

Environmental & Quality Aspects in Design and Manufacturing

Massimo Rudan & Gaetano D'Emma



- To whom is this course addressed?
- Exams.
- Aims of the course.
- Contents.
- Prerequisites.
- References.
- Structure of the course.
- Contact.
- Schedule of the course.

These slides will be made available in pdf format at the link entitled *Teaching Activity* of the website:

<http://www.micro.deis.unibo.it/cgi-bin/user?rudan>

TO WHOM IS THIS COURSE ADDRESSED?



- ❑ In the Academic year 2010–2011 the Students attending the course will belong to the second year of the MASSET program (they acquire 6 credits in the subject *Others - F type*), and to the second year of the ECST program (they acquire 6 out of 9 credits in the subject *Others - F type*).
- ❑ The course may be attended by Students different from the above who choose it on a case-by-case basis.

AIMS OF THE COURSE



- ❑ Environmental and Quality Aspects are driven by Standards, Directives, Guidelines and Models. The main learning-outcome is to know and to understand the key concepts behind them.
- ❑ To provide the fundamentals of Quality Management, Environment Management, Business Excellence and Project Management.
- ❑ To illustrate these elements on issues from electronics industry.



PREREQUISITES

- ❑ Basic understanding of problems facing society, industry and business management.
- ❑ Communication skills.
- ❑ Ability to work in an international context.

Last, but not least...

- ❑ Strong will to learn about
 - project management,
 - quality issues and
 - business excellence !

STRUCTURE



- ❑ This course is split into two modules.
- ❑ Module I: Business Excellence and Project Management (40h), handled by G. C. D'Emma, covers:
 - Project management,
 - Quality, Environment and Business excellence,
 - Impact of business excellence on projects.
- ❑ Design and Manufacturing Aspects (20h), handled by M. Rudan, covers:
 - Examples of applications of the above concepts to the manufacturing of integrated circuits.



SCHEDULE (I)

- ❑ The lessons in the agenda will be given in the period October 6, 2010 through January 13, 2011 (formerly September 22 through December 21, 2010).
- ❑ The schedule is:
 - On Wednesdays 15–18 in classroom TS-11,
 - On Thursdays 11–14 in classroom 5-1.
- ❑ The lessons of Module I will start on **Wednesday, 6th of October, 2010.**
- ❑ There is no lesson on
 - 22nd and 29th of September
 - 13th of October
 - 3rd of November
 - 1st, 8th, and 15th of December

ORIGINAL SCHEDULE (II)



Wed, Sept 22	No class		Thu, Sept 23	Rudan-3
Wed, Sept 29	No class		Thu, Sept 30	Rudan-3
Wed, Oct 06	D'Emma-3		Thu, Oct 07	D'Emma-3
Wed, Oct 13	No class		Thu, Oct 14	Rudan-3
Wed, Oct 20	D'Emma-3		Thu, Oct 21	D'Emma-3
Wed, Oct 27	D'Emma-3		Thu, Oct 28	D'Emma-3
Wed, Nov 03	No class		Thu, Nov 04	Rudan-3
Wed, Nov 10	D'Emma-3		Thu, Nov 11	D'Emma-3
Wed, Nov 17	D'Emma-3		Thu, Nov 18	D'Emma-3
Wed, Nov 24	D'Emma-3		Thu, Nov 25	D'Emma-3
Fri, Nov 26	D'Emma-4			
Wed, Dec 01	No class		Thu, Dec 02	Rudan-3
Wed, Dec 08	No class		Thu, Dec 09	Rudan-3
Wed, Dec 15	No class		Thu, Dec 16	Rudan-2

Arces

M. Rudan
G. D'Emma

FINAL SCHEDULE (II)



Wed, Sept 22	No class		Thu, Sept 23	No class
Wed, Sept 29	No class		Thu, Sept 30	No class
Wed, Oct 06	D'Emma-3		Thu, Oct 07	D'Emma-3
Wed, Oct 13	No class		Thu, Oct 14	Rudan-3
Wed, Oct 20	D'Emma-3		Thu, Oct 21	D'Emma-3
Wed, Oct 27	D'Emma-3		Thu, Oct 28	D'Emma-3
Wed, Nov 03	No class		Thu, Nov 04	Rudan-3
Wed, Nov 10	D'Emma-3		Thu, Nov 11	D'Emma-3
Wed, Nov 17	D'Emma-3		Thu, Nov 18	D'Emma-3
Wed, Nov 24	D'Emma-3		Thu, Nov 25	D'Emma-3
Fri, Nov 26	D'Emma-4			
Wed, Dec 01	No class		Thu, Dec 02	Rudan-3
Wed, Dec 08	No class		Thu, Dec 09	Rudan-3
Wed, Dec 15	No class		Thu, Dec 16	Rudan-3
Wed, Jan 12	No class		Thu, Jan 13	Rudan-3

