

MME 4492a “PRODUCTION MANAGEMENT FOR ENGINEERS”

COURSE OUTLINE - 2023-2024

CALENDAR DESCRIPTION:	This course examines lean production principles and practices adopted by world-class manufacturers. Topics include: continuous improvement; total quality management; statistical process control; setup reduction; total productive maintenance; just-in-time and pull production; group technology; cellular manufacturing; standard operations; level production scheduling; process balancing; supply chain management; activity based costing; agile manufacturing.	
COURSE INFORMATION:	Instructor:	Dr. J.E. Makaran, P.Eng. Email: jmakaran@uwo.ca
	Lectures:	See Draft My Schedule
PREREQUISITES	<p>Students must use their Western (@uwo.ca) email addresses when contacting the instructor, and use appropriate / agreed upon forms of address as well as e-mail etiquette.</p> <p>Successful completion of the third year of Mechanical and Materials Engineering, or Integrated Engineer, or by special permission from the course instructor.</p> <p>Unless you have either the prerequisites 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 if you are dropped from a course for failing to have the necessary prerequisites.</p>	
ACCREDITATION UNITS:	Engineering Science 30%, Engineering Design 40%, Complementary Studies 30%	
TOPICS:	<ul style="list-style-type: none"> • Fundamental principles of lean production <ul style="list-style-type: none"> ○ Continuous process improvement ○ Value added and waste elimination ○ Total quality management • Elements of lean production <ul style="list-style-type: none"> ○ Small-lot production ○ Setup-time reduction ○ Maintaining and improving equipment ○ Pull production systems ○ Focused factories and group technology ○ Workcells and cellular manufacturing ○ Standard operations • Quality and statistical process control • Production planning and control <ul style="list-style-type: none"> ○ Scheduling for smooth flow ○ Synchronizing and balancing processes ○ Planning and control in pull production 	

