

The course instructor will act a moderator of the online live session and will attempt to answer the questions received from Zoom meeting participants. In this regard, please consider the following:

- If you wish to speak during the live meeting, please use the “raise hand” feature in Zoom and wait for the instructor to nominate you to speak.
- Zoom keeps track of the order in which the “raise hand” feature was activated by each participant. Meeting participants will be asked to speak in the Zoom indicated order.
- Please remember to unmute your microphone and turn on your video camera (if turned off) before speaking.
- Please self-identify yourself at the beginning of your comment.
- Please remember to mute your microphone after speaking (unless directed otherwise).
- Please put down off your “virtual hand” after speaking.

Some general considerations pertaining to “netiquette”:

- Please be mindful of the possibly different cultural and linguistic background of Zoom meeting participants.

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- Be courteous with all Zoom meeting participants.
 - Be respectful of the diversity of viewpoints that you will encounter in the class since the exchange of diverse ideas and opinions is an essential component of the academic environment. However, please keep in mind that practices such as “flaming” are an unacceptable behavior.
 - Be professional in all online postings and questions.
 - Please note that disruptive behavior of any type to occur during online classes (including inappropriate use of the chat function) is unacceptable.
 - Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures covered by the Code of Student Conduct.

Term Test

- Missing the Term Test **without** academic consideration will translate into a mark of zero for that quiz.
- The Term Test will be proctored by means of the remote proctoring solution adopted by Western (*i.e.* Zoom or Proctortrack).
- When academic consideration has been obtained, it is the student’s responsibility to contact the instructor of the course in a *timely* fashion (*i.e.*, within maximum three days after consideration has been obtained from the Engineering Undergraduate Services Office).
- If technical issues will prevent a student from successfully completing and submitting the Term Test, the weight of the Test will be automatically shifted to the final exam. No make-up Test will be offered in this case.
- If cheating during the Term Test is suspected, the student will be required to participate in a one-on-one oral examination with the instructor. The mark obtained in the oral examination will supersede the one obtained during the written Test. If the student refuses his/her participation in the oral examination, the Test will be automatically graded with zero and further academic penalties for scholastic offences will be applied.
- Students are required to contact the instructor of the course for any other circumstances that appear to not be covered by the non-exhaustive list above.

Final examination

- The exam will take place during the April examination period. Its timing will be announced in advance.
- The exam will be closed book, delivered via OWL and proctored via Zoom or Proctortrack.
- The length of the final exam will be three hours.
- If a minimum of 50% is not obtained on the final examination, the student cannot receive a final mark greater than 48%.
- If technical issues will prevent a student from successfully completing and submitting the final examination, the official guidelines from Associate Dean’s Office, Undergraduate Affairs will be followed. Options to be considered will include but without being limited to oral examination or make-up examination in the special examination period.
- If cheating during the final examination is suspected, the student will be required to participate in a one-on-one oral examination with the instructor. The mark obtained in the oral examination will supersede the one obtained

during the written exam. If the student refuses his/her participation in the oral examination, the final exam will be automatically graded with zero and further academic penalties for scholastic offences will be applied.

- Students are required to contact the instructor of the course for any other circumstances that appear to not be covered by the non-exhaustive list above.

ATTENDANCE:

The course is being delivered online. However, any student who, in the opinion of the instructor, is absent too frequently from scheduled weekly meetings or other scheduled activities, will be reported to the Associate Dean (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Associate Dean, the student will be debarred from taking the regular examination in the course.

CHEATING:

University policy states that cheating, including plagiarism, is a scholastic offense. The commission of a scholastic offence is attended by academic penalties which might include expulsion from the program. If you are caught cheating, there will be no second warning. (see Scholastic Offence Policy in the Western Calendar.

SSD:

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

NOTE:

Students who have failed an Engineering course (i.e. < 50%) must repeat all components of the course. No special permissions will be granted enabling a student to retain laboratory, assignment or test marks from previous years. Previously completed assignments and laboratories cannot be resubmitted for grading by the student in subsequent years.

The above topics and outline are subject to adjustments and changes as needed.