A. Basic Information

Course Title: Project (1)  
Code: MPE414  
Lecture: -  
Tutorial: 4  
Practical: -  
Total: 4  
Program on which the course is given: B.Sc. Mechanical Engineering (Power)  
Major or minor element of program: Major  
Department offering the program: Mechanical Engineering Department  
Department offering the course: Mechanical Engineering Department  
Academic year / level: Fourth Year / first Semester  
Date of specifications approval: 10/5/2006

B. Professional Information

1. Overall aims of course
   This Project aims to provide students with the concepts and application of different mechanical engineering deplane in mechanical power engineering and how to implement these knowledge in the best practice and applied mechanical power engineering problems.

2. Intended Learning outcomes of Course (ILOs)

a. Knowledge and Understanding:
   a.5) Methodologies of solving engineering problems, data collection interpretation.
   a.6) Applied engineering power systems, codes of practice and standards, safety requirements and environmental issues.
   a.7) Practical and Applied principles relevant to power mechanical engineering thermodynamics; fluid mechanics; heat engine, Air condoning; Refrigeration; power stations; hydraulic machines, hydraulic power station, water purification, new and renewable energy e.g. solar; wind .. etc.
b. **Intellectual Skills**
   b.1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
   b.2) Select appropriate solutions for engineering problems based on analytical thinking.
   b.3) Think in a creative and innovative way in problem solving and design.
   b.5) Assess and evaluate the characteristics and performance of components, systems and processes.
   b.7) Solve engineering problems, often on the basis of limited and possibly contradicting information.
   b.9) Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
   b.10) Incorporate economic, social, environmental dimensions and risk management in design.
   b.11) Analyze results of numerical models and appreciate their limitations.
   b.12) Create systematic and methodic approaches when dealing with new and advancing technology.
   b.13) Apply the principles of mathematics, science and technology in problem solving scenarios in mechanical engineering;
   b.17) Use the principles of engineering science in developing solutions to practical mechanical engineering problems.

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

d. **General and Transferable Skills**
d.1) Collaborate effectively within multidisciplinary team.
d.2) Work in stressful environment and within constraints.
d.3) Communicate effectively

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

3. Contents

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4. Teaching and Learning Methods
   Lectures
   ✓ Practical training / laboratory
   ✓ Seminar / workshop
   ✓ Class activity
   ✓ Case study
   Assignments / homework
   ✓ Other: Reports

5. Student Assessment Methods
   Assignments to assess ________________________________.
   Quiz to assess ________________________________.
   Mid-term exam to assess ________________________________.
   ✓ Oral exam to assess what the student understood and how he can explain what he understood.
   ✓ Final exam to assess The final skills and knowledge student level in this project.
   ✓ Other: Reports to assess gained knowledge and practical experience.

6. Assessment schedule
   Assessment 1 Assignments on weeks -
   Assessment 2 Quizzes on weeks -
   Assessment 3 Mid-term exam on week -
   Assessment 4 Oral Exam on week 14
   Assessment 5 Final exam on week 15

7. Weighting of Assessments
   Mid- Term Examination 00 %
   Final- Term Examination 60 %
   Oral Examination 20 %
   Practical Examination 00 %
Semester Work  20 %
Other  00%
Total  100%

8. List of References

8.1 Course Notes

8.2 Essential Books (Text Books)

8.3 Recommended Books

8.4 Periodicals Web sites, etc

9. Facilities Required for Teaching and learning
Overhead projector, whiteboard, laboratory, lecture room

Course coordinator: Prof. Dr. Maher G. Higazy
Course instructor: Prof. Dr. Maher G. Higazy
Head of department: Prof. Dr Maher G. Higazy

Date: 5 / 12 / 2011