


## PORTOFOLIO MATA KULIAH

	<b>INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)</b> <b>FAKULTAS TEKNOLOGI INDUSTRI DAN REKAYASA SISTEM</b> <b>DEPARTEMEN TEKNIK SISTEM DAN INDUSTRI</b>				
Mata Kuliah (MK) <i>Course Name</i>	Kode <i>Code</i>	RMK <i>Course Group</i>	Bobot (sks) <i>Credits</i>	Sem ester	Last Review
Pengantar Teknik Sistem & Industri <i>Introduction to Industrial &amp; Systems Engineering</i>	TI 181301	Kuliah Umum <i>General Studies</i>	2	1	28 Agustus 2021
<b>Pengesahan <i>Otoritation</i></b>		<b>Koordinator MK <i>Course Coordinator</i></b>	<b>Ketua RMK <i>Course Group Coordinator</i></b>	<b>Kadep / Kaprodi <i>Head of Study Program</i></b>	
		Maria Anityasari	Nani Kurniati	Nurhadi Siswanto	
<b>Team Teaching</b>		Maria Anityasari, Nani Kurniati, Atikah Aghdhi Pratiwi, Rindi Kusumawardani, Hafidz Ridho, Rizki Revianto Putera, Niken Anggraini Savitri			

### Capaian Pembelajaran Lulusan (CPL) / Program Learning Outcomes (PLO)


Kode / code	Deskripsi CPL / PLO description
(a)	Kemampuan menerapkan pengetahuan matematika, ilmu pengetahuan alam dan/atau material, teknologi informasi dan keteknikan untuk mendapatkan pemahaman menyeluruh tentang prinsip-prinsip keteknikan. <i>Ability to apply knowledge of mathematics, natural and / or material science, information technology and engineering to gain a comprehensive understanding of engineering principles.</i>
(b)	Kemampuan mendesain komponen, system dan/atau proses untuk memenuhi kebutuhan yang diharapkan didalam batasan-batasan realistis, misalnya hukum, ekonomi, lingkungan, sosial, politik, kesehatan dan keselamatan, keberlanjutan serta untuk mengenali dan/atau memanfaatkan potensi sumber daya local dan nasional dengan wawasan global. <i>Ability to design components, systems and / or processes to meet expected needs within realistic boundaries, for example legal, economic, environmental, social, political, health and safety, sustainability and to recognize and / or utilize potential local and national resources by global insight.</i>
(c)	Kemampuan mendesain dan melaksanakan eksperimen laboratorium dan/atau lapangan serta menganalisis dan mengartikan data untuk memperkuat penilaian teknik. <i>Ability to design and carry out laboratory and / or field experiments and analyze and interpret data to strengthen technical assessments.</i>
(d)	Kemampuan mengidentifikasi, merumuskan, menganalisis dan menyelesaikan permasalahan teknik. <i>Ability to identify, formulate, analyze and solve technical problems.</i>
(e)	Kemampuan menerapkan metode, keterampilan dan piranti teknik yang modern yang diperlukan untuk praktek keteknikan. <i>Ability to apply modern technical methods, skills and tools necessary for engineering practice.</i>
(f)	Kemampuan berkomunikasi secara efektif baik lisan maupun tulisan. <i>Ability to communicate effectively both orally and in writing.</i>
(g)	Kemampuan merencanakan, menyelesaikan dan mengevaluasi tugas didalam batasan-batasan yang ada. <i>Ability to plan, complete and evaluate tasks within existing constraints.</i>

(h)	Kemampuan bekerja dalam tim lintas disiplin dan lintas budaya. <i>Ability to plan, complete and evaluate tasks within existing constraints.</i>
(i)	Kemampuan untuk bertanggung jawab kepada masyarakat dan mematuhi etika profesi dalam menyelesaikan permasalahan teknik. <i>Ability to be responsible to society and comply with professional ethics in solving technical problems.</i>
(j)	Kemampuan memahami kebutuhan akan pembelajaran sepanjang hayat, termasuk akses terhadap pengetahuan terkait isu-isu kinian yang relevan. <i>Ability to understand the needs of lifelong learning, including access to knowledge related to current issues.</i>

**Dokumen Portofolio ini terdiri dari:**

1. Rencana Pembelajaran Semester (RPS)
2. Rencana Tugas (RT)
3. Rencana Assessment (RA)
4. Penilaian Capaian Pembelajaran Mahasiswa (Student Attainment, SA)
5. Rencana Evaluasi dan tindak lanjut (RE)

# RENCANA PEMBELAJARAN SEMESTER (RPS) - COURSE PLANNING

	<b>INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)</b> <b>FAKULTAS TEKNOLOGI INDUSTRI DAN REKAYASA SISTEM</b> <b>DEPARTEMEN TEKNIK SISTEM DAN INDUSTRI</b>				
Mata Kuliah (MK)	Kode	RMK	Bobot (sks)	Semester	Waktu Review
Pengantar Teknik Sistem & Industri <i>Introduction to Industrial &amp; Systems Engineering</i>	TI 181301	Kuliah Umum <i>General Studies</i>	2	1	28 Agustus 2021

