

Subject Description Form

Subject Code	ENG3003
Subject Title	Engineering Management
Credit Value	3
Level	3
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	<p>This subject provides students with:</p> <ol style="list-style-type: none"> 1. A practical introduction to management and a comprehensive guide to the tools and techniques used in managing people and other resources. 2. Opportunities to trace the historical development and describe the functions of management, from planning, and decision making to organizing, staffing, leading, motivating, and controlling. It also includes a discussion on engineering ethics. 3. Opportunities to explore the core business strategy, technology, and innovation, and examine how these functions intertwine to play a central role in structural design, as well as supporting an organization's overall success.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to</p> <ol style="list-style-type: none"> a. perform tasks in an organization related to organizing, planning, leading and controlling project and process activities; b. select appropriate management techniques for improving organizational structures, work procedures, and quality performance of operational tasks; c. analyze the factors that affect changes in the work environment, and be aware of the approaches in implementing change in an organization; d. be aware of the imperatives of ethical and business behaviors in engineering organizations in a fast-changing business environment.
Subject Synopsis/Indicative Syllabus	<ol style="list-style-type: none"> 1. <u>Introduction</u> <p>General management concepts in organizations; Functions and types of industrial organizations; Organizational structures; Corporate objectives, strategy, and policy</p> 2. <u>Industrial Management</u> <p>Roles of managers: Process of management, leadership, planning, organizing, motivating, and control of social and engineering activities; Quality management: Related tools and techniques</p>

	<p>3. <u>Project Management</u></p> <p>Project scope and objectives; Network analysis; Tools that support engineering operations and task scheduling</p> <p>4. <u>Management of Change</u></p> <p>Change leadership; Organizational change; Phases of planned change; Stress management; Factors that affect the execution of change</p> <p>5. <u>Effects of Environmental Factors</u></p> <p>The effects of extraneous factors on the operations of engineering organizations, such as ethics and corporate social responsibilities issues</p>																																																						
<p>Teaching/Learning Methodology</p>	<p>A mixture of lectures, tutorial exercises, and case studies are used to deliver various topics in this subject. Some topics are covered by problem-based format whenever applicable in enhancing the learning objectives. Other topics are covered by directed study so as to develop students' "life-long learning" ability.</p> <p>The case studies, largely based on real experience, are designed to integrate the topics covered in the subject and to illustrate the ways various techniques are inter-related and applied in real life situations.</p>																																																						
<p>Assessment Methods in Alignment with Intended Learning Outcomes</p>	<table border="1" data-bbox="443 1120 1465 1653"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="6">Intended subject learning outcomes to be assessed</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1. Coursework</td> <td>40%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>• Group learning activities (10%)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>• Presentation (individual) (30%)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2. Final examination</td> <td>60%</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>100%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>The coursework of this subject involves students working in groups to study cases that reflect the realities of management situations in an engineering setting. Through such exercises, students' ability to apply and synthesize acquired knowledge can be assessed on the basis of their performance in group discussion, oral presentations, and the quality of their written reports on these case studies. A written final examination is also designed to assess the intended learning outcomes.</p>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed						a	b	c	d			1. Coursework	40%	✓	✓	✓	✓			• Group learning activities (10%)								• Presentation (individual) (30%)								2. Final examination	60%	✓	✓	✓	✓			Total	100%						
Specific assessment methods/tasks	% weighting			Intended subject learning outcomes to be assessed																																																			
		a	b	c	d																																																		
1. Coursework	40%	✓	✓	✓	✓																																																		
• Group learning activities (10%)																																																							
• Presentation (individual) (30%)																																																							
2. Final examination	60%	✓	✓	✓	✓																																																		
Total	100%																																																						

Student Study Effort Expected	Class contact:	
	▪ Lectures and review	27 Hrs.
	▪ Tutorials and presentations	12 Hrs.
	Other student study effort:	
	▪ Research and preparation	30 Hrs.
	▪ Report writing	10 Hrs.
	▪ Preparation for oral presentation and examination	37 Hrs.
	Total student study effort	116 Hrs.
Reading List and References	<ol style="list-style-type: none"> 1. John R. Schermerhorn, Jr., 2013, Introduction to Management, 12th Ed., John Wiley 2. Robbins, S P, DeCenzo, D A, and Coulter, M, 2013, Fundamentals of Management Essential Concepts and Applications, 8th Ed., Pearson 3. Morse, L C and Babcock, D L, 2010, Managing Engineering and Technology: an Introduction to Management for Engineers, 5th Ed., Prentice Hall 4. White, M A and Bruton, G D, 2011, The Management of Technology and Innovation: A Strategic Approach, 2nd Ed., South-Western Cengage Learning 	

(revised) July 2015