

---

## SYLLABUS

<b>Date/ Revision</b>	March 26, 2017 / 1.0
<b>Faculty</b>	Engineering
<b>Approval</b>	Dean Faculty of Engineering

---

### SUBJECT : ENGINEERING MANAGEMENT (EMGT-3100)

#### 1. Identification of Subject:

Name of Subject	: ENGINEERING MANAGEMENT
Code of Subject	: EMGT-3100
SKS / ECTS	: 3
Semester	: 5
Study Program	: AVE, INE, MEE, MTE
Lecturer	: Dr. Ir. Yuki Indrayadi, MME, Ir. Invanos Tertiana, MBA

#### 2. Competency

After having the course, students are expected to:

- expose to the function of manager within the industrial/engineering environment,
- introduce them to the functions of managers,
- to deal with financial, cost, marketing functions of managers,
- to understand the ethics of being engineers within the globalization and millennium challenges

#### 3. Description of Subject:

Engineering management course is describing the role of engineering in enterprise to become not only engineers who work at shopfloor or factory, but one could obtain higher level of managerial responsibility. This lecture provide some knowledge what they need to achieve to become at managerial level higher.

#### 4. Learning Approach

Approach	: Combination of Expository - inquiry and colaborative
Method	: Discussions, Questions/answers, Sample problems/cases, Group works
Student Task	: Presentation
Media	: LCD projector

#### 5. Evaluation

a) Absence maximum	: 25%
b) Participation in discussion	: 10 points
c) Homework, Classwork	: 10 points
d) Prsentation, Simulation	: 10 points
e) Daily Quiz	: 10 points
f) Final Examination	: 60 points

Total : 100 points

## 6. Contents/ Topics of Lecturing:

Week	Topics	Content	Remark
1	Introduction to Management Challenges for Engineers	Introduction, definitions, employment trend in industries, STEM professionals as effective technical contributors, management and leadership, becoming effective manager in the new millenium	Chapter 1
2	Planning	Introduction, types of planning, who should do planning, inexact nature of stategic planning, planning roles for engineering managers, tools for planning, planning activities, some specific advice on planning	Chapter 2
3	Organizing	Introduction, definitions, activities of organising, organising one;s own workplace for productivity, developing organisational structure, enhancing corporae preformance by organising exmaples, concurrent engineering teams, delegating, establishing working relationships, informal organisations	Chapter 3
4	Leading	Introduction, styles of leadership, leading activities, deciding, communicating, motivating, selecting engineering employees, developing people, special topics on leading	Chapter 4
5	Controlling	Introduction, setting performance standards, benchmarking, measuring performance, evaluating performance, correcting performance, means of control, general comments, control of management time, control of personnel, control of business relationships, control of projects, control of quality, control of knowledge	Chapter 5
6	Cost accounting for engineering managers	Introduction, product or service costing, application of ABC in industry, risk analysis and cost estimation under uncertainty, miscellaneous topics	Chapter 6
7	Financial Accounting and Management for Engineering Managers	Introduction, financial marketing principles, key financial statements, fundamentals of financial analysis, balanced score card, capital formation, capital assets valuation,	Chapter 7
8	Mid term qualification		
9	Marketing management for	Introduction, function of marketing,	Chapter 8

	engineering managers	market forecast, market segmentation, product/service strategy, pricing strategy, marketing communication, distribution strategy, physical evidence, process design, people, customers, other factors affecting marketing success	
10	Engineers as managers/leaders	Career path of a typical engineer, factors affecting promotion to manager, factors causing engineers to fail as managers, leader and managers, leadership styles, qualities, and attributes, leaders skills for the 21st century, unique contribution expected of engineering managers, career strategies for the 21st century, take-charge formula	Chapter 9
11	Creativity and Innovation	Creativity and creative thinking strategies, generation of new products / services ideas by the deep thinking methodology, fundamentals of innovations, innovation management, selected innovation practices in industry, innovation in communications, financial and technical services, innovations in insurance industry, innovations in food industry, major hurdles to innovations in health care	Chapter 10
12	Ethics in engineering management and workplace	Ethics in workplace, guidelines for making tough ethical decisions, corporate ethics programs, affirmative action and workforce diversity, global issues of ethics	Chapter 11
12	Operational Excellence	Tools for achieving operational excellence, implementation of operational excellence	Chapter 12
13	Globalisation	Global trends and commerce, united nations statistics and goals, great philosophical debate about globalization, impact of catastrophic events on globalization, new opportunities offered by globalization, preparation for globalization, globalization drivers, implementation issues related to globalization, quality of global leadership, production engineering in a global economy, job migration induced by globalization	Chapter 13
14	Engineering management in new millenium	Future trends, old economy and knowledge economy companies, characteristics of progressive companies, transition to the knowledge economy, personal strategies for the future, contributions in the new millenium, the challenge ahead.	Chapter 14

15	Review		All
16, 17	Final Examination		

## 7. Book Reference:

- a) C. M. Chang, Engineering Management : meeting the Global Challenges, 2nd ed., CRC Press, 2016, ISBN 978-1-4987-3009-9