## 1. Deskripsi Mata Kuliah (Course Description)

Mata kuliah ini memberikan gambaran tentang profil, profesi, kesempatan kerja dan kompetensi yang dibutuhkan/penting lulusan Teknik Sistem dan Industri. Hal tersebut merupakan landasan awal yang perlu dipahami oleh mahasiswa Teknik Sistem dan Industri. Dalam mata kuliah ini mahasiswa juga akan diberikan gambaran tentang kurikulum dan mata kuliah yang ada di Program Sarjana Departemen Teknik Sistem dan Industri – ITS. Selanjutnya, mata kuliah ini akan mengeksplorasi baik *hard skill* dan *soft skill* lulusan IE, area dalam disiplin IE khususnya sistem dan interaksinya, sistem bisnis dan proses bisnis yang terjadi di dalam perusahaan secara umum dan cara pengelolaannya. Setelah menyelesaikan mata kuliah ini, mahasiswa diharapkan memahami dan mampu menjelaskan kerangka dasar ilmu di Teknik Sistem dan Industri, memahami konsep sistem dan interaksinya, serta memahami struktur dan keterkaitan mata kuliah Teknik Sistem dan Industri. Mata kuliah ini akan memperkenalkan berbagai metode pengajaran berbasis *Student-Centered-Learning (SCL)* yang memberikan kesempatan kepada mahasiswa untuk terlibat aktif dalam proses pembelajaran dan sekaligus mengembangkan *soft skill* mereka dengan berlatih.

*This course gives an overview about the profile, profession, employment opportunities and required/important competencies of Industrial and System Engineering graduates. It is an initial foundation needs to be understood by industrial engineering students. In this course, students will also be given an overview of the curriculum and courses in the Undergraduate program of Industrial Engineering Department – ITS. Furthermore, this course will explore both hard skills and soft skills of IE graduates, the area within IE discipline especially system and its interactions, business systems and business processes occurring within the company in general and the way it is managed. At the completion, students are expected to understand and be able to explain the basic framework of science in Industrial Engineering, to understand the concept of the system and their interactions, as well as understanding the structure and linkage of Industrial Engineering courses. This course will introduce a variety of teaching methods based on Student-Centered-Learning (SCL) that give students opportunity to actively get involved in the learning process and at the same time developing their soft skills by practicing.*

## 2. Capaian Pembelajaran Mata Kuliah (CPMK) / Course Learning Outcomes (CLO)

Dengan berakhirnya kuliah, diharapkan mahasiswa :

*By the end of this course, students will be able to*

Kode	Uraian CPMK / Description of CLO
CPMK 1 CLO 1	Mahasiswa memahami kerangka kerja Teknik Industri (IE) dan isu-isu kontemporer / <i>Students understand the framework of Industrial Engineering (IE) and its contemporary issues.</i>
CPMK 2 CLO 2	Mahasiswa memahami konsep sistem / <i>Students understand the concept of system.</i>
CPMK 3 CLO 3	Mahasiswa memiliki kemampuan analitis dalam memahami sistem dan proses bisnis / <i>Students have the analytical ability in understanding systems and business processes.</i>

Kode	Uraian CPMK / Description of CLO
CPMK 4 CLO 4	Mahasiswa mampu menunjukkan kemampuan kerja tim dalam mengerjakan tugas / <i>Students are capable of demonstrating team working ability to do assignments.</i>
CPMK 5 CLO 5	Mahasiswa mampu menggunakan piranti teknik dan memiliki keterampilan belajar dasar meliputi mencari, membaca, mengekstrak, dan menyajikan informasi dan ide secara lisan dan tertulis / <i>Students are capable have basic learning skills include searching, reading, extracting, and presenting information and ideas orally and in writing.</i>

### 3. CPL yang dibebankan kepada Mata Kuliah (Matriks CPL-CPMK / PLO-CLO Matrix)

CPMK / CLO	CPL Program Studi berbasis IABEE / CLO based on IABEE										Bobot/ Weight
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
CPMK 1	V										50%
CPMK 2	V										7.5%
CPMK 3	V			V							25%
CPMK 4						V		V			10%
CPMK 5					V						7.5%

### 4. Mata Kuliah Prasyarat / Prerequisites

- Tidak ada mata kuliah prasyarat / *There is no prerequisite for this course.*

### 5. Referensi / References

- Wignjosoebroto, S., 2003, *Pengantar Teknik dan Manajemen Industri*, Guna Widya, Surabaya.
- Shtub, Avraham & Yuval, C., 2016, *Introduction to Industrial Engineering, Second Edition*, Taylor & Francis Group, Florida.
- Daellenbach, H. G. & McNickle, D. C., 2005, *Management Science: Decision Making through Systems Thinking*, Palgrave Macmillan, New York.
- Institute of Industrial Engineers, 2001, *Handbook of Industrial Engineering: Technology and Operations Management, Third Edition*, John Wiley & Sons Inc, Canada.
- Fraser, J., *Introduction to Industrial Engineering*, Online book, available at [www.introtoie.com/](http://www.introtoie.com/)
- Hicks, P. E., 1994, *Industrial Engineering and Management: A New Perspective*, McGraw-Hill, Tokyo.
- Turner, W., 1993, *Introduction to Industrial and System Engineering*, Prentice Hall, New York.