	<ul style="list-style-type: none"> • Beyond the production system <ul style="list-style-type: none"> ○ Managing the supply chain ○ Activity based costing ○ Performance measurement • Agile manufacturing and virtual enterprises 															
LEARNING OUTCOMES:	<p>Upon successful completion of this course, students will be able to</p> <ul style="list-style-type: none"> • Describe and explain the principles of lean production. • Compare and contrast lean production methods with traditional methods. • Apply the interrelated elements of lean production in an integrated context. • Design or improve a manufacturing process based on the principles of lean production. <p>The above topics and outline are subject to adjustments and changes as needed.</p>															
CONTACT HOURS:	3 lecture hours per week, half course															
TEXTBOOK:	Nicholas, John M., Lean production for competitive advantage: a comprehensive guide to lean methodologies and management practices, Second Edition, CRC Press, 2018.															
REFERENCES:	<p>Wilson, Lonnie, How to Implement Lean Production, Second Edition, McGraw Hill, 2015</p> <p>Course material may refer to additional references as required</p>															
TECHNICAL REQUIREMENTS:	Students will be expected to have a computer that is capable of running the entire MS Office set of software, including but not limited to; Excel, Powerpoint, Project, Visio, and Word.															
UNITS:	S.I. Units will be predominately used, however, English units may also be used.															
EVALUATION:	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Assessment Type</th> <th style="text-align: center;">Material Covered</th> <th style="text-align: center;">Weight</th> </tr> </thead> <tbody> <tr> <td>Test 1</td> <td>Lectures 1 - 3</td> <td style="text-align: center;">25 %</td> </tr> <tr> <td>Test 2</td> <td>Lectures 4 - 8</td> <td style="text-align: center;">25 %</td> </tr> <tr> <td>Test 3</td> <td>Lectures 9 - 11</td> <td style="text-align: center;">40 %</td> </tr> <tr> <td>Participation</td> <td>N/A</td> <td style="text-align: center;">10 %</td> </tr> </tbody> </table> <p>A non-programmable calculator will be permitted for all tests. No special permissions will be granted enabling a student to retain project, participation, or test marks from previous years.</p> <p>If a student is excused from writing tests 1-3 with academic consideration, the weighting of the final examination shall be adjusted accordingly.</p> <p>Absences from examinations due to non-academic or non-medical reasons shall result in a grade of zero.</p>	Assessment Type	Material Covered	Weight	Test 1	Lectures 1 - 3	25 %	Test 2	Lectures 4 - 8	25 %	Test 3	Lectures 9 - 11	40 %	Participation	N/A	10 %
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	Participation marks shall be awarded based upon class attendance, punctuality and attentiveness during class (5%) as well as in-class engagement (including, but not limited to: in-class questions / discussion, and e-mail etiquette.).
ENGLISH:	In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on tests and examinations for 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	<p>The following course-specific policies will be enforced throughout the course:</p> <p>Tests and examinations in this course will be conducted in-person.</p> <p>Students who have failed an Engineering course (i.e. < 60%) 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.</p>
CLASSROOM DEMEANOR:	<p>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.</p> <ul style="list-style-type: none"> • Please arrive to class on time • Keep in mind the different cultural and linguistic backgrounds of the students in the course. • Be courteous toward the instructor, your colleagues, and authors whose work you are discussing. • Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. • Be professional and scholarly in all course activities. Cite the ideas of others appropriately. • Disruptive behaviour of any type during classes, is unacceptable. Students engaging in disruptive behaviour may be subject to disciplinary measures under the Code of Student Conduct.
USE OF RECORDINGS:	Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation, or the participant has the prior written permission of the instructor.
ATTENDANCE:	Any student, who, in the opinion of the instructor, is absent too frequently from class 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:	<p><u>Cheating is stealing.</u> Engineering is a profession with a code of ethics. Students are expected to behave in a manner consistent with the PEO Code of Ethics. 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). If cheating during any course evaluation is suspected, the student will be required to participate in a one-on-one oral evaluation with the instructor. The mark obtained in the oral evaluation will supersede the one obtained during the written quiz/exam. If the student denies his/her participation in the oral evaluation, the quiz/exam will be automatically graded with zero and further academic penalties for scholastic offences will be applied.</p> <p>Scholastic offences are taken seriously and attended by academic penalties which may include expulsion from the program. Students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:</p> <p>http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_10</p>
KEY SESSIONAL DATES	<p><u>Fall Term</u></p> <p>Classes begin: September 7</p> <p>Thanksgiving: October 9</p> <p>Fall Reading Week: October 30 – November 5</p> <p>Classes end: December 8</p> <p>Study Day: December 9</p> <p>Exam period: December 10 – 22</p>
NOTICES:	<p>Students are responsible for checking their Western email and notices posted on OWL (http://owl.uwo.ca) for news and updates. This is the primary method by which information will be disseminated to all students in the class.</p> <p>If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.</p>

STATEMENT ON GENDER-BASED AND SEXUAL VIOLENCE

Western [is committed to reducing incidents of gender-based and sexual violence](#) and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced gender-based or sexual violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts, [here](#). To connect with a case manager or set up an appointment, please contact support@uwo.ca.

INSTRUCTIONS FOR STUDENTS UNABLE TO WRITE TESTS OR EXAMINATIONS OR SUBMIT ASSIGNMENTS AS SCHEDULED

If, on medical or compassionate grounds, you are unable to write term tests or final examinations or complete course work by the due date, you should follow the instructions listed below. You should understand that academic relief will not be granted automatically on request. You must demonstrate to your department (or the Undergraduate Services Office) that there are compelling medical or compassionate grounds that can be documented before academic relief will be considered. Different regulations apply to term tests, final examinations and late assignments. Please read the instructions carefully.

