Faculty of Engineering-Mansoura University

Mechanical power Engineering

B. Sc. Program Specification

Contents

Mechanical power Engineering

B. Sc. Program Specification

1. Introduction

1.1 Basic Information

1- Program Title: ***B.Sc.* (*Mechanical Power*)**

2- Program Type: Single

3- Department (s): ***Mechanical Power***

4- Coordinator: ***Prof. Dr. Mohamed Ghassoub* Saafan**

5- External Evaluator(s):

6- Last Date of Program Specifications Approval**: 2005**

1.2 Staff Members:

The Power Mechanical Engineering Program is taught by highly qualified staff members. All of them are full time employed. **Appendix 1** shows the staff members' names, resume and the subjects taught by each of them.

1.3 Internal Evaluators:

The program was evaluated by three internal evaluators. Their evaluation showed that the program specification agrees with the National Academic Reference Standards (NARS), **Appendix 2**. Hence, their comments have been taken into account, and approved by the scientific department.

1.3 External Evaluators:

The program was evaluated by two external evaluators. Their evaluation showed that the program specification agrees with the NARS, **Appendix 3**. Hence, their comments have been taken into account, and approved by the scientific department.

2. Professional Information

2.1 Preamble

Mechanical Power Engineering gains importance progressively due to the increased level of prosperity and technology that consume extra power. This discipline is mainly concerned with thermo-fluid sciences that are the basis for energy conversion and power generation. In addition, Mechanical Power engineers are concerned with other important issues like the pollution control, energy management, heating, ventilation and air-conditioning, transport phenomena, combustion, fluid flow,…etc.

Mechanical Power engineering is the science and technology of energy and its conversion to mechanical power. This includes the major flow and combustion processes occurring in different systems. It deals with such special applications of energy transfer as

power generation, refrigeration and gas compression. The energy transfers are made during processes which use certain fluid contained in or flowing through a system.

The techniques for calculating and evaluating internal combustion engine performance, combustion and emissions processes and design features represent one of major subject of the mechanical power engineering.

A basic knowledge of the principles of energy; its use, its transfer, and its conversion from one form to another is also one of the important subjects in mechanical power engineering. It requires understanding of different subjects such as physics, chemistry, turbo-machinery, and mathematics.

With increase of world's population and as fuels become scarcer, it becomes more and more important for man to be able to control energy consumption; first, to obtain higher efficiencies; second, looking for alternative fuels; third, need to remove pollutants formed during processes of energy conversion; and forth, apply safety measures. Moreover, aeronautical and space developments of recent decades have brought special challenges; achieving high heat release, working with special materials and suppressing acoustic interaction.

It is a challenge now for mechanical power engineers to search for new sources for energy, to link between chemical, physical and thermo-fluid properties to energy transfer characteristics in different applications such as power stations, turbo-machinery, vehicles, boilers, gas and steam turbines. Moreover, it is very important to model energy transfer processes aiming at obtaining high efficiency and less pollutants.

2.2 Program Mission and Aims

2.2.1 Program Vision

2.2.2 Program Mission

2.2.3 Program Aims

The Power Mechanical Engineering program aims to provide future engineers with appropriate theoretical knowledge and technical skills to respond to professional market demand. The following are the aimed graduate attributes:

1. Apply knowledge of mathematics, engineering theories and concepts of chemistry, physics, fluid mechanics and thermodynamics and engineering principles to mechanical power systems.
2. Apply and integrate knowledge, understanding and skills of different subjects and available computer software to design a mechanical power system; component and process and to investigate their performance and solve their essential operational problems in industries and power stations
3. Design, operate and maintain internal combustion, steam engines, fluid transmission and power systems and apply industrial safety. .

