COURSE OUTLINE

(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>GRADUATE</td>
</tr>
<tr>
<td>COURSE CODE</td>
<td>8001004</td>
</tr>
<tr>
<td>SEMESTER</td>
<td>1</td>
</tr>
<tr>
<td>COURSE TITLE</td>
<td>Electromagnetic Compatibility, Safety and Quality</td>
</tr>
</tbody>
</table>

INDEPENDENT TEACHING ACTIVITIES

<table>
<thead>
<tr>
<th></th>
<th>WEEKLY TEACHING HOURS</th>
<th>CREDITS (ECTS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>E-learning</td>
<td>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

Scientific Area

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

PREREQUISITE COURSES: None

LANGUAGE OF INSTRUCTION and EXAMINATIONS: Greek and English

IS THE COURSE OFFERED TO ERASMUS STUDENTS: YES

COURSE WEBSITE (URL) http://ies.teipir.gr

(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 that enable them to:

- Know, understand, state and explain the basic EMC standards;
- Appreciate and discuss the role of EMC standards and ergonomics for the safety and health of users of manufactured products and the wider usefulness in various aspects of the economy and everyday life (e.g., Industry, Transportation, Medical, Consumer electronics, etc.);
- Apply taught methods and develop new methods of the solution of interference problems;
- Plan procedures that meet the requirements of electromagnetic compatibility (EMC);
- Apply the EMC and testing regulations and standards at given real-life problems; select the
appropriate standards and procedures;
- Perform electromagnetic radiation field measurements using specialized equipment;
- Know, name, classify and explain shielding and immunity techniques;
- State the basic principles of EMC testing and design;
- Design EMC compatible circuits and systems.

**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 | Project planning and management |
| Adapting to new situations | Respect for difference and multiculturalism |
| Decision-making | Respect for the natural environment |
| Working independently | Showing social, professional and ethical responsibility and sensitivity to gender issues |
| Team work | Criticism and self-criticism |
| Working in an international environment | Production of free, creative and inductive thinking |
| Working in an interdisciplinary environment | …… |
| Production of new research ideas | Others… |

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Team work
- Production of free, creative and inductive thinking

**(3) COURSE CONTENT**

Presentation and analysis EMC standards for the safety and ergonomics of manufactured products. For this purpose, topics covered include:

- Electromagnetic Compatibility
- Basic Greek legislation currently governing the new EMC Directive 2004/108 / EK
- The harmonized standards
- The penalties provided for offenders and
- Ergonomics such as:
  - Definition - Etymology
  - Fields of Ergonomics
  - Physical Ergonomics
  - Cognitive Ergonomics
  - Organizational Ergonomics

**Lectures:**

Introduction in Quality (1 x 2-hour lectures)
- Overview of the concept of quality and basic programming stages, with reference to existing standards.

Total Quality Management (3 x 2-hour lectures)
- TQM is applied at all levels of a company, organization or educational institution and expresses its relation with students, suppliers, human resources and the exchange of information within and outside of the Institute.

The EMC standards (2 x 2-hour lectures)
- General overview of the EMC standards.
Description of requirements of EMC standards (2 x 2-hour lectures)

The EMC system is analyzed, its importance and requirements are explained and the conditions for its development are referred to.

Application instructions (2 x 2-hour lectures)

This Section answers all the questions on the standard and it is essential in order to clarify some of the most important issues related to the implementation of the new Directive for Electromagnetic Compatibility in our country.

Ergonomics (2 x 2-hour lectures)

This section introduces the term ergonomics and analyzes areas such as physical ergonomics, cognitive ergonomics, Organizational ergonomics etc.

Conclusions (1 x 2-hour lectures)

The last section focuses on why a company should implement the EMC system, reports on the main implementation problems and advantages.

### (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>Face-to-face, Distance learning, etc.</td>
<td>• Use of electronic presentation with multimedia content in class,</td>
</tr>
<tr>
<td></td>
<td>• Student support through the course webpage and the departmental e-learning platform (moodle),</td>
</tr>
<tr>
<td></td>
<td>• Electronic communication of instructors and students, through the course webpage and by e-mail.</td>
</tr>
</tbody>
</table>

#### TEACHING METHODS

The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

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

#### STUDENT PERFORMANCE EVALUATION

Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation,

Students will be assessed in this course based on

• an oral grade based on participation in class and homework assignments / project reports (30%)
• the midterm written test (35%)
• the final written test (35%)

<table>
<thead>
<tr>
<th><strong>Activity</strong></th>
<th><strong>Semester workload (hours)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>26</td>
</tr>
<tr>
<td>Study lecture material</td>
<td>26</td>
</tr>
<tr>
<td>Homework assignments or project and report</td>
<td>26</td>
</tr>
<tr>
<td>Study and preparation for the exams</td>
<td>10</td>
</tr>
<tr>
<td>Visit a company / production plant / institution</td>
<td>2</td>
</tr>
<tr>
<td><strong>Course Total</strong></td>
<td><strong>90</strong></td>
</tr>
</tbody>
</table>
Specifically-defined evaluation criteria are given, and if and where they are accessible to students.

(5) ATTACHED BIBLIOGRAPHY

**Recommended Books**


**Useful links / information in regards to electromagnetic compatibility**