Seminar in System Engineering

Points: 3.0, Time: 3 hours

Prerequisites: 3 compulsory courses

Course description:

The course will focus on presenting a selection of innovative topics in system engineering, expanding and deepening the topics taught in the compulsory courses. The course will explore up-to-date articles in various fields of system engineering. The course will be based on student self-study, guided class discussions, and team activities.

Course objectives:

- Familiarization and development of systemic thinking

- Search and reading of articles on various topics in system engineering
- Focus on a selected topic, reading articles and aspects as much as possible on the topic
- In-depth study of the topic for presentation in a professional forum of system engineers
- Ambition: to reach the level of writing an article on the topic

- Organization for the execution of the work
- To form groups of 2-3 students
- To choose a advanced research topic in system engineering
- Advanced search for professional articles on the topic
- In the first stage (within 2 weeks):
  - Presentation of the selected topic summary, research stages and preliminary sources (30 minutes), open discussion and lecturer approval
  - Members of each group should organize work distribution, material collection, common learning (through peer discussion), determination of the sections of the class presentation (2-3 lectures per group) and work distribution within the group
  - During the seminar, each student will present a lecture (30 minutes) to cover all research areas and future directions.

Examples of scientific topics in system engineering:

- (Object Process Methodology) OPM
- (MATLAB, SysML, Rhapsody)
- Agile Systems Engineering
- Lean Systems Engineering
- Requirements Engineering
- Design Simplicity
- Risk management
- MBSE (Model Based System Engineering)
- SoS (System of Systems)
- ICDM (Integrated Customer Driven Conceptual Design Method)

...and others.

Grading:

- Participation in lectures and discussions 10%
- Individual presentation 15%
- Group work performance (total 33%)

Sources:
The preferred source is the INCOSE website (documents, lectures, conferences and more), the university acquired video materials and articles.
2. **System Engineering Fundamentals** - DoD System Management College, January 2001
4. **IEEE 1220 (SE Standard)**
8. **קול המערער – חיבר חותם של מחברות ומפעלים**
33. F. Dean & T. Bahill, What Is Systems Engineering? A Consensus of Senior Systems Engineers
38. Vitech Corporation COREsim user guide 3rd. edition

47. http://www.mycoted.com/Category:Creativity_Techniques


58. 1471-2000 - IEEE Recommended Practice for Architectural Description for Software-Intensive Systems


60. www2.cdc.gov/cdcup/.../templates/CDC_UP_Interface_Control_Template


64. Maynard F. W., Goldberg R. Rube Goldberg: Inventions, Publisher: Simon & Schuster. 2000


73. ז.בונן תכנון העבודה בפרויקט פיתוח, קול המרכז, גל' גליון 8 יולי 2300, עמ' 6-03


75. NASA, NASA Systems Engineering Handbook, SP-6105, June


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ד"ר דניאל לישם