



INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS
DEPARTEMEN TEKNIK ELEKTRO
Program Studi Sarjana (S1) Teknik Elektro

INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FACULTY OF INTELLIGENT ELECTRICAL & INFORMATICS TECHNOLOGY
DEPARTMENT OF ELECTRICAL ENGINEERING
Bachelor Degree Program in Electrical Engineering

1	Nama Mata Kuliah / Course Name : Sistem Kontrol Proses / <i>Process Control Systems</i>
2	Kode Mata Kuliah / Course Code : EE234739
3	Kredit / Credits : 2 SKS
4	Semester / Semester : 0

Deskripsi Mata Kuliah / Course Description

Mata kuliah sistem kontrol proses memberi pengenalan mengenai sistem proses dan kontrolnya kepada mahasiswa teknik elektro. Pada mata kuliah ini disampaikan permodelan sistem proses untuk proses-proses yang umum digunakan di industri. Metode-metode analisis model tersebut dijelaskan untuk menampilkan perilaku sistem. Pada bagian akhir dijelaskan metode-metode desain kontroler, diantaranya adalah kontroler PID yang banyak digunakan di industri. / *The Process Control Systems course introduces students to process systems and their control in the field of electrical engineering. This course covers the modeling of process systems commonly used in industries. Various methods for analyzing these models are explained to understand the system's behavior. Towards the end, different control design methods are discussed, including the widely used PID controllers in the industry.*

Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah / Program Learning Outcomes Charged to The Course

- CPL 5 Mampu mendesain komponen, sistem, dan proses yang logis dan realistis sesuai dengan spesifikasi yang ditentukan dengan mempertimbangkan aspek keselamatan, sosial, budaya, lingkungan, dan ekonomi / *Able to design components, systems, and processes that are logical and realistic in accordance with specified specifications, while considering safety, social, cultural, environmental, and economic aspects.*
- CPL 6 Mampu mengkaji dan memanfaatkan matematika, ilmu pengetahuan alam dan teknologi serta mengidentifikasi, memformulasikan dan menyelesaikan

<p>permasalahan di bidang teknik elektro / <i>Able to evaluate and utilize mathematics, natural sciences, and technology, as well as identify, formulate, and solve problems in the field of electrical engineering.</i></p> <p>CPL 7 Mampu mengetahui dan mengaplikasi metode, keahlian sesuai perkembangan terkini di bidang ilmu pengetahuan dan teknologi untuk menyelesaikan permasalahan teknik elektro dengan mengedepankan nilai-nilai universal / <i>Able to understanding and applying the latest methods and skills in the field of science and technology to solve electrical engineering problems while emphasizing universal values.</i></p>
<p>Capaian Pembelajaran Mata Kuliah / <i>Course Learning Outcomes</i></p>
<ol style="list-style-type: none"> 1. Menguasai konsep dan teori analisis dan desain sistem kontrol proses / <i>Master the concepts and theories of process control system analysis and design.</i> 2. Mampu memodelkan, menganalisis, dan mendesain sistem kontrol proses / <i>Able to model, analyze, and design process control systems.</i> 3. Mampu merealisasi sistem kontrol untuk sistem proses dengan perangkat lunak / <i>Able to implement control systems for process systems using software.</i> 4. Bekerja sama untuk dapat memanfaatkan semaksimal mungkin potensi yang dimiliki / <i>Collaborate to maximize the potential of the resources available.</i>
<p>Pokok Bahasan / <i>Contents</i></p>
<ol style="list-style-type: none"> 1. Collaborate to maximize the potential of the resources available. Introduksi sistem kontrol proses (Introduction to Process Control System) 2. Model matematika normal proses / Mathematical normal process model 3. Model matematika proses dengan waktu tunda / Mathematical process model with delay time 4. Model matematika proses dengan respon inverse / Mathematical process model with inverse response 5. Kestabilan proses / Stability proses 6. Perancangan Kontroler PID / PID control design 7. Kompensator respon inverse / inverse respon compensator 8. Prediktor smith / Smith predictor 9. Kontrol cascade / Cascade controller 10. Kontrol feedforward / Feedforward controller 11. Kontroler rasio / Ratio controller 12. Kontroler selektor / Selector controller) 13. Kontroler split range / Split range controller
<p>Prasyarat / <i>Pre-requisite</i></p>
<p>Pustaka / <i>Reference</i></p>
<ol style="list-style-type: none"> 1.