Arces

M. Rudan

G. D'Emma

NOTES ON SCHEDULE



- ❑ The last lessons (4 hours) of Module I will take place on **Friday, 26th of November, 2010**.
- ❑ The classroom and the time schedule will be communicated later.
- ❑ In any case the total number of hours will not exceed 60.
- ❑ The classrooms may be changed if necessary.
- ❑ The agenda may also be changed if necessary. Hours may be swapped with those of other teachers.



CASE STUDIES

- ❑ Project management, quality management, business excellence are “very dry” topics.
- ❑ They need to be discussed with examples from real life. Each student should prepare a **short presentation** of a (research) project she/he was involved in.
- ❑ The projects will be presented on Thursday, 7th of October, 2010 by each student.
- ❑ We will then use these case studies during the lessons. They will be discussed in details at the end of Module I, on 24th and 25th of November, 2010.

CASE STUDY PRESENTATION



- ❑ “Short” means 10 minutes.
- ❑ You may use any mean to support your presentation: paper, slides, video, YouTube, pictures, etc.
- ❑ Goal: Each participant should **understand** the project purpose, the expected outcomes, your role, the positive and negative issues.
- ❑ Bring cases of projects with “bad” aspects like delays, communication problems, team relationship, etc.
- ❑ On 6th of October we will not discuss your project. Only questions to better understand your project are allowed.



EXAMS

- ❑ The exams are written.
- ❑ To register for the exam, it is necessary to use the electronic lists that will be made available on the website

<https://almaesami.unibo.it/almaesami/welcome.htm>

- ❑ The Students that have access to the e-lists are kindly asked to use this method only.
- ❑ The electronic lists will carry the indication of the meeting point for the examination scheduling.



CONTENTS (I)

- Quality, environment and business excellence
 - Quality control
 - Total quality management systems
 - Quality management systems
 - Environmental management systems
 - Business excellence models
 - Quality and excellence measurements and value

- Project management
 - Project management framework
 - Project management processes
 - Project planning
 - Risk management



CONTENTS (II)

- Impact of business excellence on projects
 - Quality management in projects
 - Project management guideline
 - Project management methods and tools
 - Project performance measurements
 - Project manager competencies

- Impact of quality and environment management on design and manufacturing
 - Production management and planning
 - Environmental aspects in electronics industry
 - European directives in electronics industry



REFERENCES (I)

- ❑ ISO 9000 series – Quality management systems
- ❑ ISO 10006 – Quality Management Systems – Guidelines for Quality Management in Projects
- ❑ ISO 14000 series Environmental management systems
- ❑ ISO 19011 – Guidelines for quality and environmental management systems auditing.
- ❑ IEEE Computer Society – IEEE Std 1490™-2003 – Adoption of PMI Standard – A Guide to the Project Management Body of Knowledge.



REFERENCES (II)

- ❑ Documentation from the European Foundation for Quality Management EFQM, www.efqm.org.
- ❑ Documentation from the International Project Management Association, IPMA, P.O. Box 1167, 3860 BD Nijkerk, The Netherlands, www.ipma.ch.
- ❑ European directive 2002/96/CE, “Waste Electrical and Electronic Equipment”
- ❑ European directive 2002/95/CE “Restriction of Hazardous Substances”



REFERENCES (III)

- ❑ The references listed above are generic.
- ❑ Other references pertinent to specific topics will be given during the lessons.
- ❑ Standards and guidelines (from ISO, IEEE, etc.) are protected by copyrights. Copies cannot be given to the Students. Original texts can be bought on the correspondent websites.
- ❑ Directives are usually free of charge and available on the web.

CONTACT



- ❑ The official agenda for contacts is:
 - Thursdays 14:00-15:00
- ❑ It is advisable to ask for an appointment during a class, by calling or by sending a message.
- ❑ Massimo Rudan
 - 051 20 93 016 (93 016 from internal phones)
 - mrudan@arces.unibo.it
- ❑ Gaetano C. D'Emma
 - 348 10 32 122
 - gaetanino.demma@unibo.it