

Course Specifications (2011 - 2012)

A. Basic Information

Course Title	Railway Engineering			Course Code:	CVS 423		
Lecture:	2	Tutorial:	1	Practical	1	Total	4
Programme (s) on which this course is given:	B.Sc. Civil Engineering (Structures)						
Major or minor element of program:	Major						
Department offering the program:	Civil Engineering						
Department offering the course:	Civil Engineering						
Academic Year of program:	Fourth	Level of program:	Second Semester				
Date of specifications approval:	16/3/2010						

B. Professional Information

1. Overall aims of course

By the end of the course the students will be able to:

have fundamentals of railway:

- planning and engineering
- economics and safety.
- maintenance and operation

2. Intended Learning outcomes of Course (ILOs)

a. Knowledge and Understanding:

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| a.1) Recognize concepts and theories of mathematics and sciences, appropriate to the discipline. |
| a.5) Recognize methodologies of solving engineering problems, data collection interpretation. |
| a.6) define quality assurance systems, codes of practice and standards, health and safety requirements and environmental |
| a.4) Understand principles of design including elements design, process and/or a system related to specific disciplines. |
| a.8) State current engineering technologies as related to disciplines. |
| a.11) Apply professional ethics and impacts of engineering solutions on society and environment. |
| a.3) Understand characteristics of engineering materials related to discipline. |
| a.12) Recognize contemporary engineering topics. |
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b. Intellectual Skills

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| b.2) Select appropriate solutions for engineering problems based on analytical thinking. |
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- b.3) Think in a creative and innovative way in problem solving and design.
- b.7) Solve engineering problems, often on the basis of limited and possibly contradicting information.

c. Professional and Practical Skills

- c.1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to
- c.2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, product and/or services.
- c.3) Create and/or re-design a process, component or system, and carry out specialized engineering designs.
- c.8) Apply safe systems at work and observe the appropriate steps to manage risks.
- c.11) Exchange knowledge and skills with engineering community and industry.

d. General and Transferable Skills

- d.1) Collaborate effectively within multidisciplinary team.
- d.3) Communicate effectively.
- d.9) Refer to relevant literatures.

3. Contents

Week #	Topics	No. of Hours	ILOS	Teaching / learning methods and	Assessment method
1	Steam locomotive	6	a1,a5,a5,a6,a6, a11,a12,b2,b2	Lectures	Assignments
			c8,c10	Practical training / Laboratory	Oral exam
			c1,c2,c3	Class activity	Mid-term exam
			d1,d3,d9	Tutorial	Final exam

2	Diesel locomotive	6	a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments
			c8,c10	Practical training / Laboratory	Oral exam
			c1,c2,c3	Class activity	Mid-term exam
			d1,d3,d9	Tutorial	Final exam
3	Electric-Diesel locomotive	6	a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments
			c8,c10	Practical training / Laboratory	Oral exam
			c1,c2,c3	Class activity	Mid-term exam
			d1,d3,d9	Tutorial	Final exam
4	Tractive effort of locomotive	6	a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments
			c8,c10	Class activity	Mid-term exam
			c1,c2,c3	Tutorial	Final exam
			d1,d3,d9		
5	Train and track resistance	6	a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments
			c8,c10	Class activity	Mid-term exam
			c1,c2,c3	Tutorial	Final exam
			d1,d3,d9		
6	Draw Bar Pull (D.B.P),Maximum Weight of trains and maximum speed	6	a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments
			c8,c10	Class activity	Mid-term exam
			c1,c2,c3	Tutorial	Final exam
			d1,d3,d9		
7	Types of Track Lines and their Degree.	6	a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments
			c8,c10	Practical training / Laboratory	Oral exam
			c1,c2,c3	Class activity	Mid-term exam
			d1,d3,d9	Tutorial	Final exam
8	Midterm Exam	4	b2,b4,b7		
9	Problems of embankments	6	a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments
			c8,c10	Practical training / Laboratory	Oral exam
			c1,c2,c3	Class activity	Final exam
			d1,d3,d9	Tutorial	Final exam
			a1,a3,a5,a6,a8, a11,a12,b2,b3	Lectures	Assignments

