(1) GENERAL

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>SCHOOL OF ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACADEMIC UNIT</td>
<td>DEPARTMENT OF ELECTRONICS ENGINEERING</td>
</tr>
<tr>
<td>LEVEL OF STUDIES</td>
<td>UNDERGRADUATE</td>
</tr>
<tr>
<td>COURSE CODE</td>
<td>2601004</td>
</tr>
<tr>
<td>SEMESTER</td>
<td>1</td>
</tr>
<tr>
<td>COURSE TITLE</td>
<td>Electric Circuits I</td>
</tr>
</tbody>
</table>

**INDEPENDENT TEACHING ACTIVITIES**

If credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits.

<table>
<thead>
<tr>
<th>WEEKLY TEACHING HOURS</th>
<th>CREDITS (ECTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures 4</td>
<td>6</td>
</tr>
<tr>
<td>Laboratory 0</td>
<td></td>
</tr>
</tbody>
</table>

Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).

**COURSE TYPE**

General Background Course

general background, special background, specialised general knowledge, skills development

**PREREQUISITE COURSES:**

None

**LANGUAGE OF INSTRUCTION and EXAMINATIONS:** Greek

**IS THE COURSE OFFERED TO ERASMUS STUDENTS:** YES (in English)

**COURSE WEBSITE (URL)**

http://electronics.teipir.gr/personalpages/vasiliadis/HLEKTRIKA_KYKLWMATA_I/HL_KYKLWMATA_I.html

(2) LEARNING OUTCOMES

**Learning outcomes**

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

Upon successful completion of this course, the students possess advanced knowledge, skills and competences in the subject of Electric Circuits that enable them to:

- Sketch or draw DC electric circuits,
- Analyse circuits and compute values for currents and voltages,
- Use computational methods suitable for the solution of electric circuits problems,
- Interpret and check the soundness of computation results,
- Analyse application problems that involve electric circuits and assess the realisability of the solutions,
- Collaborate with others and work in a team for the integrated address (analysis and synthesis) of complex DC electric circuits problems, the assessment of alternative solutions and the decision making required.
General Competences
Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Team work

(3) COURSE CONTENT

Lectures
1. Introduction to the DC electric circuits.
2. Electric components, voltage and current sources.
3. Basic laws of the electric circuits.
4. Circuits' analysis: Mesh-current method I.
5. Circuits' analysis: Mesh-current method II.
8. Superposition theorem and applications.
9. Thevenin and Norton theorems and applications.
10. Load matching and maximum power transfer theorem.
11. Millman theorem and applications.
12. Transient response of 1st order linear circuits, time constant.
13. Integrated problems solving.

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<thead>
<tr>
<th>DELIVERY</th>
<th>Use of information and communications technology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Face-to-face, Distance learning, etc.</td>
</tr>
<tr>
<td></td>
<td>Use of ICT in teaching, laboratory education, communication with students</td>
</tr>
</tbody>
</table>

- Use of electronic presentation with multimedia content in class,
- Student support through the course webpage and the departmental e-learning platform,
- Electronic communication of instructors and students, through the course webpage and by e-mail.

<table>
<thead>
<tr>
<th>TEACHING METHODS</th>
<th>Activity</th>
<th>Semester workload (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures, assignments, study.</td>
<td>Lectures</td>
<td>52</td>
</tr>
</tbody>
</table>
The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Study for lectures</td>
<td>52</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>52</td>
</tr>
<tr>
<td>Study and preparation for exam</td>
<td>24</td>
</tr>
<tr>
<td><strong>Course Total</strong></td>
<td><strong>180</strong></td>
</tr>
</tbody>
</table>

**STUDENT PERFORMANCE EVALUATION**

Description of the evaluation procedure

Student evaluation is performed in the language of instruction.

Final written exam on all taught material (80%)
Homework Assignments turned in during the semester (20%)

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.

(5) ATTACHED BIBLIOGRAPHY

**Essential reading**


**Recommended Books**

1. Drossopoulos, A., DC Electric Circuits, (in Greek)