Course specification

University/Academy: Damanhour
Faculty/Institute: Science
Department: Physics

1. course Data:

<table>
<thead>
<tr>
<th>Course code: PHY (308)</th>
<th>Course title: experimental physics</th>
<th>Academic year/level: 2009-2010 3rd year (second term)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization: Special physics</td>
<td>No. of instructional units: lecture 2hrs/week practical 3hrs/week</td>
<td></td>
</tr>
</tbody>
</table>

2. course Aim

- The course introduces the student to the principles and constructions of logic and digital circuits.

3. Intended learning outcome

a) Knowledge and understanding

A1: know the basic difference between analog and digital electronics and their converters.
A2: Developing the students skills in the use of circuits of binary systems.

b) Intellectual skills

B1: Analyze scientific problems logically.
B2: Compare between analog and digital electronics.
B3: Apply the laws governing the digital electronics.

c) Professional skills

C1: Use the physical knowledge to analyze a suitable technique to solve problems.
C2: Solve some physical problems helping in understanding the course parts.

d) General skills

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| D1: IT skills: | - use the internet/electronic resources to obtain subject specific information.  
- use a number of computer packages to present information. |
| D2: Working with others: | work with other as a part of a team to collect data and/or to produce reports and presentations. |
| D3: Self-learning: | study independently, set realistic targets and plan work and time to meet targets within deadlines. |
| D4: Problem solving: | Regular problem exercises and example will give students the chance to develop their theoretical understanding and problem. |
| D5: Communication: | Students will have write reports and give oral presentation. |

4. course content

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
|   | - Introduction  
- Analog electronics - digital electronics – comparison between analog and digital electronics.  
- Convertors Analog to digital (AD) and Digital to analog (DA).  
- Principle of logic circuits.  
1- - Digital logic circuits: - circuits of binary system.  
(a) AND - Logic circuit.  
(b) OR - Logic circuit.  
(c) NOT - Logic circuit  
(d) NOR - Logic circuit  
(e) NAND - Logic circuit |

5. Teaching and learning methods

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1.</td>
<td>Teaching will be by lectures, exercises.</td>
</tr>
<tr>
<td>5.2.</td>
<td>All learning outcomes are delivered through lectures.</td>
</tr>
</tbody>
</table>
5.3. All lectures and worked examples are given from the lecturer private notes.

Instructional Methods include:

- Direct Instruction: lecture, reading, in class research, problem sets, presentations, and guest speakers
- Instructional Materials: textbook; primary and secondary materials, experts from the field, and electronic media
- Team Teaching which will include business, university, and community based partners
- Community based applied concept projects
- Self-directed, cooperative, and collaborative learning projects
- Student oral presentations

| 6. teaching and learning methods for students with special needs | 1- Over head projector 
2- appropriate teaching accommodation and Computers 
3- Laboratory with computer terminal. |
|---|---|
| 7. Student Assessment | 7-1. Semester Work. 
7-2. Mid-Term Examination. 
7-3. Practical Examination 
7-4. Final Term Examination |
| a) Procedures used: | 7.1. Research and presentation to assess skills of presenting data and discussion. 
7.2. Mid-Term Examination To accesses ability to |
### continue in course

7.3. practical exam. To access professional and practical skills.
7.4. written exam. To access ability to remember & understand scientific background.

### b) Schedule:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Semesterwork</td>
<td>4-8</td>
</tr>
<tr>
<td>2: Mid-term</td>
<td>10</td>
</tr>
<tr>
<td>3: Practical final</td>
<td>12</td>
</tr>
<tr>
<td>4: Written final</td>
<td>14</td>
</tr>
</tbody>
</table>

### c) Weighing of Assessment:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-Term Examination</td>
<td>10</td>
</tr>
<tr>
<td>Final-Term Examination</td>
<td>100</td>
</tr>
<tr>
<td>Practical Examination</td>
<td>30</td>
</tr>
<tr>
<td>Semester Work</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>150</td>
</tr>
</tbody>
</table>

### 8. List of Textbooks and References:

a) **Course Notes**

Lecturer private notes

b) **Required Books**

2- "Digital book" by R.M Morston; Newnef.

c) **Recommended Books**

1- Feynman Lectures on Physics Volumes 1,2,3 - Feynman, Leighton and Sands
d) Periodicals, web sites,…,etc

**Course Instructor:** Dr. El Maghrby Mohamed El Maghrby

**Head of Department**

**Date:** -----/-----/-----

Prof. Dr. El. M. Elmaghrby