Advanced Production/Operations Management

OSCM 3322 Spring 2019

Instructor: Dr. José Humberto Ablanedo-Rosas
E-mail: jablanedorosas2@utep.edu
Office: BUSN 206 **Phone**: (915) 747 6041 **Fax**: (915) 747 5348

Class Hours: **TR 10:30-11:50 a.m. BUSN 304**
Office Hours: **T 9:00-10:30 am & 12:00-1:00 pm**
R 9:00-10:30 am

Reference books:

(1) Automation, Production Systems, and Computer-Integrated Manufacturing, by Mikell P. Groover, Prentice Hall, Fifth Edition (ISBN-10: 0134605462, ISBN-13: 9780134605463).

(2) Production & Operations Analysis, by Steven Nahmias, McGraw-Hill, Seventh Edition (ISBN 978-0-07-337785-8).

(3) Operations Management: Processes and Supply Chains, by Lee J. Krajewski, Manoj K, Malhotra, and Larry P. Ritzman, Prentice Hall, 11th edition (ISBN: 0133872130, ISBN - 13: 9780133872132).

Welcome to Advanced Production/Operations Management, the official information for OSCM 3322 course, including grades, will be posted on Blackboard. You are responsible for reading the "Announcements", "Assignments", and any other information concerning this course; check your Blackboard account daily.

Course description *(From Goldmine)*

This course discusses the design and implementation of Advanced Manufacturing Technologies (AMT). This includes Just-in-Time (JIT) systems, cellular and Flexible Manufacturing Systems (FMS), and Computer Integrated Manufacturing (CIM). It also explores the key role that manufacturing plays in product development efforts and cross-functional teams. Other topics such as manufacturing, strategy, maintenance, and the design of work systems are presented as well. Case studies and group projects/presentations are used for instructional purposes.

Learning Objectives: At the completion of this course, students will be able

Learning Objective	Corresponding Assignment Content
To identify different production systems	The students will solve a case where they will list the attributes and characteristics of different production systems, then they will identify and classify the different production systems.
To contrast major types of manufacturing metrics and economics	The students will solve problems where they will evaluate the efficiency of several production systems based on metrics and economics.
To support effective manufacturing operations	The student will solve a case where they will discuss the advantages and disadvantages of manufacturing systems based on the evaluation of metrics and economics
To select appropriate automation systems	The students will solve a case using metrics and economics to evaluate automation systems. The students will discuss the advantages and disadvantages of each system and will recommend the appropriate one.
To compare computer numerical control technologies	The students will solve problems where they will evaluate the efficiency of computer control technologies based on metrics and economics.
To differentiate industrial robot technologies	The students will solve problems where they will evaluate the efficiency of several industrial robot technologies based on metrics and economics.
To select discrete control & programmable logic controllers	The students will solve a case where they will select the appropriate programmable logic controller.
To evaluate material transport systems	The students will solve problems where they will evaluate the efficiency of several material transport systems based on metrics and economics.
To judge storage systems	The students will solve problems where they will evaluate the efficiency of several storage systems based on metrics and economics.
To describe manufacturing systems	The students will solve a case where they will list the attributes and characteristics of different manufacturing systems, then they will identify and classify the different manufacturing systems.
To discuss just-in-time and lean production systems	The students will solve a case where they will discuss the challenges of a just-in-time and lean production system implementation.

Prerequisite:
OSCM 3321.

Lectures
Important material from the reference book and some outside sources will be covered in class. You should plan to take careful notes. Discussion is encouraged about the topics being covered. PLEASE BRING A CALCULATOR OR LAPTOP/TABLET TO CLASS.

Partial Exam
This is an in-class exam. It covers the class materials and chapters in the textbook taught up to the date of the last class before the exam. The maximum completion time is 80 minutes. There is not make-up of the partial exam.

Final Exam
This is a final comprehensive exam covering all the class lecture materials and chapters in the textbook taught during the semester. The maximum completion time is two hours.

Grading Policy:

15 % First Partial Exam
15 % Second Partial Exam
15 % Third Partial Exam
20 % Final exam
35 % Homework assignments

There are no curves, bonus points, extra credit, etc. The final numerical grade is not rounded up, for example, 89.99 is not rounded up and since 89.99 < 90 the corresponding final grade is "B".

A numerical grade ≥ 90
B $80 \leq$ numerical grade < 90
C $70 \leq$ numerical grade < 80
D $60 \leq$ numerical grade < 70
F numerical grade < 60

COURSE POLICIES

1. Academic Integrity
Cheating is unethical and not acceptable. Plagiarism is using information or original wording in a paper without giving credit to the source of that information or wording: it is also not acceptable. Do not submit work under your name that you did not do yourself. You may not submit work for this class that you did for another class. If you are found to be cheating or plagiarizing, you will be subject to disciplinary action, per UTEP catalog policy. Refer to http://www.utep.edu/dos/acadintg.htm for further information.