4. Identify, formulate and use mathematical and computational skills in solving mechanical power engineering problems.
5. . Evaluate the sustainability and environmental issues related to mechanical power systems and consider their impacts on society and use energy efficiently.
6. Use the techniques, skills, and appropriate engineering tools, necessary for engineering practice and project management.
7. Lead or supervise a group of engineers, technicians and work force and work effectively within multi-disciplinary teams and communicate effectively.
8. Demonstrate knowledge of contemporary engineering issues and display professional and ethical responsibilities; and contextual understanding.
9. Engage in self- and life- long learning and adapt with technological evolutions.

2.3 Intended Learning Outcomes (ILO's)

2.3.1 Knowledge and Understanding

The graduates of the Power Mechanical Engineering program should be able to demonstrate the knowledge and understanding of:

1. Concepts and theories of mathematics and sciences, appropriate to the discipline.
2. Basics of information and communication technology (ICT)
3. Characteristics of engineering materials related to the discipline.
4. Principles of design including elements design, process and/or a system related to specific disciplines.
5. Methodologies of solving engineering problems, data collection and interpretation
6. Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.
7. Business and management principles relevant to engineering.
8. Current engineering technologies as related to disciplines.
9. Topics related to humanitarian interests and moral issues.
10. Technical language and report writing
11. Professional ethics and impacts of engineering solutions on society and environment
12. Contemporary engineering topics.
13. Fundamentals of thermal and fluid processes.
14. Internal combustion, pumps, turbines and compressors, classification, construction design concepts, operation and characteristics
15. Pumps, turbines and compressors, classification, construction design concepts, performance, operation and characteristics
16. Fluid power systems
17. The constraints which mechanical power and energy engineers have to judge to reach at an optimum solution.
18. Business and management techniques and practices appropriate to mechanical power engineering applications.
19. Mechanical power and energy engineering contemporary issues.
20. Basic theories and principles of some other engineering and mechanical engineering disciplines providing support to mechanical power and energy disciplines.

2.3.2 Intellectual Skills

The graduates of the Power Mechanical Engineering program should be able to:

1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
2) Select appropriate solutions for engineering problems based on analytical thinking.
3) Think in a creative and innovative way in problem solving and design.
4) Combine, exchange, and assess different ideas, views, and knowledge from a range of sources.
5) Assess and evaluate the characteristics and performance of components, systems and processes.
6) Investigate the failure of components, systems, and processes.
7) Solve engineering problems, often on the basis of limited and possibly contradicting information.
8) Select and appraise appropriate ICT tools to a variety of engineering problems.
9) Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
10) Incorporate economic, societal, environmental dimensions and risk management in design.
11) Analyze results of numerical models and assess their limitations.
12) Create systematic and methodic approaches when dealing with new and advancing technology.
13) Evaluate mechanical power and energy engineering designs, processes and performances and propose improvements.
14) Analyze and interpret data, and design experiments to obtain new data.
15) Evaluate the power losses in the fluid transmission lines and networks
16) Analyze the performance of the basic types of internal combustion engines
17) Judge the designs and performance of the basic categories of hydraulic machines
18) Assess the designs, processes and performance of the basic types of air conditioning systems and it assistant components
19) Evaluate the designs, processes and performance of the basic types of renewable energy systems
20) Analysis of fluid power systems, subsystems and various control valves and actuators

2.3.3 Practical and Professional Skills

On successful completion of the program, the graduates of the Power Mechanical Engineering program should be able to:

1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems.
2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services.
3) Create and/or re-design a process, component or system, and carry out specialized engineering designs.
4) Practice the neatness and aesthetics in design and approach.
5) Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.
6) Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
7) Apply numerical modeling methods to engineering problems.
8) Apply safe systems at work and observe the appropriate steps to manage risks.
9) Demonstrate basic organizational and project management skills.
10) Apply quality assurance procedures and follow codes and standards.
11) Exchange knowledge and skills with engineering community and industry.
12) Prepare and present technical reports.

