



University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: Electrical & Control Engineering

Form no. (12)
Course Specification

1- Course Data

Course Code: EE 341	Course Title: Introduction to Power Engineering	Academic Year/Level: 3
Specialization: Electrical & Control Engineering	No. of Instructional Units: 3	Lecture 2 Tutorial 2 Practical 2

2- Course Aim	Providing general view about power system elements, overhead transmission lines parameters and constants. In addition, mechanical design of over head transmission lines is studied in order to link the electrical with the mechanical point of view.
----------------------	--

3- Intended Learning Outcome	
a- Knowledge and Understanding	A.1 Concepts and theories of mathematics and sciences, appropriate to the discipline A.4 Principles of design including elements design, process and/or a system related to specific disciplines A.21 Basic power system design concepts for underground, cable tray, grounding, and lighting systems A.26 Design and analysis of power system generation, transmission and distribution

b- Intellectual Skills	<p>B.2 Select appropriate solutions for engineering problems based on analytical thinking</p> <p>B.3 Think in a creative and innovative way in problem solving and design</p> <p>B.11 Analyze results of numerical models and assess their limitations</p>																																
c- Professional Skills	<p>C.5 Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results</p> <p>C.6 Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs</p> <p>C.18 Test and examine components, equipment and systems of electrical power and machines and control engineering</p>																																
d- General Skills	<p>D.3 Communicate effectively</p> <p>D.4 Demonstrate efficient IT capabilities</p>																																
4- Course Content According to Course Matrix (Form 11a), Course File Summary (ISO MPC 3/2-1) and session Plan (ISO MPC 3/3-1)	<table border="0"> <tr> <td><i>Week Number 1:</i></td> <td>Elements of power system</td> </tr> <tr> <td><i>Week Number 2:</i></td> <td>Operating voltage choice</td> </tr> <tr> <td><i>Week Number 3:</i></td> <td>Parameters of overhead trans. Lines (R & L)</td> </tr> <tr> <td><i>Week Number 4:</i></td> <td>Parameters of overhead trans. lines (C)</td> </tr> <tr> <td><i>Week Number 5:</i></td> <td>Representation of O.H.T.L. (1)</td> </tr> <tr> <td><i>Week Number 6:</i></td> <td>Representation of O.H.T.L. (2)</td> </tr> <tr> <td><i>Week Number 7:</i></td> <td>Representation of O.H.T.L. (3)</td> </tr> <tr> <td><i>Week Number 8:</i></td> <td>Voltage regulation</td> </tr> <tr> <td><i>Week Number 9:</i></td> <td>Corona phenomenon and its calculations</td> </tr> <tr> <td><i>Week Number 10:</i></td> <td>Mechanical Design of O.H.T.L. Sag (1)</td> </tr> <tr> <td><i>Week Number 11:</i></td> <td>Mechanical Design of OHTL Sag (2)</td> </tr> <tr> <td><i>Week Number 12:</i></td> <td>String insulators</td> </tr> <tr> <td><i>Week Number 13:</i></td> <td>Types of poles & towers</td> </tr> <tr> <td><i>Week Number 14:</i></td> <td>Underground cables (Construction , types)</td> </tr> <tr> <td><i>Week Number 15:</i></td> <td>Insulation resistance and electric field</td> </tr> <tr> <td><i>Week Number 16:</i></td> <td>Final Exam</td> </tr> </table>	<i>Week Number 1:</i>	Elements of power system	<i>Week Number 2:</i>	Operating voltage choice	<i>Week Number 3:</i>	Parameters of overhead trans. Lines (R & L)	<i>Week Number 4:</i>	Parameters of overhead trans. lines (C)	<i>Week Number 5:</i>	Representation of O.H.T.L. (1)	<i>Week Number 6:</i>	Representation of O.H.T.L. (2)	<i>Week Number 7:</i>	Representation of O.H.T.L. (3)	<i>Week Number 8:</i>	Voltage regulation	<i>Week Number 9:</i>	Corona phenomenon and its calculations	<i>Week Number 10:</i>	Mechanical Design of O.H.T.L. Sag (1)	<i>Week Number 11:</i>	Mechanical Design of OHTL Sag (2)	<i>Week Number 12:</i>	String insulators	<i>Week Number 13:</i>	Types of poles & towers	<i>Week Number 14:</i>	Underground cables (Construction , types)	<i>Week Number 15:</i>	Insulation resistance and electric field	<i>Week Number 16:</i>	Final Exam
<i>Week Number 1:</i>	Elements of power system																																
<i>Week Number 2:</i>	Operating voltage choice																																
<i>Week Number 3:</i>	Parameters of overhead trans. Lines (R & L)																																
<i>Week Number 4:</i>	Parameters of overhead trans. lines (C)																																
<i>Week Number 5:</i>	Representation of O.H.T.L. (1)																																
<i>Week Number 6:</i>	Representation of O.H.T.L. (2)																																
<i>Week Number 7:</i>	Representation of O.H.T.L. (3)																																
<i>Week Number 8:</i>	Voltage regulation																																
<i>Week Number 9:</i>	Corona phenomenon and its calculations																																
<i>Week Number 10:</i>	Mechanical Design of O.H.T.L. Sag (1)																																
<i>Week Number 11:</i>	Mechanical Design of OHTL Sag (2)																																
<i>Week Number 12:</i>	String insulators																																
<i>Week Number 13:</i>	Types of poles & towers																																
<i>Week Number 14:</i>	Underground cables (Construction , types)																																
<i>Week Number 15:</i>	Insulation resistance and electric field																																
<i>Week Number 16:</i>	Final Exam																																
5- Teaching and Learning Methods	<ul style="list-style-type: none"> - Lectures - Tutorials - Reports & sheets - Laboratories - Seminars 																																
6- Teaching and Learning Methods for Students with Special Needs	<ul style="list-style-type: none"> - Lectures - Tutorials - Reports & sheets - Laboratories - Seminars - Condensed office hours 																																

