ENVIRONMENTAL AND QUALITY ASPECTS IN ELECTRONIC-SYSTEM DESIGN AND MANUFACTURING

1.1. Identification

University:	Alma Mater Studiorum – Università di Bologna													
School:	School of Engineering													
Course:	Environmental and Quality Aspect in Electronic-System Design and Manufacturing													
ECTS:	6													
Semester:	*Winter*					X	*Summer*							
Category	*Fundamental course*						*Specialisation course*							X
Module	*MFI*		*MFII*		*MFIII*		*MSI*		*MSII*		*MSIII*	X		
Teachers:	Massimo Rudan – Michele Pastore													
Language:	*English*	X	*Italian*	X	*Swedish*		*Spanish*							

1.2. Learning-outcomes

- Knowledge about the fundamentals of environmental and quality management.
- Knowledge about eco design and manufacturing planning.
- Knowledge about quality control fundamentals and process metrics.

1.3. Competencies

- **General**
  - To have understanding of technical and scientific tools.
  - To have basic understanding of problem facing industries management.
  - Communication skills.
  - To be able to work in an international context

- **Specific**
  - No specific requirements are requested.

1.4. Contents

1. Evolution of management systems.
2. ISO 9001 management systems.
3. ISO 14001 environmental systems.
4. Environmental aspects in the electronics industry.
5. Eco design.

6. European Directive 2002/95/CE “Restriction of Hazardous Substances”, known as Directive RoHS.
7. European Directive 2002/96/CE “Waste Electrical and Electronic Equipment”, known as Directive WEEE.
8. Production Management and Planning.
9. ISO 17025 Quality Control.

1.5. Teaching Methodology

- Lecture sessions.
- Excercises symulating planning and implementation of a quality and environmental system in a electronic industry.

1.6. Evaluation

- Oral exams, including discussion of the exercises performed.

1.7. Bibliography

ISO 14001 “Environmental management systems. Requirements with guidance for use”.
ISO 9001 “Quality management systems. Requirements”.
ISO 17025 “General requirements for the competence of testing and calibration laboratories”.