Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus
Course description

Course title	Economics and management of energy systems
Course code	45520
Scientific sector	ING-IND/35
Degree	Master in Energy Engineering
Semester	II
Year	2020/21
Credits	6
Modular	No

Total lecturing hours	36
Total lab hours	-
Total exercise hours	24
Attendance	Not compulsory
Prerequisites	-
Course page	http://www.unibz.it/it/sciencetechnology/

Specific educational objectives	The course is part of the Management Engineering scientific area. The course aims to introduce students to the understanding and analysis of basic economic concepts. These concepts are referred to the energy sector through some case studies or examples. The first part focuses on quality management tools. The second part focuses on business planning and investment analysis.The third part outlines the basic elements of the management of projects.

Lecturer	Marco Sartor
Scientific sector of the lecturer	ING-IND/35
Teaching language	English
Office hours	Indicated in the timetable
Teaching assistant *(if any)*	-
Office hours	-
List of topics covered	**Part 1 - QUALITY MANAGEMENT TOOLS** • FMEA • QFD • Customer satisfaction analysis • Other quality management tools **Case study applications** • Examples in the energy industry. **Part 2 - INVESTMENTS ANALYSIS AND BUSINESS PLANNING** • Investment analysis. Criteria for evaluating investments under certainty conditions. Methods

	comparison. • Other calculations of cost-effectiveness. Break-even analysis. The choices of make or buy. • Business planning **Case study applications** • Evaluation of investments in the energy sector. **Part 3** **PROJECT MANAGEMENT** • Introduction to project management. • Time control and management. • Costs control and management. • Phases of a project. **Case study applications** • Examples in the energy industry.
Teaching format	The teaching format is based on frontal lectures and exercises. In addition to a solid theoretical background a special attention will be devoted to specific exercises and case studies discussion. Several case studies and practical examples will allow the students a better understanding and application of the acquired theoretical knowledge in practice.

Learning outcomes	**Knowledge and Understanding** • Basic understanding of management and business administration • To know the main methods of investment analysis • To know some quality management tools useful in the energy sector **Applying knowledge and understanding** • Analysis and solution methods • Ability to formulate the analysis of profitability of an investment, choosing the appropriate method • Ability to formulate the analysis of economic convenience **Making judgements** • Systems Thinking - overview of the business organization • Ability to transfer the knowledge and methods learned to real practical applications **Communication skills** • Ability to structure and prepare scientific and technical documentation describing project activities with language specific to the scientific area **Ability to learn** • Ability to autonomously extend the knowledge acquired during the study course by reading and understanding

Assessment	The assessment is based on intermediate exercises and/or

	a written final exam.
Assessment language	English
Evaluation criteria and criteria for awarding marks	The assessment is given by the evaluation of the clarity of answers, mastery of language (also with respect to teaching language), ability to summarize and establish relationships between topics, ability to apply theory to concrete cases/project works.

Required readings	Lecture slides and notes.
Supplementary readings	