## 6. Jadwal Perkuliahan / Learning Schedule

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
1 Tuesday 31/8	CPMK 1	1. Introduction to the course, Student-Centered-Learning (SCL), assessment, E-Learning 2. Basic-learning skills, referencing techniques, IT literacy assessment	1. Explanation of Introduction to Industrial and Systems Engineering course 2. Learning system : Student Cetered-Learning (SCL), assessment, E-learning 3. Basic-learning skills & referencing techniques	Student are able to understand about Industrial and Systems Engineering course Student are able to understand learning system and basic-learning skills	SGD, DL	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	
<p>A-B-C-D-IUP classes will be taught together (Zoom link will be created by: MA)</p> <ul style="list-style-type: none"> <li>- Introduction to the course (MA)</li> <li>- Course structure &amp; assessment (AAP)</li> <li>- Ethics &amp; rules in learning process (RK)</li> <li>- Basic learning skills &amp; referencing system (NK)</li> </ul> <p>Study Guide (SG) and Lectures Note (LN) will be uploaded 31/8. For the following weeks, SG &amp; LN will be released on Thursday every week. PPT prepared by: AAP Group clipping assignment will be released by RRP, submission will be on Saturday 11/9/2021.</p>							
2a Tuesday 7/9	CPMK 1	History, concepts, scope, roles of IE, profession, ethics, and future of IE	1. History of IE 2. Concept of IE 3. Scope and roles of IE 4. Profession and ethics of IS 5. Future IE	Student are able to understand about framewor and future of Industrial and Systems Engineering.	SGD, DL	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	
<p>A-B-C-D classes will be taught together (Zoom link will be created by: MA)</p>							

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
<p>Lecturer: SW  PIC &amp; Moderator: HR (PIC is the one who contact the speaker)  Stand by RRP  PPT prepared by: SW (Followed up by: HR)  IUP class will be asked to listen to SW's lecture recording (asynchronous mode)</p>							
2b Saturday 11/9	CPMK 1	Guest lecture: IE challenges in the current environment (in English)	<ol style="list-style-type: none"> <li>1. Current position of IE in industry.</li> <li>2. IE challenges in modern era.</li> </ol>	<p>Student are able to understand current position of IE in industry  Student are able to analyze the challenges of IE profession</p>	Seminar/Guest Lecture	Guest Lecture Presentation Material	
<p>A-B-C-D-IUP classes will be taught together (Zoom link will be created: MA)  Lecturer: Hasyim Yusuf Asjari S.T. (PT. Telkom Indonesia – Chief Operating Officer of Codex by Telkom Indonesia)  PIC &amp; Moderator: PIC: AAP; Moderator: RRP  Stand by: AAP  PPT prepared by: (Followed up by: AAP)  Submission of Group Clipping assignment at IG. Questions, comments, and likes will be monitored by the class assistants.</p>							
3 Tuesday 14/9	CPMK 4	Discussion and presentation of clipping on Industrial Engineer's profile, professions, and competencies	<ol style="list-style-type: none"> <li>1. Collecting about IE profile and profession</li> <li>2. Discussion about IE profile and profession</li> <li>3. Presenting IE profile and profession</li> </ol>	<p>Student are able to demonstrate the ability to work in team.  Student are able to implement basic learning skills in discussion &amp; presentation</p>	SGD, RPS, DL	Assignment Clipping	Assignment : clipping on Industrial Engineer's profile, professions, and competencies
<p>A-B-C-D-IUP classes will be taught in individual class by each lecturer (Zoom link will be created by the lecturer in each class)  HR and assistants will prepare detail assignment and scoring system, considering that the assignment will be uploaded to social media.</p>							
4 Tuesday	CPMK 2	Introduction to system thinking	1. Explanation of System thinking	Student are able to understand about	SGD, DL	<ul style="list-style-type: none"> <li>• Study Guide</li> </ul>	

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
21/9		and system approach	2. Explanation of system concept	system thing and system concept		<ul style="list-style-type: none"> <li>Lecture Note</li> </ul>	
<p>A-B-C-D classes will be taught together by BW (Zoom link will be created: MA)  PIC &amp; Moderator: RK  Stand by: AAP  PPT prepared by: BW (Followed up by: RK)</p>							
5 Tuesday 28/9	CPMK 3	Introduction to Computer Integrated Manufacturing Open System Architecture (CIMOSA)	<ol style="list-style-type: none"> <li>Business process overview</li> <li>Several business process model</li> <li>What is CIMOSA</li> <li>CIMOSA components (Manage, Core and Support Process)</li> </ol>	Students are able to understand how to map business process	SGD, DL	<ul style="list-style-type: none"> <li>Study Guide</li> <li>Lecture Note</li> </ul>	
<p>A-B-C-D-IUP classes will be taught in individual class by each lecturer (Zoom link will be created by the lecturer in each class)  PPT is ready.</p>							
5b Saturday 2/10	CPMK 2	Case study of system thinking and system approach	Case study System Analysis	Student are able to understand and implementation the ability to analyse the system	SGD, RPS, DL	Study Case	Study case output on analyzing a system.
<p>A-B-C-D-IUP classes will be taught in individual class by each lecturer (Zoom link will be created by the lecturer in each class).  Presentation and discussion related to the Assignment on System Analysis.</p>							
6 Tuesday 5/10	CPMK 3	<ul style="list-style-type: none"> <li>Implementation of CIMOSA in manufacturing</li> </ul>	1. CIMOSA implementation in manufacturing	Students are able to understand the implementation of	SGD, DL	<ul style="list-style-type: none"> <li>Study Guide</li> <li>Lecture Note</li> </ul>	