A. GENERAL REGULATIONS & PROCEDURES

1. All first-year students will report to the Undergraduate Services Office by submitting the [Academic Consideration Request Form](#), for all instances.
2. If you are an upper year student and you are missing a test/assignment/lab or examination you will report the absence by submitting [Academic Consideration Request Form](#). Absences worth LESS THAN 10% of your mark, will be processed by your department office. If your course work is worth 10% OR MORE of your final grade, your request will be processed by the Undergraduate Services Office.
3. Check the course outline to see if the instructor has a policy for missed tests, examinations, late assignments or attendance.
4. Documentation must be provided as soon as possible. If no one is available in your department office or the Undergraduate Services Office, leave a message clearly stating your name & student number and reason for your call. The department telephone numbers are given at the end of these instructions.
5. If you decide to write a test or an examination you should be prepared to accept the mark you earn. Rewriting tests or examinations or having the value of a test or examination reweighted on a retroactive basis is not permitted.

B. TERM/MIDTERM TESTS

1. If you are in first year and you are unable to write a midterm/term test, contact the Undergraduate Services Office, SEB 2097 PRIOR to the scheduled date of the test.
2. If you are an upper year student and you are unable to write a midterm/term test, inform your instructor PRIOR to the scheduled date of the test and request relief through the [Academic Consideration Request Form](#). If the instructor is not available, leave a message for him/her at the department office. If the test is worth LESS THAN 10% of your mark, your request for relief will be processed by your department office. If the test is worth MORE THAN 10% of your final grade your request for relief will be processed by the Undergraduate Services Office.
3. Be prepared to attach supporting documentation to the Department Chair and/or the Undergraduate Services Office through the online form (see next page for information on documentation).
4. Discuss with the instructor if and when the test can be rescheduled. The approval of the Chair or the Undergraduate Services Office is required when rescheduling midterm/term tests.

C. FINAL EXAMINATIONS

1. If you are unable to write a final examination, contact the Undergraduate Services Office **PRIOR TO THE SCHEDULED EXAMINATION TIME** to report your absence using the [Academic Consideration Request Form](#) and request permission to write a Special Final Examination. If no one is available in the Undergraduate Services Office, leave a message clearly stating your name & student number.
2. Be prepared to provide the Undergraduate Services Office with supporting documentation (see next page for information on documentation) the next day, or as soon as possible (in cases where students are hospitalized). The following circumstances are not considered grounds for missing a final examination or requesting special examinations: common cold, headache, sleeping in, misreading timetable and travel arrangements.
3. In order to receive permission to write a Special Examination, you must obtain the approval of the Chair of the Department **and** the Associate Dean and in order to apply you must submit an "[Application for a Special Exam](#)" form. The Undergraduate Services Office will then notify the course instructor(s) and reschedule the examination on your behalf.

PLEASE NOTE: It is the student's responsibility to check the date, time and location of the Special Examination.

D. LATE ASSIGNMENTS

1. Advise the instructor if you are having problems completing the assignment on time (**prior** to the due date of the assignment).
2. Be prepared to submit the [Academic Consideration Request Form](#) and provide documentation if requested by the instructor (see reverse side for information on documentation).
3. If you are granted an extension, establish a due date. The approval of the Chair of your Department (or the Assistant Dean, First Year Studies, if you are in first year) is not required if assignments will be completed prior to the last day of classes.
4.
 - i) Extensions beyond the end of classes must have the consent of the instructor, the department Chair and the Associate Dean, Undergraduate Studies. Documentation is mandatory.
 - ii) A Recommendation of Incomplete Form must be filled out indicating the work to be completed and the date by which it is due. This form must be signed by the student, the instructor, the department Chair and the Associate Dean, Undergraduate Studies.

E. SHORT ABSENCES

If you miss a class due to a minor illness or other problem, check your course outlines for information regarding attendance requirements and make sure you are not missing a test, laboratory or assignment. Cover any readings and arrange to borrow notes from a classmate.

F. EXTENDED ABSENCES

If you are absent more than one week or if you get too far behind to catch up, you should consider reducing your workload by dropping one or more courses. (Note drop deadlines listed below). You are strongly encouraged to seek advice from your Academic Counsellor in the Undergraduate Services Office.

