

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

1. General Basic Courses	36 Credits
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
2. Core Courses	108 Credits
2.1 Compulsory Courses	102 Credits
2.2 Special Study	6 Credits
3. Free Elective Courses	6 Credits
Total	<u>150 Credits</u>

Details of the Curriculum

1. General Basic Courses	36 Credits
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	
2. Core Courses	108 Credits
2.1 Compulsory Courses	102 Credits
2.1.1 Science and Mathematics (6 courses)	18 Credits
GTS111 GTS112 GTS121 GTS122	
GTS212 GTS213	
2.1.2 Fundamental of Engineering and Technology (6 courses)	17 Credits
GTS303 MES211 MTS234 MTS251	
MTS252 MTS254	
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 MTS312	
MTS411 MTS412	
2.1.5 Engineering Management (13 courses)	37 Credits
MTS231 MTS232 MTS233 MTS331	
MTS332 MTS333 MTS334 MTS351	
MTS394 MTS403 MTS431 MTS451	
MTS481	
2.2 Special Study	6 Credits
1) Senior Project Track (2 courses)	
MTS309 MTS404	
2) Foreign Exchange Track (3 courses)	
MTS309 MTS493 MTS494	
3) Extended Management Training Track (1 course)	
MTS304	
3. Free Elective Courses	6 Credits
Select any courses offered by the university, except basic courses.	
XXXxxx	
Total Credit Requirement	<u>150 Credits</u>

EM Curriculum : 150 Credits**Course Credits (lecture-practice-self study hours)****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)
	Sub-Total	21(19-5-39)

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)
	Sub-Total	20(20-0-40)

Second Year**Semester I**

GTS202	English Language Structures	3(3-0-6)
GTS212	Calculus for Technologists I	3(3-0-6)
GTS231	Law and Technology	3(3-0-6)
MES211	Thermofluids	3(3-0-6)
MTS211	Principles of Business	3(3-0-6)
TU110	Integrated Humanities	2(2-0-4)
TU140	Thai Studies	3(3-0-6)
	Sub-Total	20(20-0-40)

Semester II

GTS213	Calculus for Technologists II	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)
MTS234	Basic Electrical Engineering for Technologist	3(2-2-5)
MTS254	Introduction to Management Science	3(3-0-6)
TU120	Integrated Social Sciences	2(2-0-4)
	Sub-Total	19(18-3-36)

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)
	Sub-Total	21(21-0-42)

Course Credits (lecture-practice-self study hours)**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)
	Sub-Total	21(21-0-42)

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)
	Sub-Total	0(0-0-0)

2. Extended Management Training Track

XXXxxx	Free Elective	3(x-x-x)
	Sub-Total	3(x-x-x)

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)
	Sub-Total	19(x-x-x)

Semester II**1) Senior Project Track**

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

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)
	Sub-Total	9(x-x-x)

3) Extended Management Training Track

MTS304	Extended Engineering Management Training	6(0-40-0)
	Sub-Total	6(0-40-0)