

# Engineering Management (EM)

## Curriculum Outline

The Engineering Management Program is designed for qualified individuals who plan to assume a management role in a technology-based, project-oriented environment within a manufacturing, service, or government organization. It offers an interdisciplinary course of study that combines the unique capabilities of industrial engineering, management, and information technology. As a result, the program provides a focus on technological leadership through the integration of people and technology.

Students are prepared for leadership roles in technologically oriented businesses through courses that present both the theoretical, and the practical aspects of managing complex engineering projects. The curriculum enables students to understand and manage the complex interactions among people, technology, finances and the socio-political environment in which organizations operate. Upon completion of the program, graduates will be equipped with broad-based knowledge, and quantitative and qualitative analytical skill to succeed as managers, from project conceptualization through its implementation.

In order to gain practical experiences, fourth-year students are allowed to choose among three tracks of special studies. For more details on the academic options and special studies, please contact the Program Coordinator.

## Structure and Components

<b>1. General Basic Courses</b>	<b>36</b>	<b>Credits</b>
1.1 Part I	21	Credits
1.1.1 Humanities	2	Credits
1.1.2 Social Sciences	5	Credits
1.1.3 Languages	9	Credits
1.1.4 Science and Mathematics	5	Credits
1.2 Part II	15	Credits
<b>2. Core Courses</b>	<b>108</b>	<b>Credits</b>
2.1 Compulsory Courses	102	Credits
2.2 Special Study	6	Credits
<b>3. Free Elective Courses</b>	<b>6</b>	<b>Credits</b>
<b>Total</b>	<b>150</b>	<b>Credits</b>

## Details of the Curriculum

<b>1. General Basic Courses</b>	<b>36</b>	<b>Credits</b>
1.1 Part I	21	Credits
1.1.1 Humanities (1 course)	2	Credits
TU110		
1.1.2 Social Sciences (2 courses)	5	Credits
TU100	TU120	
1.1.3 Languages (3 courses)	9	Credits
EL171	EL172	TU140
1.1.4 Science and Mathematics (2 courses)	5	Credits
ITS100	TU130	
1.2 Part II	15	Credits
EC210	GTS101	GTS133
GTS202	GTS231	
<b>2. Core Courses</b>	<b>108</b>	<b>Credits</b>
2.1 Compulsory Courses	102	Credits
2.1.1 Science and Mathematics (6 courses)	18	Credits
GTS111	GTS112	GTS121
GTS212	GTS213	
2.1.2 Fundamental of Engineering and Technology (6 courses)	17	Credits
GTS303	MES211	MTS234
MTS252	MTS254	MTS251
2.1.3 Information Technology (4 courses)	12	Credits
ITS101	MTS381	MTS382
MTS482		
2.1.4 General Management (6 courses)	18	Credits
MTS211	MTS212	MTS311
MTS411	MTS412	MTS312
2.1.5 Engineering Management (13 courses)	37	Credits
MTS231	MTS232	MTS233
MTS331	MTS332	MTS333
MTS334	MTS335	MTS351
MTS394	MTS403	MTS431
MTS451		
MTS481		
2.2 Special Study	6	Credits
<b>1) Senior Project Track</b> (2 courses)		
MTS309	MTS404	
<b>2) Foreign Exchange Track</b> (3 courses)		
MTS309	MTS493	MTS494
<b>3) Extended Management Training Track</b> (1 course)		
MTS304		
<b>3. Free Elective Courses</b>	<b>6</b>	<b>Credits</b>
Select any courses offered by the university, except basic courses. XXXxxx		
<b>Total Credit Requirement</b>	<b>150</b>	<b>Credits</b>

## EM Curriculum : 150 Credits

### Course Credits (lecture-practice-self study hrs)

#### First Year

##### Semester I

EL171	English Course II	3(3-0-6)
GTS101	Skills Development for Technical Studies	3(3-0-6)
GTS111	Mathematical Analysis for Management Science	3(3-0-6)
GTS121	General Science I	3(3-0-6)
GTS133	Environmental Studies	3(2-2-5)
ITS100	Introduction to Computers and Programming	3(2-3-4)
MTS252	Materials Science	3(3-0-6)
<b>Sub-Total</b>		<b>21(19-5-39)</b>