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
		and service industries • Group Project Release	2. CIMOSA implementation in service	CIMOSA in various companies			
A-B-C-D-IUP classes will be taught in individual class by each lecture (Zoom link will be created by the lecturer in each class) Discussion related to CIMOSA impletation in various companies PPT is ready.							
7 Tuesday 12/10	CPMK 1	Extended Enterprises – macro interactions and approaches to business process	1. Logistics (in-bound & out-bond) 2. Warehouse 3. Supply Chain Management		SGD, DL		
A-B-C-D-IUP classes will be taught together (Zoom link will be created: RRP) Lecturer: INP Moderator: NAS Stand by: RK PPT prepared by INP and followed up by NAS							
8 Tuesday 19/10	CPMK 1	Mid Semester Exam					Written exam
Online Test with MyITS Classroom. The compiler of Mid Exam Questions: AAP							
9 Tuesday 26/10	CPMK 5	Using MS Office and Google features for IE Jobs	1. Google Drive 2. Google Form 3. Google Docs 4. Google Spreadsheet	1. Ability to demonstrating team work to do assignments. 2. Ability to implement basic learning skills, include searching, reading, extracting,	SGD, RPS, DL	Problem/Case Study in IT Application	Assignment IT Literacy Application



Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
				and presenting information and ideas orally and in writing.			
A-B-C-D-IUP classes will be taught by the assistants HR will supervise the assistants to prepare the materials and quizzes.							
10 Tuesday 2/11	CPMK 1 CPMK 2 CPMK 3	Set direction, set strategies, direct business – introduction to formulation of vision and mission, strategies deployment, and business management	1. Set Direction 2. Set Strategies 3. Direct Business 4. Vision Mision 5. Company Strategy	1. Ability to understand the concept of system and business process. 2. Ability to analyze systems and business processes.	SGD, DL, PBL	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	
A-B-C-D-IUP classes will be taught by each lecturer (Zoom link will be created by the lecturer in each class).							
11 Tuesday 9/11	CPMK 1	Introduction to product development	1. Product Concept 2. Product Value 3. Product Life Cycle 4. Sucsesfull Product Development	1. Ability to understand the concept of system and business process. 2. Ability to analyze systems and business processes	SGD, DL, PBL	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	
A-B-C-D-IUP classes will be taught together (Zoom link will be created: MA) Lecturer: DSD Moderator: AAP Stand by: HR							

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
PPT prepared by DSD and followed up by AAP							
11b Saturday 13/11	CPMK 1 CPMK 2 CPMK 3	Get order	<ol style="list-style-type: none"> <li>1. Core Concepts of marketing</li> <li>2. Push vs Pull Strategy</li> <li>3. Basic Sales Tasks</li> </ol>	<ol style="list-style-type: none"> <li>1. Ability to understand the concept of system and business process</li> <li>2. Ability to analyze systems and business processes</li> </ol>	SGD, DL, PBL	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	
A-B-C-D classes will be taught by MA (Zoom link will be created by MA) IUP class will be taught in individual class by NAS. PPT is ready							
12a Tuesday 16/11	CPMK 1 CPMK 2 CPMK 3	Fulfill order – introduction to manufacturing process, manufacturing system, time and motion study, and layout	<ol style="list-style-type: none"> <li>1. Manufacturing Process</li> <li>2. Manufacturing System</li> <li>3. Work Method</li> <li>4. Facility Planning</li> </ol>	<ol style="list-style-type: none"> <li>1. Ability to understand the framework of Industrial and Systems Engineering and its contemporary issues.</li> <li>2. Ability to understand the concept of system and business process.</li> <li>3. Ability to analyze systems and business processes.</li> </ol>	SGD, DL, PBL	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
				4. Ability to implement basic learning skills, include searching, reading, extracting, and presenting information and ideas orally and in writing.			
Class A-B-C-D-IUP classes will be taught in individual class by each lecturer (Zoom link will be created by the lecturer in each class). PPT is ready.							
12b Saturday 20/11	CPMK 1 CPMK 2 CPMK 3	Fulfill order – introduction to quality, production planning & inventory control, distribution, and support production	<ol style="list-style-type: none"> <li>1. Quality Management</li> <li>2. Production &amp; Inventory Control</li> <li>3. Distribution</li> <li>4. Support Product</li> </ol>	<ol style="list-style-type: none"> <li>5. Ability to understand the framework of Industrial and Systems Engineering and its contemporary issues.</li> <li>6. Ability to understand the concept of system and business process.</li> <li>7. Ability to analyze systems and business processes.</li> <li>8. Ability to implement basic learning skills, include searching,</li> </ol>	SGD, DL, PBL	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
				reading, extracting, and presenting information and ideas orally and in writing.			
A-B-C-D-IUP classes will be taught in individual class by each lecturer(Zoom link will be created by the lecturer in each class).							
13 Tuesday 23/11	CPMK 4	Virtual Company Visit		Ability to implement basic learning skills, include searching, reading, extracting, and presenting information and ideas orally and in writing.	DL, CL	Study Case	Company Visit Report
Students will be divided into some groups PIC: NAS & RRP							
14 Tuesday 30/11	CPMK 1 CPMK 2 CPMK 3	Support process – introduction to Human Resource Management (HRM), IT implementation, Finance, and Maintenance	<ol style="list-style-type: none"> <li>1. Struktur CIMOSA: Support process</li> <li>2. Support Process – Teknologi dan Informasi</li> <li>3. Support Process – Manajemen SDM</li> <li>4. Support Process – Akuntansi dan Finansial</li> <li>5. Support Process – Manajemen Pemeliharaan</li> </ol>	<ol style="list-style-type: none"> <li>1. Ability to understand the concept of system and business process.</li> <li>2. Ability to analyze systems and business processes.</li> </ol>	Seminar	<ul style="list-style-type: none"> <li>• Study Guide</li> <li>• Lecture Note</li> </ul>	

