

Name of the course: Principles of Systems Engineering

Teacher: Vincenzo Arrichiello; e-mail: vincenzo.arrichiello@gmail.com

Duration of the course: 20 hours

Credits: 5

Language: Italian; in the presence of a request by foreign students, the course will be held in English.

Aims of the course: to provide an introduction of Systems Engineering, a systemic and systematic approach for the development of successful systems. Initially developed to cope with the complexities of early aerospace and defense programs, can now prove a useful tool to address the competing requirements and complex interactions (both internal and external) which today characterize most of the engineered products ("systems") along their complete life-cycle.

Main topics covered:

- Systems Engineering; a definition related to its historic origins and reasons of.
- The blending of systemic and systematic approaches in Systems Engineering
- The fundamental elements of Systems Engineering
- Life-cycle and its stages (an introduction to)
- Systems Engineering technical processes (an introduction to)
- The decision process in the Systems Engineering practice
- Solutions' description and modelling (Model-based vs. Document-based, SysML)
- The Systems Engineer practitioner: competencies

Exam modality:

Written answers to open questions

Bibliography:

Notes provided by the teacher

INCOSE Systems Engineering Handbook 4th ed.