

MME 4490A/B – Engineering in a Global Context: Advanced Manufacturing

COURSE OUTLINE - 2019-2020

CALENDAR DESCRIPTION: The course focuses on advanced manufacturing topics such as enhanced product development, modeling, and fabrication techniques as well as the emerging Industry 4.0 concept. The international context of the course is expected to strengthen students' skill and understanding of manufacturing, as performed in a global and interconnected economy.

COURSE INFORMATION: Instructor: Dr. Aaron Price
(academic matters) Office: ACEB 3457
Phone: 519-661-2111, ext. 86420
Email: aaron.price@uwo.ca

Coordinator: Dr. Remus Tutunea-Fatan
(organizational matters) Office: ACEB 3462
Phone: 519-661-2111, ext. 88289
Email: rtutunea@eng.uwo.ca

Lectures: 28 hours (May 8-21, 2020)

Hands-on activities (laboratories, mandatory field trips, project) 28 hours (May 8-21, 2020)

All course components will take place at the partner academic institution, namely Karlsruhe Institute of Technology (KIT), Germany. All course activities scheduled at the partner institution (in-class lectures/labs, technical field trips, etc.) will be concentrated in the form of a two week trip at KIT to take place between May 8 and May 21, 2020.

PREREQUISITES: Enrolment in the third year of the Mechanical, Mechatronic or Integrated Engineering program.

CONSULTATION HOURS: By advance notice via email or drop in.

ACCREDITATION UNITS: Engineering Science = 100%

TOPICS:

- Product development
- Automated manufacturing systems
- Industry 4.0
- Manufacturing of composite components for automotive applications
- Machining of fiber reinforced composites
- Fundamentals and advances in processing of functional composite films

LEARNING OUTCOMES Upon the successful completion of the course, students will:

- Understand and evaluate the principles underlying the manufacturing techniques presented
- Apply the manufacturing concepts during hands-on laboratory experiments

- Develop skills to explore, mitigate and solve manufacturing problems that might occur in a foreign/international context
- Acquire an international perspective on the engineering profession as a prerequisite for its appropriate practice in a global environment/economy

CONTACT HOURS: 2 lecture hours/week, 2 laboratory hour/week, 0.5 course

RECOMMENDED TEXTBOOKS: Not applicable.

EVALUATION: The final course grade will be determined based on take-home exam to be assigned and submitted at the beginning of the next academic year (Sep. 2020).

With the exception of the final exam to take place at Western, all other course activities will take place under the supervision of a Western Engineering instructor to accompany the class to KIT.

UNITS Metric

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.

CLASSROOM DEMEANOR: The instructor is committed to providing a respectful learning environment for all students involved in this course. This is a collective responsibility of the instructor and students, and therefore students partaking in this course agree to abide by this criterion. This includes arriving at lectures on time, and acting in a professional manner during class.

ATTENDANCE: Any student who, in the opinion of the instructor, is absent too frequently from class or laboratory periods in any course, will be reported to the Dean (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the 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.