Minggu Week	CPMK CLO	Topik Topic	Sub Topik (Pustaka) Sub Topic (Ref)	Sub CPMK Sub CLO	Metode Pembelajaran Learning Method	Sarana Pembelajaran Learning Facilities	Bentuk Evaluasi Assessment Form
			6. Contoh aplikasi CIMOSA: Support Process dalam perusahaan				
A-B-C-D-IUP classes will be taught by MA (Zoom link will be created by MA). PPT is ready.							
15 Tuesday 7/12	CPMK 3	Group Project Presentation		Ability to understand the framework of Industrial and Systems Engineering and its contemporary issues.	PBL		Assignment 3: CIMOSA Project
A-B-C-D-IUP classes will be taught in individual class by each lecture (Zoom link will be created by the lecturer in each class). Students will present their final result of Group Project on CIMOSA. Course assistants should accompany the lecturers in the Group Project presentation.							
16 Tuesday 14/12	CPMK 1	Final examination					Final examination
Online Test with MyITS Classroom. The compiler of the final exam questions: RRP							

Note:

**Learning Method / Metode Pembelajaran:** menunjukkan berbagai cara belajar yang dilakukan mahasiswa terkait dengan satu topik atau sub topik, bukan aktivitas yang dilakukan dosen, menunjukkan variasi belajar berfokus pada siswa atau *Student Center Learning (SCL)* dan menunjukkan *blended learning*.

**Opsi metode pembelajaran,** bisa dilakukan secara individu maupun kelompok:

1. Small Group Discussion (SGD): ada topik diskusi kelompok, membahas/menyimpulkan, membuat rancangan kelompok, presentasi
2. Role-Play & Simulation (RPS): mempraktekkan berbagai model atau peran yang ditugaskan, menganalisis, presentasi
3. Discovery Learning (DL) : Mencari, mengumpulkan, dan menyusun informasi yang ada untuk mendeskripsikan suatu pengetahuan, laporan
4. Contextual Instruction (CI): melakukan studi lapangan / terjun di dunia nyata untuk mempelajari kesesuaian teori, presentasi
5. Project Based Learning (PBL): Mengerjakan proyek, menggali informasi (inquiry) untuk memecahkan masalah faktual, presentasi
6. Responsi/tutorial
7. Seminar/kuliah tamu

**Learning Facilities / Sarana Pembelajaran:** alat atau bahan yang digunakan untuk menunjang metode pembelajaran, selain ppt/pdf materi dari dosen.

**Opsi sarana pembelajaran:** study guide, prototype, video, case study

**Assesment Method / Bentuk Assessment:** Quiz, homework (PR), exercise (tugas di kelas), ujian tulis, praktikum, presentasi


akan menghasilkan grade/penilaian, mhs akan diukur capaiannya melalui berbagai bentuk assessment, menjadi acuan dalam penyusunan RAE (Rancangan Assesment dan Evaluasi), serta RT (Rancangan Tugas)

**Catatan sesuai dengan SN Dikti Permendikbud No 3/2020:**

1. Capaian Pembelajaran Lulusan PRODI (CPL-PRODI) adalah kemampuan yang dimiliki oleh setiap lulusan PRODI yang merupakan internalisasi dari sikap, penguasaan pengetahuan dan ketrampilan sesuai dengan jenjang prodinya yang diperoleh melalui proses pembelajaran.
2. CPL yang dibebankan pada mata kuliah adalah beberapa capaian pembelajaran lulusan program studi (CPL-PRODI) yang digunakan untuk pembentukan/pengembangan sebuah mata kuliah yang terdiri dari aspek sikap, ketrampilan umum, ketrampilan khusus dan pengetahuan.
3. CP Mata kuliah (CPMK) adalah kemampuan yang dijabarkan secara spesifik dari CPL yang dibebankan pada mata kuliah, dan bersifat spesifik terhadap bahan kajian atau materi pembelajaran mata kuliah tersebut.
4. Sub-CP Mata kuliah (Sub-CPMK) adalah kemampuan yang dijabarkan secara spesifik dari CPMK yang dapat diukur atau diamati dan merupakan kemampuan akhir yang direncanakan pada tiap tahap pembelajaran, dan bersifat spesifik terhadap materi pembelajaran mata kuliah tersebut.
5. Indikator penilaian kemampuan dalam proses maupun hasil belajar mahasiswa adalah pernyataan spesifik dan terukur yang mengidentifikasi kemampuan atau kinerja hasil belajar mahasiswa yang disertai bukti-bukti.
6. Kreteria Penilaian adalah patokan yang digunakan sebagai ukuran atau tolok ukur ketercapaian pembelajaran dalam penilaian berdasarkan indikator-indikator yang telah ditetapkan. Kreteria penilaian merupakan pedoman bagi penilai agar penilaian konsisten dan tidak bias. Kreteria dapat berupa kuantitatif ataupun kualitatif.
7. Teknik penilaian: tes dan non-tes.

8. Bentuk pembelajaran: Kuliah, Responsi, Tutorial, Seminar atau yang setara, Praktikum, Praktik Studio, Praktik Bengkel, Praktik Lapangan, Penelitian, Pengabdian Kepada Masyarakat dan/atau bentuk pembelajaran lain yang setara.
9. Metode Pembelajaran: *Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning*, dan metode lainnya yg setara.
10. Materi Pembelajaran adalah rincian atau uraian dari bahan kajian yg dapat disajikan dalam bentuk beberapa pokok dan sub-pokok bahasan.
11. Bobot penilaian adalah prosentasi penilaian terhadap setiap pencapaian sub-CPMK yang besarnya proposional dengan tingkat kesulitan pencapaian sub-CPMK tsb., dan totalnya 100%.
12. TM=Tatap Muka, PT=Penugasan Terstruktur, BM=Belajar Mandiri.

