



**Mansoura University
Faculty of Engineering**

Production and Mechanical Design Engineering Department

**Postgraduate Program Specifications
Master: Industrial Engineering**



Production and Mechanical Design Engineering Department
Postgraduate Program Specifications
M.Sc.: Industrial Engineering

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1 Basic Information

Department Offering the Program: **Production and Mechanical Design Engineering**

Program Title: **Industrial Engineering**

Field of Program: **Industrial Engineering**

Program Type: **Master**

Date of Curriculum Approval: **1984**

Language: English

Program Systems: Courses (One Year) + Thesis

Program Courses' Duration: 40 Weeks

Number of Courses: at least four courses + Technical English Language

Total Hours: depend on number of courses assigned

Credit Hours: Partial System, at least 200 hrs (50 hrs/Course)

Coordinator: Prof. Dr. Hassan Ali Mohamed Soltan

Internal Evaluator:

External Evaluator:

2. Professional Information

2.1 Program Vision, Mission and Aims

2.1.1 Program Vision

The program restrains a wide range of contemporary synergistic industrial and management practices that maximize the capability, flexibility, and reliability to run manufacturing and service systems at the level that meet variable world incidences, and to develop new products and processes. Thus, the program becomes efficient and effective enough to accommodate different types of organizations facing large varieties of strategic, technical, and operational incidences.

2.1.2 Program Mission

The program provides the graduates with all tools to design, install, measure, analyze, improve, and control integrated systems of people, materials, information, knowledge, machines, equipment, and energy. That enables the production systems to introduce creative products and processes, and to improve their quality.

2.1.3 Program Aims

The program has several explicit and implicit aims. The main program aims, as correlated to its attributes (Table 1), are

1. Construct the most synergistic plans and methods to maximize the benefits of resources and processes of manufacturing and service systems.
2. Design and develop creative integrated systems for producing products and services.
3. Define, measure, analyze, improve, and control the quality and sustainability of products, and manufacturing and service systems.

2.2. Attributes

The graduate of the master program must be able to

1. Master the basics and methodologies of scientific research with versatile use of its variable tools.

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2. Apply the analytical approach and its use in the field of specialization.
3. Apply the specialized knowledge integrated with specialized engineering concepts related to the professional practice.
4. Show awareness of the ongoing problems and modern visions in the area of specialization.
5. Identify and solve engineering problems.
6. Master some professional skills and use of appropriate technological means to serve the professional practice.
7. Communicate and lead team works effectively.
8. Take good decisions in different professional aspects.
9. Employ available resources efficiently.
10. Adopt awareness of the detrimental impact of the engineer role on society and environment under the global and regional variables.
11. Display professional responsibilities and ethical, societal and cultural concerns.
12. Recognize the need to develop and engage in continuous learning.

Table 1. Aims/Attributes matrix.

At. Ai.	01	02	03	04	05	06	07	08	09	10	11	12
1												
2												
3												

Attributes 5, 8 and 9 are the most correlated and critical.

2.3. ILOS

2.3.1. (a) Knowledge and Understanding

With the completion of the master program, the graduate will have knowledge and understanding in

1. Theories, concepts and specialized knowledge of the learning area and also sciences appropriate to the professional practice.
2. Mutual influence between professional practice and its impacts on the environment.
3. Scientific developments in the field of specialization.
4. Moral and legal ethics of the professional practice in the area of specialization.
5. The concepts and principles of quality of the professional practice in the area of specialization.
6. The basics and ethics of scientific research.

2.3.2. (b) Intellectual Skills

With the completion of the master program, the graduate will be able to

1. Analyze and evaluate of information in the field of specialization and make full use of such information to solve problems.
2. Solve specific problems on the basis of limited and contradictory information.
3. Demonstrate a high level of competence in the coordination of different sources of knowledge to solve professional problems.
4. Carry out a research study and/or writing a scientific methodology study on research problem.
5. Assess and analyze risks of the professional practice in the field of specialization.

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6. Plan to improve performance in the field of specialization
7. Make career decisions in different professional aspects.

