MATA KULIAH	**Nama Mata Kuliah** : Kapita Selekta Industri
	Kode MK : UG234916
	Kredit : 3 SKS
	Semester : VII

DESKRIPSI MATA KULIAH
Matakuliah kapita selekta industri ini termasuk dalam rumpun mata kuliah Instrumentasi di PS S. Tr. TRI – ITS. Matakuliah ini membahas tentang berbagai fenomena yang banyak terjadi dalam suatu plan di industry, seperti sistem kontrol otomatis dan sistem proteksi pada plan.
CAPAIAN PEMBELAJARAN LULUSAN YANG DIBEBANKAN MATA KULIAH
● Mampu mengidentifikasi, merumuskan, meneliti literatur dan menganalisis masalah teknik di bidang teknologi Instrumentasi untuk mencapai kesimpulan yang dapat dibuktikan dengan menggunakan alat analisis sesuai standar disiplin ilmu teknik instrumentasi. (CPL-6) ● Mampu merancang solusi untuk masalah teknologi dan rekayasa Instrumentasi serta dapat berkontribusi pada desain sistem, komponen maupun proses untuk memenuhi kebutuhan tertentu dengan mempertimbangkan standar keamanan, kesehatan dan keselamatan public. (CPL-7) ● Mampu memilih, menggunakan dan menerapkan teknik dan sumber daya yang tepat termasuk penggunaan piranti keras maupun lunak yang mutakhir untuk memberikan solusi atas permasalahan di bidang rekayasa Instrumentasi. (CPL-9) ● Mampu menunjukkan pemahaman tentang masalah sosial keteknikan, kesehatan, keselamatan, hukum, budaya dan tanggung jawab yang relevan pada praktik penerapan rekayasa teknologi instrumentasi. (CPL-10)

- Mampu memahami dan mengevaluasi keberlanjutan dampak pekerjaan teknologi rekayasa Instrumentasi terhadap lingkungan dan masyarakat. (CPL-11)

CAPAIAN PEMBELAJARAN MATA KULIAH

- Mahasiswa mampu memahami peran instrumentasi secara luas dan aplikasinya di dunia industri
- Mahasiswa mampu merancang sistem kontrol dan sistem proteksi pada suatu plan
- Mahasiswa mampu menganalisis kegagalan sistem kontrol dan sistem proteksi dan memberikan solusi berdasarkan data dan perhitungan

POKOK BAHASAN

1. Jenis Dunia Industri yang berkembang saat ini dan Peluang Teknik Instrumentasi di Berbagai Jenis Industri Tersebut
2. Wawasan Profesi dan Prospek Karir Lulusan Teknik Instrumentasi, Kemampuan/Kompetensi Yang Harus Dimiliki Sesuai Perkembangan Industri Saat Ini
3. Field Instrumen
    - Field Instrumen untuk Pengukuran
    - Field Instrumen untuk Pengendalian
    - Field Instrumen untuk Safety
4. Engineering Departemen dan Engineering Commisioning
5. Case problem : Keilmuan Teknik Instrumentasi di Industri Power Plant
6. Case problem : Keilmuan Teknik Instrumentasi di Industri Food Beverage
7. Case problem : Keilmuan Teknik Instrumentasi di Industri Minyak dan Gas
8. Case problem : Keilmuan Teknik Instrumentasi di Industri Services
9. Case problem : Keilmuan Teknik Instrumentasi di Industri Manufaktur

Case problem : Keilmuan Teknik Instrumentasi di Industri Energi Bersih

PRASYARAT

- Matematika Teknik
- Fisika Terapan
- Teknik Pengukuran
- Teknik Kalibrasi
- Teknologi sensor dan transduser

• Teknik Otomasi
PUSTAKA
• K. Ogata, Modern Control Engineering, edisi 5. • John P. Bentley, Priciple of Measurement System, Edisi 4, 2005

COURSE	**Course Name**	: Industry Selecta Capita
	Course Code	: VI0834
	Credit	: 3 sks
	Semester	: VIII

DESCRIPTION OF COURSE

This capita industry selecta capita subject is included in the Instrumentation family course in PS S. Tr. TRI - ITS. This course discusses various phenomena that occur in many plans in the industry, such as automatic control systems and protection systems in the plan.

LEARNING OUTCOMES

- Able to identify, formulate, research literature and analyze engineering problems in the field of Instrumentation technology to reach conclusions that can be proven by using analytical tools according to the standards of the instrumentation engineering discipline. (CPL-6)
- Able to design solutions to Instrumentation technology and engineering problems and can contribute to the design of systems, components and processes to meet certain needs by considering security, health and public safety standards. (CPL-7)
- Able to select, use and apply appropriate techniques and resources including the use of the latest hardware and software to provide solutions to problems in the field of Instrumentation engineering. (CPL-9)
- Able to demonstrate an understanding of engineering social, health, safety, legal, cultural and responsibility issues relevant to the practice of implementing instrumentation technology engineering. (CPL-10)
- Able to understand and evaluate the sustainability of the impact of Instrumentation engineering technology work on the environment and society. (CPL-11)

COURSE LEARNING OUTCOME

• Students are able to understand the broad role of instrumentation and its application in the industrial world • Students are able to design control systems and protection systems on a plan • Students are able to analyze the failure of the control system and the protection system and provide solutions based on data and calculations
MAIN SUBJECT
1. Types of Industries that are currently developing and Instrumentation Engineering Opportunities in these Industries 2. Professional Insights and Career Prospects for Instrumentation Engineering Graduates, Skills / Competencies that must be possessed according to current industrial developments 3. Field Instrument - Field Instruments for Measurement - Field Instruments for Control - Field Instruments for Safety 4. Engineering Department and Engineering Commissioning 5. Case problem: Instrumentation Engineering in Power Plant Industry 6. Case problem: Instrumentation Engineering in the Food Beverage Industry 7. Case problem: Instrumentation Engineering in the Oil and Gas Industry 8. Case problem: Instrumentation Engineering in the Services Industry 9. Case problem : Instrumentation Engineering in the Manufacturing Industry 10. Case problem: Instrumentation Engineering in the Clean Energy Industry
PREREQUISITES
• Engineering Mathematics • Applied Physics • Measurement technique • Calibration Techniques • Sensor and transducer technology • Automation Techniques
REFERENCE

1. K. Ogata, Modern Control Engineering, edisi 5.
2. John P. Bentley, Priciple of Measurement System, Edisi 4, 2005