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 interaction 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	3 Credits
1.1.2 Social Sciences	3 Credits
1.1.3 Languages	9 Credits
1.1.4 Science and Mathematics	6 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	**150 Credits**

Details of the Curriculum

1. General Basic Courses **36 Credits**

1.1 Part I 21 Credits

1.1.1 Humanities (1 course) 3 Credits
TU 110

1.1.2 Social Sciences (1 course) 3 Credits
TU 120

1.1.3 Languages (3 courses) 9 Credits
EL 171 EL 172 TU 140

1.1.4 Science and Mathematics (2 courses) 6 Credits
ITS 100 TU 130

1.2 Part II 15 Credits
EC 210 GTS 101 GTS 133
GTS 202 GTS 231

2. Core Courses **108 Credits**

2.1 Compulsory Courses 102 Credits

2.1.1 Science and Mathematics (6 courses) 18 Credits
GTS 111 GTS 112 GTS 121 GTS 122
GTS 212 GTS 213

2.1.2 Fundamental of Engineering and Technology (6 courses) 17 Credits
GTS 303 MES 211 MTS 251 MTS 252
MTS 253 MTS 254

2.1.3 Information Technology (4 courses) 12 Credits
ITS 101 ITS 422 MTS 381 MTS 382

2.1.4 General Management (6 courses) 18 Credits
MTS 211 MTS 212 MTS 311 MTS 312
MTS 411 MTS 412

2.1.5 Engineering Management (13 courses) 37 Credits
MTS 231 MTS 232 MTS 331 MTS 332
MTS 333 MTS 334 MTS 351 MTS 352
MTS 403 MTS 431 MTS 451 MTS 453
MTS 481

2.2 Special Study 6 Credits

1) ***Senior Project Track*** (2 courses)
MTS 309 MTS 404

2) ***Foreign Exchange Track*** (3 courses)
MTS 309 MTS 493 MTS 494

3) ***Extended Management Training Track*** (1 course)
MTS 304

3. Free Elective Courses **6 Credits**

Select any courses offered by the university, except basic courses.
XXX xxx

Total Credit Requirement **150 Credits**

EM Curriculum: 150 Credits

First Year

Semester I ***Credits (lecture-practice-self study hrs)***

EL	171	English Course II	3(3-1-5)
GTS	101	Skill Development for Technical Studies	3(3-1-5)
GTS	111	Mathematical Analysis for Management Science	3(3-1-5)
GTS	121	General Science I	3(3-1-5)
GTS	133	Environmental Studies	3(2-2-5)
ITS	100	Introduction to Computers and Programming	3(2-3-4)
MTS	252	Materials Science	3(3-0-6)
		Sub-Total	**21(19-9-35)**

Semester II

EC	210	Introductory Economics	3(3-1-5)
EL	172	English Course III	3(3-1-5)
GTS	112	Linear Algebra	3(3-1-5)
GTS	122	General Science II	3(3-1-5)
ITS	101	Programming and Algorithms	3(3-0-6)
TU	130	Integrated Sciences and Technology	3(3-0-6)
		Sub-Total	**18(18-4-32)**

Second Year

Semester I ***Credits (lecture-practice-self study hrs)***

GTS	212	Calculus for Technologists I	3(3-0-6)
GTS	303	Communications in Business	2(2-1-3)
MES	211	Thermofluids	3(3-1-5)
MTS	251	Resource Economics	3(3-0-6)
MTS	311	Fundamental Financial Accounting	3(3-1-5)
TU	110	Integrated Humanities	3(3-0-6)
TU	140	Thai Studies	3(3-0-6)
		Sub-Total	**20(20-3-37)**

Semester II

GTS	202	English Language Structures	3(3-1-5)
GTS	213	Calculus for Technologists II	3(3-1-5)
MTS	211	Principles of Business	3(3-1-5)
MTS	231	Statistical Methods for Managers	3(3-1-5)
MTS	254	Introduction to Management Science	3(3-1-5)
MTS	411	Management Accounting	3(3-1-5)
TU	120	Integrated Social Sciences	3(3-0-6)
		Sub-Total	**21(21-6-36)**

Third Year

Semester I ***Credits (lecture-practice-self study hrs)***

GTS	231	Law and Technology	3(3-1-5)
MTS	212	Principles of Management	3(3-1-5)
MTS	232	Production and Operation Management	3(3-0-6)
MTS	334	Applications of Business Statistics	3(3-1-5)
MTS	351	Management Systems Optimization	3(3-1-5)
MTS	381	Business Information Systems	3(3-0-6)
MTS	382	Database Systems and Applications	3(3-1-5)
		Sub-Total	**21(21-5-35)**

Semester II

MTS	253	Mechanics for Technologist	3(3-0-6)
MTS	312	Principles of Marketing	3(3-1-5)
MTS	331	Economic Decision Analysis	3(3-0-6)
MTS	332	Quality Management	3(3-0-6)
MTS	333	Production and Inventory Management	3(3-0-6)
MTS	352	Work Design and Analysis	3(3-1-5)
MTS	451	Project Management	3(3-0-6)
		Sub-Total	**21(21-2-40)**

Summer

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

1. Senior Project Track and Foreign Exchange Track

MTS	309	Engineering Management Training	0(0-0-0)
		Sub-Total	**0(0-0-0)**

2. Extended Management Training Track

XXX	xxx	Free Elective	3(x-x-x)
		Sub-Total	**3(x-x-x)**

Fourth Year

Semester I ***Credits (lecture-practice-self study hrs)***

ITS	422	Introduction to Decision Support Systems	3(3-0-6)
MTS	403	Project Proposal Development	1(0-3-0)
MTS	412	Business Finance	3(3-1-5)
MTS	431	Facility Location and Layout Planning	3(3-0-6)
MTS	453	Business Project Analysis	3(3-0-6)
MTS	481	Business Process Simulation	3(3-1-5)
XXX	xxx	Free Elective	3(x-x-x)
		Sub-Total	**19(x-x-x)**

Semester II

1) Senior Project Track

MTS	404	Senior Project	6(0-18-0)
XXX	xxx	Free Elective	3(x-x-x)
		Sub-Total	**9(x-x-x)**

2) Foreign Exchange Track

MTS	493	Special Study in EM I	3(3-0-6)
MTS	494	Special Study in EM II	3(3-0-6)
XXX	xxx	Free Elective	3(x-x-x)
		Sub-Total	**9(x-x-x)**

3) Extended Management Training Track

MTS	304	Extended Engineering Management Training	6(0-40-0)
		Sub-Total	**6(0-40-0)**