



Course Specifications of: Ventilation and Air Handling MEP 507

Program(s) on which the course is given: Diploma in Power Engineering
(Refrigeration and Air Conditioning Technology)

Compulsory or Elective element of program: Elective

Department offering the program: Mechanical Engineering/ Power

Academic year / Level: year/ 2014/2015

Date of specification approval: 2012

A. Basic Information

Title: Ventilation and Air Handling

Code: MEP 507

Credit Hours:3

Lecture: 3

Tutorial:

Practical:

Total: 3

B- Professional Information

1- Overall aims of course:

This course introduces students to:

- 1 – List and discuss the different thermal loads of air conditioning.
- 2 – Classify the different air handling units.
- 3 – Recognize the design of air ducts.

2- Intended learning outcomes of course (ILOs)

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

a- Knowledge and understanding

- a.1 Identify theories and fundamentals in the area of ventilation and air handling study and categorize sciences related to the professional practice. (2.1.1)
- a.2 List legal principles of professional practice in the area of ventilation and air handling.(2.1.2)
- a.3 discuss the effect of air conditioning systems and equipment on the environment and work towards its conservation and maintenance.(2.1.4)

b- Intellectual skills

- b.1 Solve the design, installation and operation problems in ventilation and air handling. (2.2.1)
- b.2 Make professional decisions in the light of available information. (2.2.2)
- b.3 Critically read research papers and topics related to ventilation and air handling. (2.2.3)

c- Professional and practical skills

- c.1 Apply professional skills in the area of ventilation and air handling.(2.3.1)
- c.2 Implement experiment design and evaluate testing to perform balance for both air and water routes in air conditioning systems. (2.3.3)

**d- General and transferable skills**

- d.1 Communicate effectively using different means.(2.4.1)
 d.2 Use information technology in order to serve the development of professional practice. (2.4.2)
 d.3 Work in a group and manage time effectively. (2.4.5)
 d.4 Conduct self learning and continuous education practices. (2.4.7)

3- Contents

Topic No.	Topic	No. of weeks	Total no. of hours
1	Ventilation fans types	1	3
2	Air handling units	3	9
3	Air filters	2	6
4	Heating and cooling coils	2	6
5	Humidification units and dehumidifiers	2	6
6	Air duct design	4	12
7	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 2.1.4	Formal lectures	Individual coursework assignments, quizzes, oral discussions and reports. Mid year and /or final written examination is given.
2.2.1 2.2.2 2.2.3	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.
2.3.1 2.3.5	Virtual Experiments demonstrations, laboratory visits.	Practical skills are assessed through laboratory experimental write-ups, coursework exercises and reports, project reports and presentations.
2.4.2 2.4.2 2.4.5 2.4.7	Those skills are not explicitly taught; however, along the course of study the student will acquire those skills to be able to perform his obligations. Attendance of	Project presentation



	seminars, workshops or conferences will help the student in developing those skills. Presentation by students (either group or individual) will train students for those skills.	
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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 Essential books (Text books)**

Handbook of HEATING, VENTILATION, and AIR CONDITIONING Ed. Jan F. Kreider
Boca Raton, CRC Press LLC. 2001

7.2 Recommended books; Periodicals & Websites.

ASHRAE 2000 HVAC Systems and Equipment Handbook
ASHRAE 2005 Fundamentals Handbook

8- Facilities required for teaching and learning

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

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Matrix of course content and ILO's

Course Title: Ventilation and Air Handling

Code: MEP 507

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

Total: 3

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

Major or minor element of program: Elective

Department offering the program: Mechanical Engineering / Power

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

Course content	ILO's A	ILO's B	ILO's C	ILO's D
Ventilation fans types	a1	b1,b3		
Air handling units	a3	b2	c2	
Air filters	a4	b2	c1	d3
Heating and cooling coils	a1	b3	c2	
Humidification units and dehumidifiers	a1	b3	c2	d1,d3
Air duct design	a2			d2,d3,d4



Matrix of course aims and ILO's

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Course aims	ILO's A	ILO's B	ILO's C	ILO's D
1-List the different thermal loads of air conditioning.	a1,a2,a3		c2	
2-Describe the different air handling units.	a2,a4			d2
3-Understand the design of air ducts.		b3	c1	d1,d3,d4