##### Semester II

EC210	Introductory Economics	3(3-0-6)
EL172	English Course III	3(3-0-6)
GTS112	Linear Algebra	3(3-0-6)
GTS122	General Science II	3(3-0-6)
ITS101	Programming and Algorithms	3(3-0-6)
TU100	Civic Education	3(3-0-6)
TU130	Integrated Sciences and Technology	2(2-0-4)
<b>Sub-Total</b>		<b>20(20-0-40)</b>

#### Second Year

##### Semester I

GTS202	English Language Structures	3(3-0-6)
GTS212	Calculus for Technologists I	3(3-0-6)
MES211	Thermofluids	3(3-0-6)
MTS211	Principles of Business	3(3-0-6)
MTS234	Basic Electrical Engineering for Technologist	3(2-2-5)
TU110	Integrated Humanities	2(2-0-4)
TU140	Thai Studies	3(3-0-6)
<b>Sub-Total</b>		<b>20(19-2-39)</b>

##### Semester II

GTS213	Calculus for Technologists II	3(3-0-6)
GTS231	Law and Technology	3(3-0-6)
GTS303	Communications in Business	2(2-1-3)
MTS212	Principles of Management	3(3-0-6)
MTS231	Statistical Methods for Managers	3(3-0-6)
MTS254	Introduction to Management Science	3(3-0-6)
TU120	Integrated Social Sciences	2(2-0-4)
<b>Sub-Total</b>		<b>19(19-1-37)</b>

#### Third Year

##### Semester I

MTS232	Production and Operations Management	3(3-0-6)
MTS251	Economics for Business and Management	3(3-0-6)
MTS311	Fundamental Financial Accounting	3(3-0-6)
MTS334	Applications of Business Statistics	3(3-0-6)
MTS351	Management Systems Optimization	3(3-0-6)
MTS381	Business Information Systems	3(3-0-6)
MTS382	Database Systems and Applications	3(3-0-6)
<b>Sub-Total</b>		<b>21(21-0-42)</b>

### Course Credits (lecture-practice-self study hrs)

##### Semester II

MTS312	Principles of Marketing	3(3-0-6)
MTS331	Economic Decision Analysis	3(3-0-6)
MTS332	Quality Management	3(3-0-6)
MTS333	Production and Inventory Management	3(3-0-6)
MTS394	Introduction to Research Methodology in Management Technology	3(3-0-6)
MTS411	Management Accounting	3(3-0-6)
MTS451	Project Management	3(3-0-6)
<b>Sub-Total</b>		<b>21(21-0-42)</b>

##### Summer

Select either Senior Project Track, Foreign Exchange Track, or Extended Management Training Track.

##### **1. Senior Project Track and Foreign Exchange Track**

MTS309	Engineering Management Training	0(0-0-0)
<b>Sub-Total</b>		<b>0(0-0-0)</b>

##### **2. Extended Management Training Track**

XXXxxx	Free Elective	3(x-x-x)
<b>Sub-Total</b>		<b>3(x-x-x)</b>

#### Fourth Year

##### Semester I

MTS233	Introduction to Supply Chain Management	3(3-0-6)
MTS403	Management Technology Seminar	1(0-3-0)
MTS412	Business Finance	3(3-0-6)
MTS431	Facility Location and Layout Planning	3(3-0-6)
MTS481	Business Process Simulation	3(3-0-6)
MTS482	Principles of Decision Support Systems	3(3-0-6)
XXXxxx	Free Elective	3(x-x-x)
<b>Sub-Total</b>		<b>19(x-x-x)</b>

##### Semester II

##### **1) Senior Project Track**

MTS404	Senior Project	6(0-18-0)
XXXxxx	Free Elective	3(x-x-x)
<b>Sub-Total</b>		<b>9(x-x-x)</b>

##### **2) Foreign Exchange Track**

MTS493	Special Study in Engineering Management I	3(3-0-6)
MTS494	Special Study in Engineering Management II	3(3-0-6)
XXXxxx	Free Elective	3(x-x-x)
<b>Sub-Total</b>		<b>9(x-x-x)</b>

##### **3) Extended Management Training Track**

MTS304	Extended Engineering Management Training	6(0-40-0)
<b>Sub-Total</b>		<b>6(0-40-0)</b>