## RENCANA TUGAS (RT) – ASSIGNMENT PLANNING

	<b>INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)</b> <b>FAKULTAS TEKNOLOGI INDUSTRI DAN REKAYASA SISTEM</b> <b>DEPARTEMEN TEKNIK SISTEM DAN INDUSTRI</b>				
	<b>Mata Kuliah (MK)</b>	<b>Kode</b>	<b>RMK</b>	<b>Bobot (sks)</b>	<b>Semester</b>
Pengantar Teknik Sistem & Industri <i>Introduction to Industrial &amp; Systems Engineering</i>	TI 181301	Kuliah Umum <i>General Studies</i>	2	1	28 Agustus 2021 28 August 2021

Bentuk assessment dan keterkaitannya dengan CPMK (*Assessment Method and CLO*)

No.	CPMK CLO	Bobot Weight	Bentuk Evaluasi Evaluation	Bobot Setiap Evaluasi Weight of Each Evaluation
1	CPMK 1	50%	UTS / <i>Mid-Exam</i>	20%
			UAS / <i>Final Exam</i>	20%
			Partisipasi Kelas / <i>Class Participation</i>	10%
2	CPMK 2	7,5%	Tugas Analisa Sistem / <i>Assignment on System Analysis</i>	7,5%
3	CPMK 3	25%	Konsultasi / <i>Consultation</i>	10%
			Laporan / <i>Report</i>	10%
			Presentasi / <i>Presentation</i>	5%
4	CPMK 4	10%	Kliping / <i>Clipping</i>	5%
			Kunjungan Perusahaan / <i>Company Visit</i>	5%
5	CPMK 5	7,5%	Tugas Literasi TIK/ <i>Assignment on IT Literacy</i>	7,5%



## Tugas 1 / Homework 1 : Klipping / Clipping

Kode	Uraian CPMK / Description of CLO
<b>CPMK 4</b>	Mahasiswa mampu menunjukkan kemampuan kerja tim dalam mengerjakan tugas
<b>CLO 4</b>	<i>Students are capable of demonstrating team working ability to do assignments</i>

### Tujuan Tugas / Objectives of Exercise

Mahasiswa mampu bekerja sama dan menjelaskan mengenai prospek kerja seorang sarjana Teknik Industri

*Students are able to collaborate and explain about working prospect of an Industrial engineer.*

### Uraian Tugas / Exercise Explanation:

1. Mahasiswa diminta untuk bekerjasama dalam mengumpulkan informasi pada berbagai media mengenai prospek kerja seorang sarjana Teknik Industri  
*Students are asked to collaborate on gathering information from various sources about the working prospect of an Industrial Engineer.*
2. Mahasiswa diminta untuk melakukan analisa mengenai klasifikasi yang dibutuhkan pada jabatan yang diisi oleh seorang lulusan Teknik Industri  
*Students are asked to analyze all required classification of a particular position filled by Industrial Engineer figure.*
3. Mahasiswa diminta untuk membuat video dan poster kreatif terkait dengan hasil analisa mereka yang diunggah di Instagram dan Youtube Departement Teknik Sistem dan Industri ITS  
*Students are asked to make a creative video and poster of their findings, and post it on Industrial and Systems Engineering' Instagram and Youtube account.*

### KRITERIA PENILAIAN:

1. Variabilitas dan kualitas dari sumber informasi  
*Variability and quality of the information sources*
2. Ketajaman analisa dan kesimpulan  
*The quality of analysis and conclusion*
3. Kualitas dari kreatif video dan poster  
*Quality of creative video and poster*

## Tugas 2 / Homework 2: Analisa Sistem / System Analysis

Kode	Uraian CPMK / Description of CLO
<b>CPMK 2</b>	Mahasiswa memahami konsep sistem
<b>CLO 2</b>	<i>Students understand the concept of system</i>

### Tujuan Tugas / Objectives of Exercise

Mahasiswa mampu menjelaskan konsep berpikir sistem dengan contoh permasalahan

*Students are able to explain the concept of systemic thinking in a real case example*

### Uraian Tugas / Exercise Explanation:

1. Buatlah ringkasan terkait dengan masalah yang telah ditentukan  
*Students are asked to make a summary of a given case*
2. Buatlah daftar elemen sistem dari permasalahan yang ditentukan dan tentukan bagian yang dapat dibuat pengembangan  
*Students are asked to make a list of system elements from a given case and determine a potential part to be developed*
3. Gunakan salah satu diagram dalam menggambarkan sebuah sistem  
*Students are asked to choose a diagram to describing a system*

### KRITERIA PENILAIAN:

1. Ketajaman identifikasi masalah  
*The sharpness of problem identification*
2. Kesesuaian daftar elemen dengan permasalahan  
*The conformity between element list and the problem*
3. Diagram untuk menggambarkan sistem  
*The quality of diagram that describe the system*
4. Ketajaman analisa dan kesimpulan  
*The quality of analysis and conclusion*
5. Kualitas penulisan laporan  
*The quality of written report*
6. Daftar pustaka  
*References*