13) Design and perform experiments, as well as analyze and interpret experimental results related to mechanical power systems.
14) Test and examine components, equipment and systems of mechanical power systems.
15) Design, operate, and test turbo-machines.
16) Specify and evaluate manufacturing of components and equipment related to mechanical power systems.
17) Apply modern techniques, skills and engineering tools to mechanical power and engineering systems.
18) Use basic workshop equipment safely and appropriately.
19) Prepare engineering drawings, computer graphics and specialized technical reports.
20) Write computer programs pertaining to mechanical power and energy engineering.
21) Describe the basic Thermal and fluid processes mathematically and use the computer software for their simulation and analysis
22) Design, operate, repair and maintain fluid hydraulic power systems for diverse applications
23) Carry out preliminary designs of fluid transmission networks and solve their operational problems.
24) Conduct primary designs, operate, repair and maintain internal combustion solve their operational problems.
25) Designs, operate, test, and maintain steam engines and solve their operational problems.
26) Develop preliminary designs, test and examine components of air conditioning systems and solve their operational problems.
27) Design of renewable energy systems and solve their operational problems.
28) Work in mechanical power and energy operations, maintenance and overhaul.

2.3.4 General and Transferrable Skills

The graduates of the Power Mechanical Engineering program should be able to:

1) Collaborate effectively within multidisciplinary team.
2) Work in stressful environment and within constrains.
3) Communicate effectively.
4) Demonstrate efficient IT capabilities.
5) Lead and motivate individuals.
6) Manage tasks and resources efficiently.
7) Search for information and adopt life-long self-learning.
8) Acquire entrepreneurial skills.
9) Refer to relevant literature effectively.

2.4 Curriculum Structure and Contents

2.4.1 Program Duration: The program duration is five years, 10 semesters. The following are the subjects taught during this program.

2.4.2 Curriculum Mapping

- **Preparatory Year-First Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
BAS1011	Mathematics (1)	4	3	0	7	3	45	0	130	175		5	2				
BAS1012	Physics*	4	1	1	6	3	40	10	100	150		3	2			1	
BAS1013	Mechanics*	3	2	0	5	2	35	0	90	125		3	2				
BAS+PRE1014	Engineering drawing and Projection*	2	3	0	5	2	40	0	60	100			3	2			
BAS1015	Chemistry	3	1	1	5	3	35	10	80	125		2	2			1	
BAS1016	Technical Language (English)	0	2	0	2	2	10	0	40	50	2						
Total		**16**	**12**	**2**	**30**	**15**	**205**	**20**	**500**	**725**	**2**	**13**	**11**	**2**	**0**	**2**	**0**

- **Preparatory Year-Second Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
BAS1021	Mathematics (2)	4	3	0	7	3	45	0	130	175		5	2				
BAS1022	Physics*	4	1	1	6	3	40	10	100	150		3	2			1	
BAS1023	Mechanics*	2	2	0	4	2	30	0	70	100		2	2				
BAS+PRE1024	Engineering drawing and Projection*	1	3	0	4	4	35	0	90	125			2	1			1
PRE1025	Production engineering	2	2	0	4	2	20	10	70	100			2	2			
CSE1026	Introduction to Computer	2	1	0	3	2	25	0	50	75				1	2		
BAS1027	Humanities (1)	2	0	0	2	2	0	0	50	50	2						
Total		**17**	**12**	**1**	**30**	**18**	**195**	**20**	**560**	**775**	**2**	**10**	**10**	**4**	**2**	**1**	**1**

- **First Year-First Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
BAS 4111	Mathematics 3	4	2	0	6	3	40	0	110	150		6					
BAS 4112	Applied mechanics	4	2	0	6	3	40	0	110	150		4	2				
STE 4113	Civil engineering	3	2	0	5	3	35	0	90	125			2	3			
MPE 4114	Thermodynamics 1	4	2	0	6	3	40	10	100	150			4	2			
MPE 4115	Mechanical power engineering drawing *	1	3	0	4	0	50	0	0	50		2			1	1	
MPE 4116	Humanities in MPE 2	3	0	0	3	2	15	0	60	75	3						
Total		19	11	0	30	14	220	10	470	700	3	12	8	5	1	1	0