7- Student Assessment:	Written Examinations to assess The Intended Learning Outcomes Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills												
a- Procedures used:	Written Examinations to assess The Intended Learning Outcomes Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills												
b- Schedule:	<table> <tr> <td>Assessment 1</td> <td>7th Week Written Exam</td> </tr> <tr> <td>Assessment 2</td> <td>12th Week Written Exam</td> </tr> <tr> <td>Assessment 3</td> <td>Continuous Assessments</td> </tr> <tr> <td>Assessment 4</td> <td>16th Week Final Written Exam</td> </tr> </table>	Assessment 1	7 th Week Written Exam	Assessment 2	12 th Week Written Exam	Assessment 3	Continuous Assessments	Assessment 4	16 th Week Final Written Exam				
Assessment 1	7 th Week Written Exam												
Assessment 2	12 th Week Written Exam												
Assessment 3	Continuous Assessments												
Assessment 4	16 th Week Final Written Exam												
c- Weighing of Assessment:	<table> <tr> <td>7th Week Examination</td> <td>30 %</td> </tr> <tr> <td>12th Week Examination</td> <td>10 % + 10% practical</td> </tr> <tr> <td>Final-term Examination</td> <td>40 %</td> </tr> <tr> <td>Oral Examination</td> <td>0 %</td> </tr> <tr> <td>Semester Work</td> <td>10 %</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>	7 th Week Examination	30 %	12 th Week Examination	10 % + 10% practical	Final-term Examination	40 %	Oral Examination	0 %	Semester Work	10 %	Total	100%
7 th Week Examination	30 %												
12 th Week Examination	10 % + 10% practical												
Final-term Examination	40 %												
Oral Examination	0 %												
Semester Work	10 %												
Total	100%												
8- List of References:	A. Gule & W. Paterson, "Electrical Power Systems", Vol. I & II, Pergman press, London, 1980.												
a- Course Notes													
b- Required Books (Textbooks)	J. Glover & M.Sarma " Power system analysis and design", PWS publishers, Boston, 1993.												
c- Recommended Books													
d- Periodicals, Web Sites, ..., etc.													

Course Instructor

Name: **Prof. Amani Hanafi**

Signature:

Head of Department

Name: **Prof. Hamdy Ashour**

Signature:

Dean of College of Engineering and Technology of AASTMT

Name: **Prof. Moustafa Hussein Aly**

Signature:

Executive Manager of Quality Assurance Center of AASTMT

Name: **Prof. Aziz Ezzat**

Signature: