A. Basic Information

Course Title: Test (4) **Code**: EPE 315
Lecture: - **Tutorial**: - **Practical**: 3 **Total: 4**
Program on which the course is given: B.Sc. Electrical Engineering (Electrical Power and machines)
Major or minor element of program: N.A.
Department offering the program: Electrical Engineering Department
Department offering the course: Electrical Engineering Department
Academic year / level: Third Year / **First** Semester
Date of specifications approval: 10/5/2006

B. Professional Information

1. Overall aims of course

- . Study of applied topics of DC machine and transformer tests, Power systems & control, and High Voltage testing.

2. Intended Learning outcomes of Course (ILOs)

a- Knowledge and understanding

a.2) Basics of information and communication technology (ICT)
a.13) Analytical and computer methods appropriate for electrical power and machines engineering.
a.19) Diverse applications of electrical equipment.

b- Intellectual Skills

b.2) Select appropriate solutions for engineering problems based on analytical thinking.
b.11) Analyze results of numerical models and assess their limitations.
b.15) Integrate electrical, electronic and mechanical components and equipment with transducer, actuators and controllers in creatively computer controlled systems.

c- Professional and practical skills

c.5) Use computational facilities, measuring instruments, workshops and laboratories equipment to design experiments and collect, analyze and interpret results.
c.14) Test and examine components, equipment and systems of electrical power and machines.
c.16) Specify and evaluate manufacturing of components and equipment related to electrical power and machines.

d- General and transferable Skills

d.3) Communicate effectively.
d.5) Lead and motivate individuals.
d.8) Acquire entrepreneurial skills.

3. Contents

No	Topic	No. of hours	ILOs	Teaching / learning methods and strategies	Assessment method
1	Three phase transformers: Iron loss, Harmonics, Imbalanced loading, iron core & harmonics, 3 phase to 2 phase conversion, Load testing, Equivalent circuits & regulation. DC motors: separately excited motors, series & parallel excited motors, Inertia torque, speed control using thyristors.	4	a2, a13, b2, b11, c5, d3	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training
2	Three phase transformers: Iron loss, Harmonics, Imbalanced loading, iron core & harmonics, 3 phase to 2 phase conversion,	4	a2, a13, b2, b11, c5, d3	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training

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6	Introduction, Generating and transmission of electrical energy, high voltage testing, Break down of Gaseous insulation, Breakdown of liquid insulation, Breakdown of solid insulation	4	a19, b11, c14, d5	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training
7	Introduction, Generating and transmission of electrical energy, high voltage testing, Break down of Gaseous insulation, Breakdown of liquid insulation, Breakdown of solid insulation	4	a19, b11, c14, d5	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training
8	Mid-Term Exam				
9	Introduction, Generating and transmission of electrical energy, high voltage testing, Break down of Gaseous insulation, Breakdown of liquid insulation, Breakdown of solid insulation	4	a19, b11, c14, d5	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training
10	Introduction, Generating and transmission of electrical energy, high voltage testing, Break down of Gaseous insulation, Breakdown of liquid insulation, Breakdown of solid insulation	4	a19, b11, c14, d5	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training
11	Measuring of resistance - Induction – Capacitance – Voltage drop – Power loss of loaded power transmission lines – Capacitance of 3 phase cable – corona voltage of power transmission lines – Control Fundamentals – Analog computer trainer – Logic circuits trainer	4	a19, b15,c16, d5, d8	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training

12	Measuring of resistance - Induction – Capacitance – Voltage drop – Power loss of loaded power transmission lines – Capacitance of 3 phase cable – corona voltage of power transmission lines – Control Fundamentals – Analog computer trainer – Logic circuits trainer	4	a19, b15,c16, d5, d8	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training
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14	Measuring of resistance - Induction – Capacitance – Voltage drop – Power loss of loaded power transmission lines – Capacitance of 3 phase cable – corona voltage of power transmission lines – Control Fundamentals – Analog computer trainer – Logic circuits trainer	4	a19, b15,c16, d5, d8	Practical training / laboratory, Assignments / homework	Home Assignments, Quizzes, Oral Exam, Practical training
15	Final exam				
16					

4. Teaching and Learning Methods

Lectures
Practical training / laboratory
Seminar / workshop
Class activity
Case study
Assignments / homework

5. Student Assessment Methods

Assignments to assess knowledge and intellectual skills.
Quiz to assess knowledge, intellectual and professional skills.
Mid-term exam to assess knowledge, intellectual, professional and general skills.
Oral exam to assess knowledge and intellectual skills.
Final exam to assess knowledge, intellectual, professional and general skills.

6. Assessment schedule

Assessment 1 on weeks 2, 5, 9, 11
Assessment 2 Quizzes on weeks 4, 6, 10, 12
Assessment 3 Mid-term exam on week 8
Assessment 4 Oral Exam on week 14
Assessment 5 Final exam on week 15

7. Weighting of Assessments

4%	Home assignments
4%	Quizzes
10%	Mid-term examination
8%	Oral examination
10%	Practical examination
64%	Final-term examination
100%	Total

8. List of References

8.1 Course Notes

- Electrical Testing by Prof. Dr. M. Abouelsaad, Hassan Abd El-Aziz Mansour and Dr. M.Soliman.

8.2 Essential Books (Text Books)

8.3 Recommended Books

9. Facilities Required for Teaching and learning

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

Course coordinator: Prof. Dr. M.Abouelsad
Course instructor: Prof. Dr. M.Abouelsad, Hassan Abd El-Aziz Mansour and Dr. M.Soliman.
Head of department: Prof. Dr. Mousa Abd-Allah **Date: 1/ 12 / 2011**