- **First Year-Second Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
PRE 4121	Material strength & stresses analysis	4	2	0	6	3	40	10	100	150			4	2			
PRE 4122	Production and material engineering	4	2	0	6	3	40	10	100	150			4	2			
MPE 4123	Fluid mechanics 1	4	2	0	6	3	40	10	100	150			4	2			
MPE 4124	Mechanical power engineering drawing *	1	3	0	4	4	50	0	100	150			2			2	
MPE 4125	Computer applications in MPE 1	2	3	0	5	3	25	10	90	125					5		
MPE 4126	Technical reports in MPE	1	2	0	3	2	15	0	60	75	1					2	
Total		16	14	0	30	17	210	40	550	800	1	0	14	6	5	4	0

*Continuing Course: First Term result is added to the second term result.

- **Second Year-First Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
BAS 4211	Mathematics 4	4	2	0	6	3	40	0	110	150		6					
MPE 4212	Thermodynamics 2	4	2	0	6	3	40	10	100	150				2	2		2
MPE 4213	Measurements & Measuring devices	4	2	0	6	3	40	10	100	150		١	٢			٢	١
EE 4214	Electrical engineering	3	2	0	5	3	35	0	90	125		٢	١	2			
PRE 4215	Theory of machines 1	2	2	0	4	3	30	0	70	100		٢	٠	2			
MPE 4216	Humanities in MPE 3	3	0	0	3	2	15	0	60	75	3						
Total		20	10	0	30	17	200	20	530	750	3	١١	٣	6	2	٢	٣

- **Second Year-Second Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
BAS 4221	Numerical Methods & Statistics	4	2	0	6	3	40	0	110	150		6					
MPE 4222	Fluid Mechanics 2	4	2	0	6	3	40	10	100	150		٢	١	٢			١
MPE 4223	Heat Transfer	4	2	0	6	3	40	0	110	150		٢	٢	2			
COM 4224	Electronic Engineering	2	2	0	4	3	30	0	70	100		١	١	١			١
PRE 4225	Theory of machines 2	2	2	0	4	3	30	0	70	100				٢			٢
MPE 4226	Computer applications in MPE 2	2	2	0	4	2	30	10	60	100					4		
Total		18	12	0	30	17	210	20	520	750	0	١١	٤	٧	4	0	٤

- **Third Year-First Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
MPE 4311	Energy Conversion	4	2	0	6	3	40	0	110	150				٢			٤
MPE 4312	Heat & Mass Transfer	4	2	0	6	3	40	0	110	150				2	2	2	
MPE 4313	Theory of Combustion	4	1	0	5	3	35	0	90	125				١	2		٢
MPE 4314	Steam Technology	3	2	0	5	3	25	10	90	125				١			٤
MPE 4315	Elective Course 1	2	2	0	4	3	30	10	60	100				٢		2	
MPE 4316	Computer Applications in MPE 3	2	2	0	4	3	30	10	60	100					4		
Total		19	11	0	30	18	200	30	520	750	0	0	0	٨	8	4	١٠

- **Third Year-Second Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
MPE 4321	Gas dynamics	4	2	0	6	3	40	0	110	150		١	٢	3			
MPE 4322	Combustion engines	4	2	0	6	3	40	10	100	150		٢	٢	2			
EE 4323	Power & Electrical machines	4	2	0	6	3	40	0	110	150		٢	٢	2			
PRE 4324	Design of machines	3	2	0	5	3	35	0	90	125					2	3	
MPE 4325	Elective course 2	2	2	0	4	3	30	10	60	100			2	2			
MPE 4326	Humanities in MPE 4	3	0	0	3	2	15	0	60	75	3						
Total		20	10	0	30	17	200	20	530	750	3	٥	٨	9	2	3	0

