



BENHA UNIVERSITY



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.12

Course Specifications: Project (1)

University: Benha University

Faculty: Faculty of Engineering at Shoubra

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department

1- Course Data

Course Code: MDP414

Course Title: Project

Specialization: production Mechanical Engineering department

Course Type: Compulsory

Study Year: Fourth Year

Teaching Hours: Lecture: 0

Tutorial: 0

Practical: 4

Total: 4

2- Course Aim

For students undertaking this course, the aims are to:

1. Undertake a project (individual or team basis) as partial fulfillment of graduation.
2. Take a practical situation in a local industrial organization selected in consultation with the academic supervisor.
3. Find a comprehensive solution to a problem in Design and production engineering, to develop a new mathematical model for thermal systems and manufacturing processes, or to apply design and process modeling.
4. Take the form of industrial case studies or the development of applied mechanical engineering oriented computer software packages.
5. Submit the project in a proper format.
6. Require significant amount of self-motivation and independent literature research, as well as the ability to present the project in a professional manner, both orally and in the written form.

3- Intended Learning Outcomes of Course (ILO's)

- a. Knowledge and Understanding Skills:** On completing this course, students will be able to demonstrate the knowledge and understanding of:
- a.1) Concepts and theories of mathematics and sciences, appropriate to the mechanical engineering. (A.1)
 - a.2) Basics of information and communication technology (ICT). (A.2)
 - a.3) Characteristics of engineering materials related to mechanical engineering. (A.3)
 - a.4) Principles of design including elements design, process and/or a system related to specific mechanical engineering. (A.4)
 - a.5) Methodologies of solving engineering problems, data collection interpretation. (A.5)
 - a.6) Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues. (A.6)
 - a.7) Business and management principles relevant to engineering. (A.7)
 - a.8) Current engineering technologies as related to mechanical engineering. (A.8)
 - a.9) Topics related to humanitarian interests and moral issues. (A.9)
 - a.10) Technical language and report writing. (A.10)
 - a.11) Professional ethics and impacts of engineering solutions on society and environment. (A.11)
 - a.12) Contemporary engineering topics. (A.12)



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- a.13) Concepts, principles and theories relevant to Mechanical Engineering and manufacture; (A.13)
- a.14) The constraints within which his/her engineering judgment will have to be exercised; (A.14)
- a.15) The specifications, programming and range of application of CAD and CAD/CAM facilities (A.15)
- a.16) Relevant contemporary issues in mechanical engineering (A.16)
- a.17) Basic electrical, control and computer engineering subjects related to the mechanical engineering (A.17)
- a.18) The role of information technology in providing support for mechanical engineers (A.18)
- a.19) Engineering design principles and techniques (A.19)
- a.20) Management and business techniques and practices appropriate (A.20)

b. Intellectual Skills: At the end of this course, the students will be able to:

- b.1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems. (B.1)
- b.2) Select appropriate solutions for engineering problems based on analytical thinking. (B.2)
- b.3) Think in a creative and innovative way in problem solving and design. (B.3)
- b.4) Assess and evaluate the characteristics and performance of components, systems and processes. (B.5)
- b.5) Solve engineering problems, often on the basis of limited and possibly contradicting information. (B.7)
- b.6) Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact. (B.9)
- b.7) Analyze results of numerical models and appreciate their limitations. (B.11)
- b.8) Create systematic and methodic approaches when dealing with new and advancing technology. (B.12)
- b.9) Apply the principles of mathematics, science and technology in problem solving scenarios in mechanical engineering. (B.13)
- b.10) Use the principles of engineering science in developing solutions to practical mechanical engineering problems. (B.17)

c. Practical and Professional Skills: On completing this course, the students are expected to be able to:

- c.1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems. (C.1)
- c-2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services. (C.2)
- c-3) Use computational facilities and techniques, measuring instruments, workshops and laboratories equipment to design experiments, collect, analyze, and interpret results.(C.5)
- c-4) Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the mechanical engineering and develop required computer programs. (C.6)
- c-5) Apply safe systems at work and observe the appropriate steps to manage risks. (C.8)
- c-6) Demonstrate basic organizational and project management skills. (C.9)
- c-7) Apply quality assurance procedures and follow codes and standards. (C.10)
- c-8) Exchange knowledge and skills with engineering community and industry. (C.11)
- c-9) Use basic workshop equipment safely. (C.15)
- c-10) Prepare the process plans for manufacturing. (C.19)

d. General and Transferable Skills: At the end of this course, the students will be able to:

- d. 1) Collaborate effectively within multidisciplinary team. (D.1)
- d. 2) Work in stressful environment and within constraints. (D.2)



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- d. 3) Communicate effectively (D.3)
- d. 4) Demonstrate efficient IT capabilities. (D.4)
- d. 5) Lead and motivate individuals. (D.5)
- d. 6) Effectively manage tasks, time, and resources. (D.6)
- d. 7) Search for information and engage in life-long self-learning mechanical engineering. (D.7)
- d. 8) Acquire entrepreneurial skills. (D.8)
- d. 9) Refer to relevant literatures. (D.9)

4- Course Contents

| no. | Topics |
|-----------------|--|
| First semester | Fundamental of sensors |
| | Application of sensor |
| | Data acquisition system |
| | Advanced measurements |
| | Applied or practical of engineering problems in one of the production engineering issues |
| | Applied and introducing the problem |
| Second semester | Problem identification or test rig building |
| | Problem analysis |
| | Problem solving |
| | Problem design |
| | Simulation model |
| | Obtaining results |
| | Checking the validity of results |

5- Teaching and Learning Methods

- 5.1- Lectures
- 5.2- Seminar / workshop
- 5.3- Class activity
- 5.4- Case study
- 5.5- Assignments / homework
- 5.6- Other

6- Teaching and Learning Methods of Disables

- 7. Nothing.

7- Student Assessment

a- Student Assessment Methods

- 1. Oral discussion to assess knowledge and intellectual skills.
- 2. presentation to assess knowledge, intellectual and professional skills
- 3. Weekly and monthly report to assess knowledge, intellectual, professional and general skills.
- 4. Seminars to assess knowledge, intellectual, professional and general skills.

b- Assessment Schedule

| NO. | Assessment | Week |
|-----|-----------------|---------------|
| 1 | Progress report | 2,5,7,9,11,12 |
| 2 | Seminars | 3,13,14 |



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c- Weighting of Assessments

| Assessment | Weight (%) |
|------------------------|------------|
| Mid-Term Examination | 00 % |
| Final-Term Examination | 00 % |
| Practical Examination | 20% |
| Oral examination | 20 % |
| Final discussion | 60 % |
| Total | 100 |

8- List of References

a- **Course Notes:** Course Power point presentation prepared by instructor.

Course Coordinator:

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



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وحدة ضمان الجودة



FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Model No.11A
Course Specifications: Project

University: Benha University

Faculty: Faculty of Engineering at Shoubra

Department offering the program: Mechanical Engineering Department

Department offering the course: Mechanical Engineering Department.

Matrix of Knowledge and Skills of the Course

| no. | Topics | Week no. | Knowledge and Understanding Skills | Intellectual Skills | Practical and Professional Skills | General and Transferable Skills |
|----------------------------------|--|----------|------------------------------------|---------------------|-----------------------------------|---------------------------------|
| First semester | Fundamental of sensors | 1, 2 | a1,a6 | b2 | c2 | d1 |
| | Application of sensor | 3,4 | a1,a7 | b2 | c1, c2 | |
| | Data acquisition system | 5,6 | a4,a8 | b1 | c1 | d4 |
| | Advanced measurements | 7,9 | a2,a9 | b1, b4 | c4 | d1 |
| | Applied or practical of engineering problems in one of the production engineering issues | 10,11 | a2,a11 | b3, b8, b10 | c1, c6, c8 | d1, d2,d8 |
| | Applied and introducing the problem | 12,13,14 | a3,a12 | b3 | c1, c3 | d5 |
| Second semester | Problem identification or test rig building | 1, 2 | a3,a13 | b1, b4, b10 | c2, c3, c6 | d6, d7 |
| | Problem analysis | 3,4 | a1, a5 | b1, b7 | c2, c5, c7, c8 | d3, d7 |
| | Problem solving | 5,6 | a2,a14 | b4, b5, b9 | c1 | d8, d9 |
| | Problem design | 7,9 | a2,a16 | b2, b8 | c3 | d4 |
| | Simulation model | 10,11 | a3,a18 | b2, b5, b7 | c2, c4 | d2 |
| | Obtaining results | 12,13 | a20, a15 | b4, b6 | c3, c7, c9 | d2 |
| Checking the validity of results | 14 | a19 | b4, b6 | c2, c5, c8, c10 | d6, d7 | |

Course Coordinator:

Head of Department: Prof. Dr. Osama Ezzat Abdelatif



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FACULTY OF ENGINEERING AT SHOUBRA

COURSE SPECIFICATIONS (2014-2015)

Matrix of Course Aims and ILO's

Course Title: Project (1)

Course Code: MDP414

Teaching Hours: Lecture: 0 Tutorial/Practical:4 Total: 4

Major or minor element of program: Major

Program on which the course is given: B.Sc. Mechanical production Engineering

Department offering the program: Mechanical Engineering Department

Academic year / level: 2014-2015 Fourth Year / First & second Semesters

Date of specifications approval: 2014

| Course aims | Basic Knowledge | Intellectual Skills | professional Skills | General Skills |
|---|-----------------|---------------------|---------------------|----------------|
| 1- undertake a project (individual or team basis) as partial fulfillment of graduation | a1, a2 | b1, b3, b4 | c3, c4 | d3 |
| 2- Take a practical situation in a local industrial organization selected in consultation with the academic supervisor. | a10, a3,a6,a7 | b2, b5, b6 | c1, c2, c6, c9 | d1, d2, d5 |
| 3- Find a comprehensive solution to a problem in Design and production engineering, to develop a new mathematical model for thermal systems and manufacturing processes, or to apply design and process modeling. | a11,a5,a4 | b2, b3 | c1, c4, c7 | d2 |
| 4- Take the form of industrial case studies or the development of applied mechanical engineering oriented computer software packages. | a8,a11,a12,a13 | b1, b10 | c3 | d1, d4 |
| 5- Submit the project in a proper format. | a14, a16 | b6 | c10 | d4 |
| 6- Require significant amount of self-motivation and independent literature research, as well as the ability to present the project in a professional manner, both orally and in the written form | a18,a19 | b1,b2 | | d3 |

Course Coordinator:

Head of Department: Prof. Dr. Osama Ezzat Abdelatif