

GNU Course Syllabus (Sample)

Course Title	Fundamentals of Automatic Control Theory
Course Code	blank
Credits	3.0
Department	blank
Semester	2017S
Course Categories	blank
Instructor	Dr. Andrea BAREGGI
Hours	blank
Location	blank
Phone/E-mail	bareggia@tcd.ie
Office Hours	blank
language	English

[Syllabus]

<p>Course Goals and Objectives</p> <p>This course aims to set the fundamentals of automatic control. Topics covered in this subject include: mathematical modelling of physical systems; signal flow and state space representation of systems; steady state and transient analysis; root locus; frequency response analysis using Nyquist and Bode; design of PID, lag, controllers using Bode and root locus methods, and multiloop control systems.</p>
<p>Textbook and other references</p> <p>Worcester, Adam. 2014. Issues Now in the News (3rd Ed.). compass Publishing.</p>
<p>Course Description, Methods, and Materials</p> <p>Lectures by the instructor, practical exercises on Matlab 6.5 or above (alternative Scilab 5 or above), paper and pencil exercises related</p>
<p>Assignments, Grading Criteria, Prerequisite Subject</p> <p><u>Prerequisites.</u> Mathematics: one and two variable function analysis, integration, derivation, differential equations, logarithms Physics: basic knowledge of mechanical systems (one and two degree of freedom) Electronics: Basic knowledge of capacitors, inductors, resistors, solving a basic circuit in DC and AC.</p> <p>Mid-Term Exam(40%), Final Exam(40%), Homework(10%), Class Attendance(10%). Remarks: 1 absence: -1 point, 3 latenesses: -1 point, more than 4 absences: F</p>

Notice To Students

1. Students should come to class in time.
2. Cheating is not allowed.
3. Students will have a better understanding in the lectures when they read the reading materials assigned for each class before they come to class.
4. Questions in class are more than welcome.

Academic Support for Students with Disabilities

[Course Lesson Plan]

no	Course Goals and Objectives	Assignment	Text & Materials	Etc.
1	Introduction to system dynamics			
2	Linear continuous-time dynamical systems			
3	Laplace transforms and transfer functions			
4	Exercises: electro-mechanics systems		Laptop/manual calculation	
5	Reachability et observability			
6	Block diagrams			
7	Resuming exercises and Matlab/Scilab practice		Laptop/manual calculation	
8	Mid-term Exam			
9	Frequency domain analysis : Bode diagrams			
10	Exercises on Bode diagrams		Laptop/manual calculation	
11	Feedback control: performance specifications			
12	PI, lead & lag network			
13	Loop shaping, PID			
14	Resuming exercises and Matlab/Scilab practice		Laptop/manual calculation	
15	Final Exam			

Cheating, plagiarism, and other dishonest practices will be punished as harshly as Kyungpook National University policies allow. The University specifies that cheating is grounds for dismissal. Penalties less severe may be imposed instead. A list of possible disciplinary actions is given below. Actions by the university:

- Failure in course
- Suspension from university for a designated period
- Expulsion from university