- **Forth Year-First Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
MPE 4411	Hydraulic machines	4	2	0	6	3	40	10	100	150				3		3	
PRE 4412	Operation research	3	2	0	5	3	35	0	90	125	3		2				
MPE 4413	Refrigeration & Air conditioning	4	2	0	6	3	40	10	100	150				4			2
MPE 4414	Design of mechanical power engines	4	2	0	6	3	50	10	90	150	2			2		2	
MPE 4415	Elective course 3	3	2	0	5	3	25	10	90	125	3		2				
MPE 4416	Project *	2	0	0	2	0	40	10	0	50						2	
Total		20	10	0	30	15	230	50	470	750	8	0	4	9	0	7	2

- **Forth Year-Second Semester:**

Code	Course Name	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
		Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
MPE 4421	Turbo machines	4	2	0	6	3	40	10	100	150				2		4	
MPE 4422	Power plants	4	2	0	6	3	40	10	100	150				4			2
MPE 4423	Automatic control of energy systems	3	2	0	5	3	35	0	90	125			3				2
MPE 4424	Elective course 4	2	2	0	4	3	30	10	60	100				2	2		
MPE 4425	Humanities in MPE 5	3	0	0	3	2	15	0	60	75	3						
MPE 4426	Project *	2	4	0	6	0	40	10	100	150	2				2	2	
Total		18	12	0	30	14	200	40	510	750	5	0	3	8	4	6	4

- **Total teaching hours and subjects distribution over the subject areas:**

Semester	Teaching Hours				Wr. Exam Dur.	Marking				Subject Area						
	Lectures	Exercises	Practical	Total Hours		Year Work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
Preparatory year/ 1st semester	16	12	2	30	15	205	20	500	725	2	13	11	2	0	2	0
Preparatory year/ 2nd semester	17	12	1	30	18	195	20	560	775	2	10	10	4	2	1	1
First year/1st semester	19	11	0	30	14	220	10	470	700	3	12	8	5	1	1	0
First year/ 2nd semester	16	14	0	30	17	210	40	550	800	1	0	14	6	5	4	0
Second year/1st semester	20	10	0	30	17	200	20	530	750	3	١١	٣	6	2	٢	٣
Second year/ 2nd semester	18	12	0	30	17	210	20	520	750	0	١١	٤	٧	4	0	٤
Third year/1st semester	19	11	0	30	18	200	30	520	750	0	0	0	٨	8	4	١٠
Third year/ 2nd semester	20	10	0	30	17	200	20	530	750	3	٥	٨	9	2	3	0
Fourth year/1st semester	20	10	0	30	15	230	50	470	750	8	0	4	9	0	7	2
Fourth year/ 2nd semester	18	12	0	30	14	200	40	510	750	5	0	3	8	4	6	4
Total of Five Years	183	114	3	300	162	2070	270	5160	7500	27	٦٢	٦٥	٦٤	28	٣٠	٢٤
% of Five Years	61	38	1	100	56					9	20.67	٢١.67	21.33	9.33	10	٨
% NARS										9-12	20-26	20-23	20-22	9-11	8-10	6-8

The above table shows the agreement with NARS requirements.

2.4.3 Courses Specifications

The detailed program courses specifications are given. These courses specifications were revised and approved on 2010. The contribution of each course to the program ILO's were considered during this revision.

3. Program admission requirements

Student should have Egyptian Secondary education or equivalent certificate with major in Mathematics.

4. Regulations for progression and program completion

The student is considered successful if he passes the examinations in all courses of his class.

a- The student is promoted to the next higher level if he fails in not more than two courses of his class or from lower classes,

b- In addition to the two subjects mentioned in the pervious item, the student who fails in two courses in humanities and social sciences, whether from his class or from

lower classes, is admitted to the transfer to the consecutive higher level. Passing successfully in all courses before obtaining the B.Sc. degree is a prerequisite.

c- The referred student has to sit the examination in the courses in which he has failed together with the students studying the same courses. The student gets a pass grade when he passes the examination successfully. In case the student was considered absent with acceptable excuse in a course, he gets the actual grade,

d- The grades of the successful student in a course and in the general grade are evaluated as follows:

Distinction: from 85% of the total mark and upwards.
Very good: from 75% to less than 85% of the total mark.
Good: from 65% to less than 75% of the total mark
Pass: from 50% to less than 65% of the total mark

The grades of a failing student in a course are estimated in one of' the following grades:

Weak : from 30% to less than 50% of the total mark
Very weak: less than 30% of the total mark.