### Tugas 3 / Homework 3: Literasi IT / IT Literation

Kode	Uraian CPMK / Description of CLO
<b>CPMK 5</b>	Mahasiswa mampu menggunakan piranti teknik dan memiliki keterampilan belajar dasar meliputi mencari, membaca, mengekstrak, dan menyajikan informasi dan ide secara lisan dan tertulis
<b>CLO 5</b>	<i>Students are capable have basic learning skills include searching, reading, extracting, and presenting information and ideas orally and in writing</i>

#### Tujuan Tugas / Objectives of Exercise

Mahasiswa mampu mengeksplorasi *Google Features* dan melatih penyajian data melalui pembuatan survey

*Students are able to explore the Google Features and providing data from a survey*

#### Uraian Tugas / Exercise Explanation:

1. Mahasiswa diminta melakukan survey terhadap topik tertentu  
*Students are asked to run a survey with a specific topic*
2. Mahasiswa diminta untuk menyajikan data hasil survey dengan semenarik mungkin  
*Stundents are asked to provide data derived from the survey in a most-attractive fashion*
3. Mahasiswa diminta untuk melakukan interpretasi dan analisis data yang sudah didapatkan  
*Students are asked to interpret and analyze data derived from the survey*

#### KRITERIA PENILAIAN:

1. Kesesuaian pertanyaan survey dengan tujuan  
*The conformity between survey questions and the goal*
2. Sajian data dari hasil survey  
*The quality of descriptive data derived from the survey*
3. Ketajaman analisa data dari hasil survey  
*The quality of analysis of data from the survey*

#### Tugas 4 / Homework 4: Company visit resume / Company visit' summary

Kode	Uraian CPMK / Description of CLO
<b>CPMK 4</b>	Mahasiswa mampu menunjukkan kemampuan kerja tim dalam mengerjakan tugas
<b>CLO 4</b>	<i>Students are capable of demonstrating team working ability to do assignments</i>

#### Tujuan Tugas / Objectives of Exercise

Mahasiswa mampu memahami proses bisnis dari perusahaan yang telah dikunjungi

*Students are able to understand the business process of the visited company*

#### Uraian Tugas / Exercise Explanation:

1. Mahasiswa diminta membuat resume yang berisi tentang identifikasi dan kesimpulan mengenai bisnis proses perusahaan kunjungan

*Students are asked to make a summary of identification and conclusion regarding the business process of the visited company*

#### KRITERIA PENILAIAN:

1. Ketajaman analisa dan kesimpulan  
*The quality of analysis and conclusion*
2. Kualitas penulisan resume  
*The quality of written summary*

## Tugas 5 / Homework 5: Tugas besar mata kuliah / Course project

Kode	Uraian CPMK / Description of CLO
<b>CPMK 3</b>	Mahasiswa memiliki kemampuan analitis dalam memahami sistem dan proses bisnis
<b>CLO 3</b>	<i>Students have the analytical ability in understanding systems and business processes</i>

### Tujuan Tugas / Objectives of Exercise

Mahasiswa mampu memahami proses bisnis sebuah perusahaan berskala kecil dan menengah, melakukan benchmark terhadap perusahaan yang sudah stabil, dan mengajukan analisa perbaikan

*Students are able to understand the business process of small and medium enterprise, do benchmarking to well-established company, and proposed business model improvement*


### Uraian Tugas / Exercise Explanation:

1. Melakukan pemetaan dan analisa terhadap proses bisnis perusahaan kecil dan menengah  
*Students are asked to do mapping and analyze the business process of small and medium enterprise*
2. Mempelajari dan memahami bisnis proses dari perusahaan yang sudah stabil  
*Students are asked to learn and understand business process of a well-established company*
3. Melakukan perbandingan antara perusahaan berskala kecil dan menengah dengan perusahaan yang telah stabil terkait dengan bisnis proses perusahaan  
*Students are asked to do benchmarking between small and medium enterprise to well-established company regarding its business process*
4. Melakukan asistensi kepada asisten mata kuliah terkait progress pengerjaan tugas  
*Students are asked to have assistantship with the class teaching-assistant towards their progress*
5. Menulis seluruh rangkaian tugas dalam sebuah laporan resmi tertulis  
*Students are asked to make a formal written report*
6. Melakukan presentasi terhadap keseluruhan tugas  
*Students are asked to present their course project*

### KRITERIA PENILAIAN:

1. Performa individual mahasiswa saat sesi konsultasi dengan asisten kelas  
*Individual performance during consultation sessions with class teaching-assistant*
2. Kualitas penulisan, argumentasi, penjelasan, kelengkapan dan ketepatan format laporan tertulis  
*The quality of writing, argument, clarity of explanation, completeness and correctness of the format of written report*
3. Pemetaan proses bisnis, ketepatan dan kelengkapan pemetaan, kedalaman penulisan, kualitas analisa, dan kualitas ajuan perbaikan  
*Business process mapping, correctness & completeness of mapping, level of details, quality of analysis, and quality of proposed improvement/recommendation*
4. Analisa yang kritis, ketajaman analisa, kualitas sumber informasi  
*Critical exploration & analysis, level of details, quality of sources*
5. Kualitas perbandingan perusahaan  
*Quality of comparison between 2 firms*
6. Kualitas presentasi dan keseluruhan laporan tertulis  
*Quality of presentation and overall written report*