G. DOCUMENTATION

If you consulted an off-campus doctor or Student Health Services regarding your illness or personal problem, **you must provide the doctor with a Student Medical Certificate** to complete at the time of your visit and then bring it to the Department (or the Undergraduate Services Office). **This note must contain the following information: severity of illness, effect on academic studies and duration of absence. Regular doctor's notes will not be accepted; only the Student Medical Certificate will be accepted.**

In Case of Serious Illness of a Family Member: Provide a Student Medical Certificate to your family member's physician to complete and bring it to the Department (or the Undergraduate Services Office if you are in first year).

In Case of a Death: Obtain a copy of the death certificate or the notice provided by the funeral director's office. You must include your relationship to the deceased and bring it to the Department (or the Undergraduate Services Office if you are in first year).

For Other Extenuating Circumstances: If you are not sure what documentation to provide, ask the Departmental Office (or the Undergraduate Services Office if you are in first year) for direction.

Note: Forged notes and certificates will be dealt with severely. To submit a forged document is a scholastic offence (see below).

H. ACADEMIC CONCERNS

1. You need to know if your instructors have a policy on late penalties, missed tests, etc. This information may be included on the course outlines. If not, ask your instructor(s).
2. **You should also be aware of attendance requirements in some courses. You can be debarred from writing the final examination if your attendance is not satisfactory.**
3. If you are in academic difficulty, check out the minimum requirements for progression in the calendar. If in doubt, see your Academic Counsellor.

Calendar References: Check these regulations in your 2023 Western Academic Calendar available at www.westerncalendar.uwo.ca.

Absences Due to Illness:

https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_13_5

Academic Accommodations for Students with Disabilities:

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_10

Academic Accommodations for Religious or Holy Days:

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_16

Course Withdrawals:

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=6&SelectedCalendar=Live&ArchiveID=#Page_75

Examinations:

<http://www.westerncalendar.uwo.ca/PolicyPages.cfm?PolicyCategoryID=5&command=showCategory&SelectedCalendar=Live&ArchiveID=#>

Scheduling of Term Assignments:

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#SubHeading_78

Scholastic Offences:

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_20

Student Medical Certificate:

<https://www.eng.uwo.ca/files/undergraduate/student-medical-certificate.pdf>

Engineering Academic Regulations:

http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=4&SelectedCalendar=Live&ArchiveID=#Page_86

Note: These instructions apply to all students registered in the Faculty of Engineering regardless of whether the courses are offered by the Faculty of Engineering or other faculties in the University.

Add Deadlines:

First term half course (i.e. “A” or “F”)	September 15, 2023
Full courses and full-year half course (i.e. “E”, “Y” or no suffix)	September 15, 2023
Second term half course (i.e. “B” or “G”)	January 16, 2024

Drop Deadlines:

First term half course without penalty (i.e. “A” or “F”)	November 13, 2023
Full courses and full-year half courses without penalty (i.e. “E”, “Y” or no suffix)	November 30, 2023
Second term half or second term full course without penalty (i.e. “B” or “G”)	March 7, 2024

Contact Information:

Undergraduate Services Office:	SEB 2097 Phone: 519-661-2130	E-mail: engugrad@uwo.ca
Chemical & Green Process Engineering:	TEB 477 Phone: 519-661-2131	E-mail: cbeugrad@uwo.ca
Civil Engineering:	SEB 3005 Phone: 519-661-2139	E-mail: civil@uwo.ca
Computer, Electrical, Mechatronic Systems & Software Engineering	TEB 279 Phone: 519-661-3758	E-mail: ecceugrad@uwo.ca
Integrated Engineering	ACEB 2410 Phone: 519-661-6725	E-mail: engceli@uwo.ca
Mechanical Engineering:	SEB 3002 Phone: 519-661-4122	E-mail: mmeundergraduate@uwo.ca