The B.Sc. general grade for students is based on the cumulative marks obtained during all the years of study. The students are then arranged serially according their cumulative sum.

The student is awarded an honor degree ii his cumulative sum is distinction or very good provided that he gets a grade not less than very good in any level of his study other than the preparatory year. Moreover, he should have not fail in any course except those of the preparatory year.

Method (tool)	Assessed ILO's
1- Written exam	A, B & C
2- Quizzes and reports	A, B & C
3- Oral exams	A, B & C
4- Practical	A & C
5- Project applied on a practical field problem	A, B, C & D

6. Evaluation of program intended learning outcomes

Evaluator	Tool
1- Senior students	questionnaire
2- Alumni	questionnaire
3- Stakeholders	questionnaire
4- Internal Evaluator(s) (External Examiner (s))	Report
5- External Evaluator(s)	Report
6- Other societal parties	None

Appendix 1

Staff Members

This appendix explains the agreement of staff members qualifications with the courses that they lecture or can lecture

Members of Academic Staff of MPE Department

No.	Name	Current job	Department	Courses
1.	**Prof. Mahmoud Mustafa Awad**	Emeritus professor	MPE	MPE4223 MPE4312 MPE4413
2.	**Prof. Magdy Mohamed Abu Rayan**	Emeritus professor	MPE	MPE4123 MPE4222 MPE4322 MPE4411
3.	**Prof. Hassan Mansour El-Saadani**	Emeritus professor	MPE	MPE4123 MPE4222 MPE4322 MPE5126
4.	**Prof. Salah Hassan El-Imam**	Emeritus professor	MPE	MPE4311 MPE4322 MPE4414 MPE4421 MPE4422
5.	**Prof. Lutfy Hassan Rabie**	Emeritus professor	MPE	MPE4123 MPE4222 MPE4322 MPE4411
6.	**Prof. Mohamed Mahmoud Mahgoub**	Emeritus professor	MPE	MPE4123 MPE4222 MPE4322 MPE4411
7.	**Prof. Helmy El-Sayed Gad**	Emeritus professor	MPE	MPE4114 MPE4212 MPE9114
8.	**Prof. Mohamed Nabil Sabry**	Emeritus professor	MPE	MPE4123 MPE4222 MPE4322 MPE4411
9	**Prof. Ahmed Abdel Razek Sultan**	Emeritus professor	MPE	MPE4223 MPE4312 MPE4413

				MPE8123
10	**Prof. Ahmed Mohamed Hamed**	Professor	MPE	MPE4126 MPE4413 MPE5116
11.	**Prof. Farouk Okasha**	Professor	MPE	MPE4311 MPE4322 MPE4414 MPE4421 MPE4422
12	**Prof. Berge Ouhanees Djebedjian**	Professor	MPE	MPE4123 MPE4222 MPE4322 MPE4411
13	**Prof Dr. Mohamed Ghassoub Saafan**	Head of Dept. , Professor	MPE	MPE4116 MPE4125
14	**Prof. Dr. Mustafa Mustafa Awad**	Emeritus professor	MPE	MPE4126 MPE4413 MPE5116
15	**Dr Abd elrheem Dohina**	Associate Prof	MPE	MPE 4311 MPE 4322 MPE 4421 MPE 4422
16	**Dr. Maher M. Bekheet**	Emeritus Associate Prof	MPE	MPE 4311 MPE 4322 MPE 4421 MPE 4422
17	**Dr. Emad Abdul Latif El-Negiry**	Associate Prof	MPE	MPE 4114 MPE 4115 MPE 4124
18.	**Dr. Abdul-Razek Ali Hassan**	Emeritus lecturer	MPE	MPE 4311 MPE 4322 MPE 4421 MPE 4422
19.	**Dr. Ali Mustafa Ibrahim Ali El-Bouz**	Emeritus lecturer	MPE	MPE 4223 MPE 4312 MPE 4413
20	**Dr. Mohamed Abd Al-Muttalib Tolba**	Emeritus lecturer	MPE	MPE 4114 MPE 4212
21.	**Dr. Hamdi Ahmed Abdul-Salam**	Emeritus lecturer	MPE	MPE 4311 MPE 4322 MPE 4421 MPE 4422
22	**Dr. Mohamed Ahmed Abdullah Al-Nagar**	Lecturer	MPE	MPE4123 MPE4222 MPE4322 MPE4411
23.	**Dr. Azmy Saad Awad Khalaf**	Lecturer	MPE	MPE4311 MPE4313 MPE4322
24	**Dr. Mohamed Hassan Mansour**	Lecturer	MPE	MPE4123 MPE4222 MPE4322

