



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

Sekip Utara Bulaksumur Yogyakarta 55281 Telp: +62 274 546194 Fax: +62 274 546194 Email: dep-ike.mipa@ugm.ac.id

Doctoral Programme of Computer Science

Telephone : (0274)546194

Email : s3ik.mipa@ugm.ac.id

Website : <http://dcse.fmipa.ugm.ac.id/site/id/s3-ilmu-komputer/>

Module name : **COMPUTATION SYSTEM OF FEEDBACK CONTROL**

Module level, if applicable : **DOCTORAL**

Code, if applicable : MII7835

Semester(s) in which the module is taught : 1 (Odd)

Person responsible for the module : Dr. Andi Dharmawan, S.Si., M.Cs.

Lecturer(s) : Prof. Dr. Ir. Jazi Eko Istiyanto, M.Sc., IPU., ASEAN Eng. and Dr. Andi Dharmawan, S.Si., M.Cs.

Language : Indonesia

Relation to curriculum : Elective Course

Credit points : 3

Type of teaching, contact hours : Presentation, Discussion, Assignment, Examination

Workload : 84

Requirements according to the examination regulations : Minimum attendance at lectures is 75% (according to UGM regulation). Final score is evaluated based on assignments (20%), mid semester exam (40%), and end semester exam (40%).

Recommended prerequisite : Basic Programming and Mathematics

Module objectives/intended learning outcomes : CO1: Understand mathematics modeling (for mechanics and electronics).
CO2: Understand the concept of state space.
CO3: Understand control systems analysis, design, and simulation in state space.
CO4: Understand control systems design and simulation in state space.

Content : 1. Mathematics modeling (mechanics and electronics).
2. Modeling in State Space.
3. State-Space Representation of Scalar Differential Equation Systems.
4. Control Systems Analysis in State Space.
5. Control Systems Design and Simulation in State Space.

Study and examination requirements and forms of examination	:	
Media employed	:	Slides, discussion, online and offline meeting
Reading List	:	<ol style="list-style-type: none"> 1. R.C. Dorf, and R.H. Bishop, Modern Control System, 14th edition, 2021. 2. Fadali, M.S., Visioli, A., Digital Control Engineering Analysis and Design, Elsevier, 2013. 3. Ogata, K., Modern Control Engineering, 5th edition, Prentice Hall, 2010

The Mapping of COs to PLOs

COs	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1								
CO2								
CO3								
CO4								

The PLO of DP-CS

PLO	Knowledge Area	PLO Description
PLO1	[Values and principles]	A graduate should be devoted to God Almighty, uphold the humanity values, internalize academic values and ethics, responsible in working around expertise independently.
Managerial Capability		
PLO2	[Professional attitudes]	A graduate should have good interpersonal skills; able to work together within the organization, both as a leader and a member; able to be the initiator; able to manage and delegate tasks; and have a sense of responsibility for their own work as well as take responsibility for the achievement of the organization's work.
PLO3	[Communication skills]	A graduate should be able to communicate effectively and efficiently with stakeholders from various backgrounds; use English well; and able to write and present scientific papers correctly and well.
PLO4	[Life-long learning]	A graduate should be up to date with the state-of-the-art especially in computer science field, able to take parts in the development of computer science field that is engaged in and relate it to other fields throughout life.
Working Capability		

PLO5	[Problem-solving and Scientific skills]	A graduate should be able to analyse science and technology problems in the computer science field, develop alternative solutions through intra disciplinary, interdisciplinary, and trans disciplinary approaches to produce innovative, original, and tested works.
PLO6	[Ability to formulate and do research]	A graduate should be able to formulate research problems through critical, exploratory, and innovative studies both independently and in groups of computer science field that is engaged in and present research results in a scientific paper at regional or international level.
Mastering Knowledge		
PLO7	[Fundamental knowledge]	A graduate should be able to develop knowledge in the field of computer science that is engaged, which includes abstraction, complexity, evolution and philosophy of changes or developments in the field of science.
PLO8	[Applied knowledge]	A graduate should be able to develop theoretical, philosophical, and applied concepts in the field of computer science that is engaged in, and to represent them in a structured and systematic manner.