Automatic control (EE290)

Course Lecturer:
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Course Assistant:
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Course Objectives:
This course introduces students to the theory and practice of control systems engineering through analysis and design of practical applications of the subject. Application cases will be discussed during the lectures, and will be further illustrated with simulation studies during the tutorials and with real examples during the laboratories. After completing this course students should be able to describe the basic requirements of automatic control by performing analysis and construction of control systems. This means that the students are expected to be able to do the following after completing this course:

- Explain the difference between open-loop and closed-loop control systems.
- Derive input/output signal relationships in control systems using block diagrams.
- Analyze control systems in time and frequency domains.
- Check the stability of linear control systems.
- Design feedback control systems.
- Apply MATLAB/SIMULINK in solving linear control systems.

Course Description:
The course gives an introduction to control systems: necessity, classifications, and mathematical background. Basics of control systems including: open loop versus closed loop systems, modeling of physical systems, transfer function, and block diagrams are covered. Performance assessment of the control systems using time response and frequency response methods, analysis of steady state error, and stability of control systems are investigated. The course is concluded by design techniques for PID controllers.

Recommended text books:
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<td>1</td>
<td>15/3/2011</td>
<td>Introduction to Automatic Control</td>
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<td>Laplace Transformation, Block Diagrams</td>
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