

MECH 496: Engineering Management

Course Outline

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Course Description

The basic functions of management apply to all strands of management, and engineering management is no exception. This course provides an introduction to such generic functions, with particular contextualization to engineering environments. Sustainable engineering operations require the support of two critical domains, namely finance and marketing. The course offers an insight into these two domains as they relate to, and interact with, engineering operations.

Main Textbook

Chang, C. M. (2016). *Engineering Management: Meeting the Global Challenges*. Second edition. CRC Press. ISBN 9781498730075.

Learning Outcomes

By the end of this course, the student will be able to;

- Identify the factors affecting the performance of an engineer in modern work environments
- Understand organizations and the different ways they are structured
- Name and relate to strategic planning processes and how they relate to engineering operations
- Learn how engineering work environments are organized for achieving maximum productivity
- Differentiate between the managerial and leadership dimensions of executive positions
- Become familiar with the managerial standard and metrics used to evaluate engineering performance
- Obtain an insight into the supporting function of finance, accounting, and cost structures
- Relate and interface the work carried out by engineers with that of marketing and sales experts

Course Evaluation

Component	Weight	Remarks
Quizzes	25%	5 closed-book quizzes meant to test the students' grasp of key concepts
Proposal	5%	No more than one page, introducing a peer-reviewed case study to present
Assignment	20%	Please see the description below, including the corresponding rubrics
Final Exam	50%	Open book, containing a combination of descriptive questions and problems

Description of Assignments

Students will be scheduled to prepare and present a case study each and submit a written assignment. Each student will use own prepared material to lead a discussion at a Round Table session.

Rubrics:

- Slideshow presentation quality **(20 points)**
- Inclusion of external content (to the case) with proper reference citation. **(10 points)**
- Inclusion of audio-visual content, and/or illustration objects/models, with reference citation. **(10 points)**
- Video shows. Incorporate pauses to insert additional explanatory comments. **(10 points)**
- Submission of slides with substantive descriptions added in the Notes area. **(20 points)**
- Writing mechanics. **(10 points)**
- Effective conclusion and demonstrating direct link to the respective course topic. **(20 points)**

Tentative Schedule

#	Day	Date	Chapter	Activity
1	Wed	07-Sep-16	01: Introduction	
2	Fri	09-Sep-16		Release of Assignment
3	Mon	12-Sep-16	02: EM Functions - Planning	
4	Wed	14-Sep-16		
5	Fri	16-Sep-16	03: EM Functions - Organizing	
6	Mon	19-Sep-16		
7	Wed	21-Sep-16	04: EM Functions - Leading	
8	Fri	23-Sep-16		
9	Mon	26-Sep-16		Quiz #1
10	Wed	28-Sep-16		
11	Fri	30-Sep-16	05: EM Functions - Controlling	
12	Mon	03-Oct-16	Roundtables on Engineering Management Functions	Presentations
13	Wed	05-Oct-16		
14	Fri	07-Oct-16		
15	Mon	10-Oct-16	Thanksgivings Day	
16	Wed	12-Oct-16	6: Business Fundamentals - Cost Accounting	Quiz #2
17	Fri	14-Oct-16		
18	Mon	17-Oct-16		
19	Wed	19-Oct-16		
20	Fri	21-Oct-16		
21	Mon	24-Oct-16	7: Business Fundamentals - Financial Accounting & Management	Quiz #3
22	Wed	26-Oct-16		
23	Fri	28-Oct-16		
24	Mon	31-Oct-16		
25	Wed	02-Nov-16	8: Business Fundamentals - Financial Accounting & Management	
26	Fri	04-Nov-16		
27	Mon	07-Nov-16		
28	Wed	09-Nov-16		
29	Fri	11-Nov-16	Remembrance Day	
30	Mon	14-Nov-16	9: Engineers as Managers/Leaders	Quiz #4
31	Wed	16-Nov-16		
32	Fri	18-Nov-16		
33	Mon	21-Nov-16	10: Operational Excellence	
34	Wed	23-Nov-16		
35	Fri	25-Nov-16	Roundtables on Business Fundamentals	Presentations
36	Mon	28-Nov-16		
37	Wed	30-Nov-16		
38	Fri	02-Dec-16	Troubleshooting on demand and Q&A opportunity	Quiz #5

Remarks:

- Please note the schedule may change depending on circumstances. It is the student's responsibility to keep track of any changes
- We will conduct this course as paperless as possible. All exams will be digitally administered, online. Students are expected to bring along their computing devices.