



Course Specifications of: Faults in Pumping and Pipe Networks Systems MEP 521

Program(s) on which the course is given: Diploma in Mechanical Power Engineering
(Pumping and Pipe Networks Engineering)

Compulsory or Elective element of program: Compulsory

Department offering the program: Mechanical Engineering / Power

Academic year / Level: year/ 2014/2015

Date of specification approval: 2012

A. Basic Information

Title: *Faults in Pumping and Pipe Networks Systems*

Credit Hours: 3

Tutorial:

Practical:

Code: MEP 521

Lecture: 3

Total: 3

B- Professional Information

1- Overall aims of course:

This course introduces students to:

- 1) Analyze problems in pump station and network.
- 2) Support energy saving in pump station and network
- 3) Describe and solve troubleshoot in pump station and network.

2- Intended learning outcomes of course (ILOs)

By completion of the course, the student should be able to:

2.1 Knowledge and understanding

- a1. Recognize theories and specialized knowledge in faults in pumping and pipe networks systems and categorize sciences related to faults in pumping and pipe networks systems. (2.1.1)
- a2. Review principles of professional practice in faults in pumping and pipe networks systems. (2.1.2)
- a3. Solve problems in pumping engineering and piping networks field. (2.1.3)

2.2 Intellectual skills

- b1. Assess the risks and hazards in professional practices. (2.2.4)
- b2. Make professional decisions in the light of available information. (2.2.5.)

2.3 Professional and practical skills

- c1. Prepare professional reports. (2.3.2)



2.4 General and transferable skills

- d1. Communicate effectively using different means. (2.4.1)
- d2. Use information technology in order to serve the development of professional practice. (2.4.2)
- d3. Use different sources for obtaining information and knowledge. (2.4.4)
- d4. Work in a group and manage time effectively. (2.4.5)
- d5. Lead a team in familiar professional contexts. (2.4.6)

3- Contents

Topic No.	Topic	No. of weeks	Total no. of hours
1	Operation of pump station - types of pipe connections and ways of conservation	2	6
2	Operation of selected network - Aging in pipes networks	2	6
2	Energy saving in pump station and in network	2	6
3	protection of pumps against dry lines	3	9
4	Pumps troubleshoot- Faults in pumping systems	2	6
5	Network troubleshoot- Faults in network systems	3	9
6	Exam	1	3
	Total	15	45

4- Course Matrix

ILO's code number	Teaching/learning methods and strategies	Assessment methods and strategies
2.1.1 2.1.2 2.1.3	Formal lectures, seminars, tutorials, directed reading, project work and independent study.	Individual coursework assignments, quizzes, oral discussions and reports. Mid-year and /or final written examination is given.
2.2.4 2.2.5	Analysis and problem- solving skills are developed through tutorial/problem sheets and small group exercises.	Analysis and problem- solving skills are assessed through oral and written examinations. Design and research skills are assessed through project write-ups, coursework and project reports.
2.3.2	Experiments demonstrations, practical work, laboratory visits.	Practical skills are assessed through laboratory experimental write-ups, coursework exercises and reports, project reports and presentations.
2.4.1 2.4.2 2.4.4	Presentation by students (either group or individual) will train students for those skills.	Project presentation



2.4.5		
2.4.6		

5- Assessment schedule

Assessment 1	Assignments	on weeks	1, 3, 6
Assessment 2	Quizzes	on weeks	2, 4, 9, 13
Assessment 3	Mid-term exam	on weeks	8
Assessment 3	Oral exam	on week	14
Assessment 4	Final exam	on week	15

6- Weighting of assessments

- 20% (60 marks) Home assignments, Quizzes, and reports
- 20% (60 marks) Mid-term examination and Oral examination
- 60% (180 marks) Final-term examination
- 100% (300 marks) Total

7- List of References

7.1 Text books

- Pump Handbook , Igor J. Karassik, William G. Krutzsch, Warren H. Fraser, McGraw-Hill; 3 edition, 1993
- Piping systems and Pipeline, J. Phillip Ellenberger, McGraw-Hillbook company copyright, 2005
- Hydraulics of Pipeline Systems by B.E. Larock, R.W.Jeppson and G.Z. Watters CRC , ISBN 0-8493-1806-8, TC174.L37

7.2 Periodicals & Websites.

- Yahoo mail group
- www.sciencedirect.com
- www.4shared.com

8- Facilities required for teaching and learning

- Lecture room equipped with overhead projector
- Presentation board, computer and data show
- Laboratory

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Matrix of course content and ILO's

Course Title: Faults in Pumping and Pipe Networks Systems

Code: MEP 521

Lecture: 3..

Tutorial: ----

Practical: ----

Total: 3

Program on which the course is given: Diploma in Mechanical Power Engineering.

Major or minor element of program: Compulsory

Department offering the program Mechanical Engineering / Power

Department offering the course: Mechanical Engineering / Power

Academic year / level: 2014/2015. Date of specifications approval: 2012

Course content	ILO's A	ILO's B	ILO's C	ILO's D
Operation of pump station - types of pipe connections and ways of conservation	a1	b1	c1	d3
Operation of selected network - Aging in pipes networks	a3	b1,b2		d4
Energy saving in pump station and in network	a2		c1	
protection of pumps against dry lines	a3	b1		d5
Pumps troubleshoot- Faults in pumping systems	a1			d1
Network troubleshoot- Faults in network systems	a3			d2



Matrix of course aims and ILO's

Course Title: Faults in Pumping and Pipe Networks Systems **Code:** MEP 521

Lecture: 3. **Tutorial:** ---- **Practical:** ---- **Total:** 3.....

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Academic year / level: 2014/2015. **Date of specifications approval:** 2012

Course aims	ILO's A	ILO's B	ILO's C	ILO's D
1) Analyze problems in pump station and network.	a1	b1		d2
2) Support energy saving in pump station and network	a2	b2	c1	
3) Describe and solve troubleshoot in pump station and network.	a3	b1		d5