Course Specifications

University: Benha University
Faculty: Benha Faculty of engineering

Course specifications
Programme(s) on which the course is given: Electrical Control
Major or minor element of programmes: Major
Department offering the programme: Electrical I Engineering technology Dep.
Department offering the course: Electrical Engineering technology Dep.
Academic year / Level: third year
Date of specification approval: 2008

A- Basic Information
Title: Power Electronics
Code: E382
Credit Hours: N.A.
Lecture: 2
Tutorial: 1
Practical: 1
Total: 4

B- Professional Information

1 - Overall aims of course
By the end of this course the, the student will gain the following;
- Understand the Power and electronics devices.
- Know types rectifying converters.
- Be able to Chopper circuits.
- Know harmonic reduction.

2- Intended learning outcomes of course (ILOs)
a. Knowledge and understanding:
Provide an understanding to the overall objective of Power Electronics:
- Define of Diodes characteristics.
- Describe of types Diodes
- Explain operation and characteristics of diode rectifiers
- Tell of types rectifiers
- Mention of performance parameters of diode rectifiers
• Explain of effects of load inductance on the load current
• Explain of switching technique for dc-dc conversion and the types of dc-dc converters
• Define of commutation techniques
• Describe of operation of dc-dc converters
• Mention of performance parameters of dc converters

b. Intellectual skill

At the conclusion of this course, the student will have a better understanding of the:

• analyze of performance parameters of e rectifiers
• measure of parameters of rectifiers
• conclude of performance parameters Chopper circuits
• measure of parameters Chopper circuits
• analyze of harmonic wave
• measure of harmonic
• modify of harmonic

At the conclusion of this course, the student will be able to determine the need for performance parameters of power electronics circuit.

c- Professional and practical skills

By the end of this course, the student should be able to demonstrate:

c.1 design of diode rectifiers
c.2 maintenance of diode rectifiers
c.3 testing of diode rectifiers
c.4 design of diode Chopper circuits
c.5 maintenance of Chopper circuits
c.6 testing of Chopper circuits
c.7 design of circuit used to Harmonic reduction

d- General and transferable skills

By the end of this course, the student should be able to:

d.1 Work cooperatively and effectively in a group
d.2 Find information independently
3- Contents

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4- Teaching and learning methods

4.1- Lectures
4.2- Tutorials
4.3- Practice in Laboratories
4.4- Internet collected information and Self-study projects

5- Student assessment methods

5-1 Written exams (Final and Midterm), assignments and quizzes to assess knowledge and understanding, solving problems skills and interpretation capabilities of physical phenomena.
5-2 Oral exams to assess the abilities of discussing physical concepts
5-3 Practical exam to assess measuring and professional skills

Assessment schedule

Midterm  ..................... Week No. 8
Final written exam  .................. Week No. 15

Weighting of assessments

Mid-term examination  40%
Final-term examination  60%
6- List of references

6.1- Lecture notes

6.3- Recommended books

1. Power Electronic Circuit ,Devices and Application, Muhammad H .Rashid :
   Edition Number: 3

7- Facilities required for teaching and learning

Lecture rooms – Tutorial section rooms – Experimental Labs - computers – Virtual simulation programs

Course coordinator:

Head of Department: Assoc. Prof. Ghada Amer

Date: 19/6/2009