

Study Plan
Faculty of Engineering & Technology
MASTER in ENGINEERING PROJECT MANAGEMENT
(Thesis Track)

Plan Number		2013
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First: GENERAL RULES & CONDITIONS:

1. This plan conforms to the valid regulations of the programs of graduate studies.
2. Areas of specialty of admission in this program: Holders of a bachelor degree in any engineering discipline can be accepted in the program in one of the following branches, Construction Project Management, Nuclear Power Plants Project Management, and Water and Environment Project Management.

Second: SPECIAL CONDITIONS:

Additional undergraduate engineering courses maybe required and are determined based on the courses taken by the student in the bachelor degree and the branch selected for study. The additional courses will not be counted for credit towards the program.

Third: This Study plan consists of (34) credit hours as follows:

1. Obligatory Courses for all Branches (16) credit hours.

Course No.	Course Title	Credit Hours	Theory	Prac.	Prerequisite
1601715	Human Resource Management	3			
1601717	Project Management	3			
1602720	Managerial Accounting	3			
0946702	Applied Engineering Statistics	3			
0941703	Contracts and Contractual Law	3			
0931757	Research Methodology	1			

2. Elective Courses for:

a. Construction Project Management Branch (9) credit hours to be selected from the following elective courses:

Course No.	Course Title	Credit Hours	Theory	Prac.	Prerequisite
0936711	Project Management and Network Models.	3			-
0906727	Risk Management	3			0946702
0931702	Procurement and Financial Management	3			-
1601721	Management Information Systems	3			-
0956703	Industrial Quality Control	3			0946702
0941711	Special Topics in Construction Management*	3			-

*** To be studied once regardless of the topic.**

b. Nuclear Power Plants Project Management Branch (9) credit hours to be selected from the following elective courses:

Course No.	Course Title	Credit Hours	Theory	Prac.	Prerequisite
0943781	Safety management of NPP	3			-
0933782	Energy Economy & Power Management	3			-
0953783	Operation and maintenance of NPP	3			-
0943785	Systems of Nuclear Power Plants	3			-
0933780	Special Topics in NPP*	3			-
0906727	Risk Management	3			0946702
0956703	Industrial Quality Control	3			0946702

*** To be studied once regardless of the topic.**

c. Water and Environment Project Management Branch (9) credit hours to be selected from the following elective courses.

Course No.	Course Title	Credit Hours	Theory	Prac.	Prerequisite
0951766	Integrated Water Resources Management	3			-
0941767	Water Environment Economics	3			-
0941768	Water Governance	3			-
0901769	Water Conservation	3			-
0931777	Utility Management	3			-
0906727	Risk Management	3			0946702

*** To be studied once regardless of the topic.**

3. . Thesis (0901799) (9 Credit hours) and should be related to the area of emphasis.

Course Description
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1601715 Human Resource Management 3 Credit Hours

This course focuses on presenting and discussing the various principles and concepts of Human Resources Management. This course includes the discussion of the various functional activities of Human Resource Management such as planning, recruitment, selection, job analysis, performance appraisal, training and development, compensation, career planning and promotion, safety and health, and labor relations.

1601717 Project Management 3 Credit Hours

This course includes introduction and definition of project management and all related managerial functions such as planning, organizing, implementation, and control at each stage project's life cycle.

1602720 Managerial Accounting 3 Credit Hours

This course introduces the basic concepts of managerial accounting for internal decision-making. Major topics included are product costing, emphasizing costing approaches used in today's business environments, relevant costs for decision analysis, variance analysis, divisional performance evaluation, and transfer pricing

0946702 Applied Engineering Statistics 3 Credit Hours

Advanced topics on probability theory; theory of statistical inference; point estimation; sampling distribution; tests of hypothesis; linear and non-linear regression; analysis of variance; design of experiments; application to stochastic data and models in civil engineering.

0941703 Contracts and Contractual Laws 3 Credit Hours

Legal principles and landmark cases relevant to project engineering and management. Contracts, real property, environmental and labor laws, courts and arbitration, patents and copyrights, sureties, ethics, and adjudication.

0931757 Research Methodology 1 Credit Hour

This course aims at providing the students with the skills required to conduct scientific research which includes data collection, resource survey, analysis and discussion of information and formulation of conclusions. It also addresses styles of technical writing with applications to research papers and reports.

0936711 Project Management and Network Models 3 Credit Hours

An overview of activity planning and scheduling, critical path method (CPM), program evaluation and review techniques (PERT), planning with limited resources, resource leveling, application of a software. Practical project schedule application.

0906727 Risk Management Prerequisite: 0946702 3 Credit Hours

Understanding risks in today's organizations by analyzing risks using quantitative methods. Developing risk response strategies and managing projects using a Risk Management Plan (RMP). Risk identification, quantification assessment and evaluation. Loss prevention. Risk management principles and techniques. Risks control measures and industrial risks.

0931702 Procurement and Financial Management 3 Credit Hours

Principles of management; the interface of cost control with the financial management at the company level; work breakdown structure as a method of control; construction financing; types and preparation of bids; theories of bidding;; materials and equipment procurement; plan, conduct, administer, and close procurements. Productivity measurement and improvement. Estimation of cost at different stages of design; conceptual estimating;; cost control, cost indices; parametric estimates. Lean construction principles. Problems of profitability analysis, application of cost engineering and projects.

1601721 Management Information Systems 3 Credit Hours

This course focuses on the relationship between data and information and its handling through the use of the computer. The course includes: An Introduction to information systems and the variables affecting its development. Introducing the computer systems, data entry, strong, processing inflow and outflow. Systems analysis and evaluation.

0956703 Industrial Quality Control Prerequisite: 0941702 3 Credit Hours

Total Quality Management. Acceptance sampling and control charting by both attributes and variables. Statistically and economically-based treatments of sampling plans and control chart design, analysis & design of sampling under inspection and measurement errors. Experimental design and analysis of variance in quality control.

0941711 Special Topics in Construction Management 3 Credit Hours

Study and analysis of advanced topics in project management approved by the Civil Engineering Department.

0943781 Safety Management of Nuclear Power Plant 3 Credit Hours

Deterministic and probabilistic safety assessment; radiological risk assessment; mechanical structural analysis from a regulatory perspective; design philosophy for nuclear installations and power plants; development of a safe plant design basis; control and monitoring of radioactive discharges; severe accident analysis; emergency planning preparedness and intervention; radiation protection management in the operation of nuclear power plants; quality management in nuclear applications; safety culture; inspection, compliance and enforcement; international safety standards; regulatory organizations and their functions; assessment; nuclear safety principles and objectives; verification and assurance of nuclear safety; provision for in-service. Inspection in the design of a plant installation; radioactive waste management; and international approaches to regulation and licensing.

0933782 Energy Economy & Power Management 3 Credit Hours

Short and long term planning. Restructuring and Privatization: Models of electricity industry. Problems of contracts, markets and transmission pricing. De-regulation around the world. Costing techniques. Financial appraisal and profitability. Cost optimization. Energy auditing and monitoring. Saving of energy in: heating, ventilation, air conditioning, refrigeration, lighting. Electrical demand control and power factor correction. Load forecast. Generation side management. Characteristics of power generating units. Economic dispatch of generating units. Transmission losses. Unit commitment. Interchange evaluation and power pools.