10	Ballast and its Specification.	6	c8,c10	Practical training / laboratory	Oral exam
			c1,c2,c3	Class activity	Final exam
			d1,d3,d9	Tutorial	Final exam
11	Types of Ties and rail fastening	6	a1,a3,a5,a6,a8,a11,a12,b2,b3,c8,c10	Lectures	Assignments
			c8,c10	Practical training / laboratory	Oral exam
			c1,c2,c3	Class activity	Final exam
12	Turn outs and crossings	6	d1,d3,d9	Tutorial	Final exam
			a1,a3,a5,a6,a8,a11,a12,b2,b3,c8,c10	Lectures	Assignments
			c8,c10	Practical training / laboratory	Oral exam
13	Stations, and Yards	6	c1,c2,c3	Class activity	Final exam
			d1,d3,d9	Tutorial	Final exam
			a1,a3,a5,a6,a8,a11,a12,b2,b3,c8,c10	Lectures	Assignments
14	Signals	6	c8,c10	Practical training / laboratory	Oral exam
			c1,c2,c3	Class activity	Final exam
			d1,d3,d9	Tutorial	Final exam
15	Final Exam	4	b2,b4,b7		
Total		86			

4- Teaching and Learning Methods:

Check using the symbol

<input checked="" type="checkbox"/>	Lectures
<input checked="" type="checkbox"/>	Practical training / laboratory
<input type="checkbox"/>	Seminar / workshop
<input checked="" type="checkbox"/>	Class activity
<input type="checkbox"/>	Case study
<input type="checkbox"/>	Project work
<input checked="" type="checkbox"/>	Tutorial

	Computer based work
	Other :

5- Student Assessment Methods:

Check using the symbol

<input checked="" type="checkbox"/>	Assignments	to assess	a3,a5,a6,a8,a11	b2,b3,b4,b5,b7		d1,d3,d9
	Quiz	to assess				
<input checked="" type="checkbox"/>	Mid-term exam	to assess	a3,a5,a6,a8,a11	b2,b3,b4,b5,b7		d1,d3,d9
<input checked="" type="checkbox"/>	Oral exam	to assess			c8,c10	
<input checked="" type="checkbox"/>	Final exam	to assess	a3,a5,a6,a8,a11	b2,b3,b4,b5,b7	c1,c2,c3	d1,d3,d9
	Design Project	to assess				
	Report	to assess				
	Experimental write up	to assess				
	Informally assessment	to assess				
	Other	to assess				

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
- Assessment 5 Final exam on week
- Assessment 6 Design Project on weeks
- Assessment 7 Report on weeks
- Assessment 8 Experimental write up on weeks
- Assessment 9 Informally assessment

2 to 14
8
13 & 14
15

7. Weighting of Assessments

Assignments	10%
Quiz	
Mid-term exam	20%
Oral exam	10%
Final exam	60%
Design Project	
Report	
Experimental write up	
Informally assessment	
Other	

Total

100%

8. List of References

8.1 Course Notes

Lecture notes and handouts prepared by instructor

8.2 Essential Books (Text Books)

Railway Engineering,

8.3 Recommended Books

Railroad Engineering, William W. Hay
Railway Engineering, V A Profillidis

8.4 Periodicals Web sites, etc

UIC web site, www.uic.org
AREA, www.area.org

9. Facilities Required for Teaching and learning

Lecture room equipped with overhead projector
Presentation board, computer and data show
Visit ENR and ECM sites

Course Coordinator:

Prof Dr Mohamed A. Talha

Course instructor:

Prof Dr Mohamed A. Talha

Head of department:

Prof. Ahmed AbdulFattah Mahmoud Ahmed

Signature:

Date:

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