				MPE6222
25	**Dr. Hossam Saad Eddin Saleh AbdelMeguid**	Lecturer	MPE	MPE4422 MPE4423 MPE4226 MPE4326
26	Dr. Ahmed Abdul Salam Abdul-Aty Hegazy	Lecturer	MPE	MPE4223 MPE4312 MPE4413 MPE4414
27	**Dr. Mohamad Mahmoud Awad**	Lecturer	MPE	MPE4223 MPE4312 MPE4413 MPE4414
28	**Dr. Waleed Alawady**	Lecturer	MPE	MPE4212 MPE4223 MPE4312 MPE4314
29	**Dr. Ahmed Ramzy**	Lecturer	MPE	MPE4212 MPE4223 MPE4312 MPE4314

Assistants of Academic Staff of MPE Department

No.	Name	Current job	Department	Courses
1.	Eng. Waleed Shaaban Abdul-Salam	Assistant lecturer	MPE	MPE4322 MPE4421 MPE4422 MPE5116
2.	Eng. Ali Mohamed Hassan Radwan	Assistant lecturer	MPE	MPE4223 MPE4312 MPE4413
3.	Eng. Mohamed Mustafa Hassan Tawfiq	Assistant lecturer	MPE	MPE4123 MPE4222 MPE4322 MPE4411
4.	Eng. Mohamed Sameh Abdel-Ghani Salem	Demonstrator	MPE	MPE4311 MPE4322 MPE4421 MPE4422
5.	Eng. Mohamed Rabie Ibrahim Mahmoud	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE2214
6.	Eng. Asmaa Ali El-Awadi Ali Khater	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411

				MPE6222
7.	Eng. Mohamed Ragab Elmarghany Abo-khalil	Demonstrator	MPE	MPE4311 MPE4322 MPE4421 MPE4422
8.	Eng. Ahmed Shohdy Tolba	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE2214
9.	Eng. Mahmoud Abd El-ghany Shouman	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE6222
10.	Eng. Ramadan Gad abd-elkhalek	Demonstrator	MPE	MPE4213 MPE4311 MPE4316
11	Eng. Ahmed Saad Ahmed Mahmoud	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE2214
12	Eng. Ahmed Talaat Hamdy	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE6222
13	Eng. Elsayed Aly Barakat	Demonstrator	MPE	MPE4213 MPE4311 MPE4316
14	Eng. Mohamed Sameer Ahmed	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE2214
15	Eng. Shady Emad Refaat	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE6222
16	Eng. Mohamed Sameer Mohamed	Demonstrator	MPE	MPE4213 MPE4311 MPE4316
17	Eng. Osama Mohamed Yousef	Demonstrator	MPE	MPE4123 MPE4222 MPE4322 MPE4411 MPE2214

Appendix 2

Internal Reviewers

Appendix 3

External Reviewers