2.3.3. (c) Professional and Practical Skills

With the completion of the master program, the graduate will be able to

1. Apply modern and principle professional skills in the area of specialization.
2. Write and evaluate technical reports.
3. Adopt assessment methods and tools existing in the area of specialization.

2.3.4. (d) General and Transferable Skills

With the completion of the post graduate diploma program, the graduate will be able to

1. Communicate effectively in different aspects.
2. Demonstrate efficient IT capabilities in such a way that serves in the development of the professional practice.
3. Adopt self-assessment and specify his needs of personal learning.
4. Use different resources for information and knowledge.
5. Establish rules and indicators for assessing the performance of others.
6. Collaborate effectively within multidisciplinary team and lead teams in different professional contexts.
7. Demonstrate a high level of competence in the time management.
8. Continuous self-education.

2.4. Curriculum Contents

2.4.1. Program Contents

No.	Course	Code	Lecture
1	Theories of Plant Location	PRE4721	2hrs/week
2	Production Factories Planning	PRE4722	2hrs/week
3	Theories of Production Materials Flow	PRE4723	2hrs/week
4	Material Handling Equipments	PRE4724	2hrs/week
5	Production Planning and Control	PRE4725	2hrs/week
6	Production Quality Control	PRE4726	2hrs/week
7	Methods for Productivity	PRE4727	2hrs/week
8	Mathematical Modeling of Production Problems (1)	PRE4728	2hrs/week
9	Mathematical Modeling of Production Problems (2)	PRE4729	2hrs/week
10	Engineering Economy	PRE4730	2hrs/week
11	Industrial Relations	PRE4731	2hrs/week
12	Human Engineering	PRE4732	2hrs/week
13	Production Project Management	PRE4733	2hrs/week
14	Economic Feasibility Study	PRE4734	2hrs/week
15	Computer Applications	PRE4735	2hrs/week
16	Research Seminar	PRE4736	2hrs/week

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2.4.2. Teaching and Learning Methods

No.	Teaching Method
1	Lectures
2	Discussion meetings
3	Textbooks and periodical search

2.4.3. Student Assessment

No.	Assessment Method	Weight	Weeks	ILOs
1	Final Examination	100%	42	a, b, c, d
2	Thesis	Pass	-	-

2.4.4. Program Matrix

No.	Course	Code	Aims	ILOS			
				Knowledge & Understanding	Intellectual Skills	Professional & Practical Skills	General & Transferable Skills
1	Theories of Plant Location	PRE4721	1	01,02,05	01,03,05	01,02	02,04,06
2	Production Factories Planning	PRE4722	1,2	01,02,05	01,03,05	01,02	04,06
3	Theories of Production Material Flow	PRE4723	3	01,02,04	01,05,07	01,02	02,04,06
4	Material Handling Equipment	PRE4724	2	01,02,04	01,05,07	01,02	02,04,06
5	Production Planning and Control	PRE4725	1,3	01,02,04	01,05,07	01,02	02,04,06
6	Production Quality Control	PRE4726	3	01,02,04	01,05,07	01,02	02,04,06
7	Methods for Productivity Promotion	PRE4727	3	01,02,05	01,03,05	01,02	02,04,06
8	Mathematical Modeling of Production Problems (1)	PRE4728	3	01,02,05	01,03,05	01,02	02,04,06
9	Mathematical Modeling of Production Problems (2)	PRE4729	3	01,02,05	01,03,05	01,02	02,04,06
10	Engineering Economy	PRE4730	1	01,03,05	01,02,03	01,02	02,04,06
11	Industrial Relations	PRE4731	2	01,02,05	01,03,05	01,02	02,04,06
12	Engineering Humanities	PRE4732	3	01,02,05	01,03,05	01,02	02,06
13	Production Project Management	PRE4733	1,2,3	01,02,05	01,03,05	01,02	02,06
14	Economic Feasibility Study	PRE4734	3	01,02,05	01,03,05	01,02	02,06
15	Computer Applications	PRE4735	3	01,03,05	01,02,03	01,03	02,04
16	Research Seminar	PRE4736	2	01,04,06	04,06	01,02	02,04

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Appendixes

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