## RENCANA ASSESSMENT (RA) – ASSESSMENT PLANNING

	<b>INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)</b> <b>FAKULTAS TEKNOLOGI INDUSTRI DAN REKAYASA SISTEM</b> <b>DEPARTEMEN TEKNIK SISTEM DAN INDUSTRI</b>				
	<b>Mata Kuliah (MK)</b>	<b>Kode</b>	<b>RMK</b>	<b>Bobot (sks)</b>	<b>Semester</b>
Pengantar Teknik Sistem & Industri <i>Introduction to Industrial &amp; Systems Engineering</i>	TI 181301	Kuliah Umum <i>General Studies</i>	2	1	28 Agustus 2021 28 August 2021

Bentuk assessment dan keterkaitannya dengan CPMK (*Assessment Method and CLO*)

No.	CPMK CLO	Bobot Weight	Bentuk Evaluasi Evaluation	Bobot Setiap Evaluasi Weight of Each Evaluation
1	CPMK 1	50%	UTS / <i>Mid-Exam</i>	20%
			UAS / <i>Final Exam</i>	20%
			Partisipasi Kelas / <i>Class Participation</i>	10%
2	CPMK 2	7,5%	Tugas Analisa Sistem / <i>Assignment on System Analysis</i>	7,5%
3	CPMK 3	25%	Konsultasi / <i>Consultation</i>	10%
			Laporan / <i>Report</i>	10%
			Presentasi / <i>Presentation</i>	5%
4	CPMK 4	10%	Kliping / <i>Clipping</i>	5%
			Kunjungan Perusahaan / <i>Company Visit</i>	5%
5	CPMK 5	7,5%	Tugas Literasi TIK/ <i>Assignment on IT Literacy</i>	7,5%

## UTS

Kode	Uraian CPMK / <i>Description of CLO</i>
CPMK 1 CLO 1	Mahasiswa memahami kerangka kerja Teknik Industri (IE) dan isu-isu kontemporer / <i>Students understand the framework of Industrial Engineering (IE) and its contemporary issues.</i>
CPMK 2 CLO 2	Mahasiswa memahami konsep sistem / <i>Students understand the concept of system.</i>
CPMK 3 CLO 3	Mahasiswa memiliki kemampuan analitis dalam memahami sistem dan proses bisnis / <i>Students have the analytical ability in understanding systems and business processes.</i>

Bentuk :

- Part 1. Multiple Choice 1 jawaban benar
  - Mengukur CPMK 1, CPMK 2, dan CPMK 3.
  - Dikerjakan dengan langsung menjawab di classroom, selama 25 menit
  - Jumlah soal 15, diambilkan dari question bank.
  - Maksimum nilai 30
  - Bentuk : pilihan ganda dengan 1 jawaban benar
- Part 2. Multiple Answer Choices
  - Mengukur CPMK 1, CPMK 2, dan CPMK 3.
  - Dikerjakan dengan langsung menjawab di classroom, selama 25 menit
  - Jumlah soal 15, diambilkan dari question bank
  - Maksimum nilai 30
  - Bentuk : pilihan ganda dengan >1 jawaban benar dan matching
- Part 3. Short Answer
  - Mengukur CPMK 1, CPMK 2, dan CPMK 3.
  - Dikerjakan dengan langsung menjawab di classroom, selama 25 menit
  - Jumlah soal 10, diambilkan dari question bank
  - Maksimum nilai 20
  - Bentuk : Jawaban singkat
- Part 4. Simple Essay
  - Mengukur CPMK 1, CPMK 2, dan CPMK 3
  - Berlangsung selama 25 menit
  - Jumlah soal 4, diambilkan dari question bank
  - Dikerjakan dengan menjawab langsung di classroom
  - Soal dengan instruksi tambahan ilustrasi dikerjakan di lembar kertas A4. Jawaban di tulis tangan, difoto dengan menampilkan keterangan nama NRP tanda tangan, disimpan dalam format jpg, diupload di classroom sesuai dengan nomer soal.
  - Maksimum nilai 20
  - Bentuk : Essay

## UAS

Kode	Uraian CPMK / Description of CLO
CPMK 3 CLO 3	Mahasiswa memiliki kemampuan analitis dalam memahami sistem dan proses bisnis / <i>Students have the analytical ability in understanding systems and business processes.</i>
CPMK 5 CLO 5	Mahasiswa mampu menggunakan piranti teknik dan memiliki keterampilan belajar dasar meliputi mencari, membaca, mengekstrak, dan menyajikan informasi dan ide secara lisan dan tertulis / <i>Students are capable have basic learning skills include searching, reading, extracting, and presenting information and ideas orally and in writing.</i>

Bentuk :

- Part 1. Multiple Choice 1 jawaban benar
  - Mengukur CPMK 3
  - Dikerjakan dengan menjawab di google form, waktu pengerjaan 20 menit
  - Jumlah soal 20, diambilkan dari question bank
  - Maksimum nilai 40
  - Bentuk: pilihan ganda dengan 1 jawaban benar
- Part 2. Short Answer & Multiple Answer Choices
  - Mengukur CPMK 3.
  - Dikerjakan dengan menjawab di google form, waktu pengerjaan 20 menit
  - Jumlah soal 20, diambilkan dari question bank
  - Maksimum nilai 40
  - Bentuk : Jawaban singkat dan pilihan ganda dengan >1 jawaban benar dan matching
- Part 4. Essay Analysis
  - Mengukur CPMK 3 dan CPMK 5
  - Dikerjakan dengan menjawab di google form, waktu pengerjaan 35 menit
  - Jumlah soal 4, diambilkan dari question bank
  - Maksimum nilai 20
  - Dikerjakan dengan menjawab langsung di google form