

Course content for system dynamics

Objectives:

This course aims to contribute to improved understanding of system dynamics concepts. By the end of this course students will be able to know qualitative and quantitative system analysis methods and apply them for a case. Moreover, student would learn about different application concepts and system dynamics applications.

Syllabus, Sessions and assignments

Session 1:

- **Lecture** simulation models
- Student briefing
- Proposal for projects
- Choosing 6 papers for presenting in Journal Clubs*. These paper should be chosen from high ranked and Journals and hot cited.

Session 2:

Lecture 1: simulation models

Lecture 2: Gartner analysis

Lecture 3: journal club modeling

Assignment:

- Choosing a topic for a project to work on in current term in field of foresight.

Session 3:

Lecture1: System Thinking

Assignments: Journal Club.

Presenting following section of chosen topic:

Introduction, Problem Definition (Practical of academic project)

Session 4:

Lecture 1: Modeling system

Lecture 2: Delphi method

Assignments: Journal Club.

Presenting a draft for Literature Review for chosen topic in 15 pages.

Session 5:

Lecture 1: Modeling System & Software.

Session 6:

Assignments: Journal Club (3 papers).

Selecting methodology of the chosen topic.

Choosing a subject and topic for system Dynamic project.

Session 7:

Lecture: system dynamics modeling

Assignments: Journal Club.

Presenting a final Methodology for the chosen topic.

Session 8:

Lecture 1system dynamic modeling

Assignments: Journal Club.

Building a SFD for the SD project.

Presenting Data gathering protocol for the chosen topic.

Session 9:

Lecture 1: system dynamic modeling

Assignments: Journal Club

Completing SD project.

Presenting a report on Chosen topic.

Session 10:

Lecture 1: system dynamic modeling

Assignments: Journal Club

Completing SD project.

Presenting a report on Chosen topic.

Session 11:

Lecture 1: system dynamic modeling

Assignments: Journal Club

Completing SD project.

Presenting a report on Chosen topic.

Session 12:

Lecture 1: system dynamic modeling

Assignments: Journal Club

Completing SD project.

Presenting a report on Chosen topic.

Session 13:

Lecture 1: system dynamic modeling

Assignments: Journal Club

Completing SD project.

Presenting a report on Chosen topic.

Session 14:

Lecture 1: system dynamic modeling

Assignments: Journal Club

Completing SD project.

Presenting a report on Chosen topic.

Session 15:

Assignments: system dynamic modeling

Completing project.

Presenting a report on Chosen topic.

Session 16:

Assignments: system dynamic modeling

Completing SD project.

Presenting a report on Chosen topic.

***Journal Clubs:**

In each Journal Club, students would present one (or 3) of chosen papers in each session. Each paper should be reviewed and analyzed in following sections:

1- Title

2- Subject

- 3- Objects
- 4- Questions
- 5- Literature Review (Basic Theory / Basic Model)
- 6- Methodology
- 7- Paradigm
- 8- Presented Theory / Model
- 9- Findings and Conclusion
- 10- Paper Final Remarks