2. Missed Classes

You are expected to come to class, pay attention, and take good notes. If you miss the class, it is your responsibility to obtain notes from your classmates and complete the corresponding assignments.

3. Homework

Homework has to be uploaded on blackboard, it is assigned after covering some chapters, you will have one week to complete it. Homework cannot be made up after its due date, if you expect to miss class, be sure to do your homework before its due date.

4. Exams

Exams are basically from material discussed in the class. You are responsible to bring a calculator to the exam as you need to solve quantitative questions. A missed exam will result in a score of 0 (zero) for that exam, and **THERE ARE NO MAKEUP EXAMS**. Please note the final exam will be comprehensive covering all materials in the class. Graded exams will be returned during the following week. Do not discard them once you have looked at them – they may come handy if there is a discrepancy later on.

5. Need for Assistance

If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

6. Student Services

- **Student Counseling Center**: http://sa.utep.edu/counsel/; (915) 747-5302; 202 Union West; walk-ins encouraged.
- **Student Health Center**: http://chs.utep.edu/health; (915) 747-5624; many services free to students paid for through student health fee.
- **Center for Accommodations and Support Services**: http://sa.utep.edu/cass; 106 Union East; (915) 747-5148; for disability accommodations.
- **Student Engagement and Leadership Center**: http://sa.utep.edu/selc; 106 Union West; (915) 747-5670; includes study space with workstations; family friendly room with lactation space.
- **Career Center**: http://sa.utep.edu/careers; 103 Union West; (915) 747-5640.
- **Minetracker**: https://minetracker.utep.edu/ Events, news and organizations.

7. Student Responsibility

Individual students must operate with integrity in their dealings with faculty and other students; engage the learning materials with appropriate attention and dedication; maintain their engagement when challenged by difficult learning activities; contribute to the learning of others; and perform to standards set by the faculty.

Note: This is a tentative syllabus and the instructor reserves the right to make appropriate changes.

Advanced Production/Operations Management

OSCM 3322 Spring 2019

Class Hours: TR 10:30-11:50 a.m. BUSN 304

Course Outline:

Lecture	Class Discussion	Assignment
1 (Jan 22)	Introduction (to Production Systems) (Ch 1)	
2 (Jan 24)	Manufacturing Operations (Ch 2)	
3 (Jan 29)	Manufacturing Operations (Ch 2)	# 1
4 (Jan 31)	Manufacturing Metrics and Economics (Ch 3)	
5 (Feb 5)	Manufacturing Metrics and Economics (Ch 3)	
6 (Feb 7)	Manufacturing Metrics and Economics (Ch 3)	# 2
7 (Feb 12)	Introduction to Automation (Ch 4)	
8 (Feb 14)	Industrial Control Systems (Ch 5)	
9 (Feb 19)	**First Partial Exam**	
10 (Feb 21)	Hardware Components for Automation and Process Control (Ch 6)	
11 (Feb 26)	Hardware Components for Automation and Process Control (Ch 6)	# 3
12 (Feb 28)	Computer Numerical Control (Ch 7)	
13 (Mar 5)	Computer Numerical Control (Ch 7)	
14 (Mar 7)	Computer Numerical Control (Ch 7)	# 4
15 (Mar 12)	Industrial Robotics (Ch 8)	
16 (Mar 14)	Industrial Robotics (Ch 8)	# 5
17 (Mar 26)	**Second Partial Exam**	
18 (Mar 28)	Discrete Control and Programmable Logic Controllers (Ch 9)	
19 (Apr 2)	Discrete Control and Programmable Logic Controllers (Ch 9)	
20 (Apr 4)	Discrete Control and Programmable Logic Controllers (Ch 9)	# 6
21 (Apr 9)	Material Transport Systems (Ch 10)	
22 (Apr 11)	Material Transport Systems (Ch 10)	
23 (Apr 16)	Material Transport Systems (Ch 10)	# 7
24 (Apr 18)	Storage Systems (Ch 11)	
25 (Apr 23)	Storage Systems (Ch 11)	# 8
26 (Apr 25)	Automatic Identification and Data Capture (Ch 12)	
27 (Apr 30)	**Third Partial Exam**	
28 (May 2)	Overview of Manufacturing Systems (Ch 13)	# 9
29 (May 7)	Just-in-Time and Lean Production (Ch 26)	
30 (May 9)	Just-in-Time and Lean Production (Ch 26)	#10
(May 17)	**Final Examination (Comprehensive) 10:00 am-12:45 pm**	