



MODULE HANDBOOK

TECHNOLOGY INSIGHT AND APPLICATIONS



**BACHELOR DEGREE PROGRAM
DEPARTMENT OF BIOMEDICAL ENGINEERING
FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS
TECHNOLOGY**

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

ENDORSEMENT PAGE



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DEPARTMENT OF BIOMEDICAL ENGINEERING

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

Number : B/21368/IT2.IX.5.1.2/PP.03.00.00/2020

Proses <i>Process</i>	Penanggung Jawab <i>Person in Charge</i>			Tanggal <i>Date</i>
	Nama <i>Name</i>	Jabatan <i>Position</i>	Tandatangan <i>Signature</i>	
Perumus <i>Preparation</i>	Dra. Endang Susilowati, M.Kes	Dosen <i>Lecturer</i>	TTD	November 23, 2019
Pemeriksa dan Pengendalian <i>Review and Control</i>	Dr. Didik Khusnul Arif, S.Si, M.Si	Tim kurikulum <i>Curriculum team</i>	TTD	February 13, 2020
Persetujuan <i>Approval</i>		Koordinator RMK <i>Course Cluster Coordinator</i>	TTD	March 05, 2020
Penetapan <i>Determination</i>	Dr. Achmad Arifin, S.T., M.Eng.	Kepala Departemen <i>Head of Department</i>		March 12, 2020

MODULE HANDBOOK

TECHNOLOGY INSIGHT AND APPLICATIONS

Module name	TECHNOLOGY INSIGHT AND APPLICATIONS	
Module level	Undergraduate	
Code	UG184916	
Course (if applicable)	Technology Insight and Applications	
Semester	Seventh Semester (Gasal)	
Person responsible for the module	Dra. Endang Susilowati, M.Kes	
Lecturer	Ir.Josaphat Pramudijanto, M.Eng.	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program, mandatory , 7 th semester.	
Type of teaching, contact hours	Lectures, <60 students Mondays, 07.00-08.40 (GMT+7)	
Workload	1. Lectures : 2 x 50 = 100 minutes per week. 2. Exercises and Assignments : 2 x 60 = 120 minutes (2 hours) per week. 3. Private learning : 2 x 60 = 120 minutes (2 hours) per week.	
Credit points	3 credit points (sks)	
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.	
Mandatory prerequisites	Prerequisites for taking this course are semester 5 and above (for D3), and semester 6 (for S1)	
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, CLO 1: Students understand the outline of the lecture from the beginning to the implementation of KKN CLO 2: Students are able to change information into something that is simpler to understand CLO 3: Able to create Logframe matrix CLO 4: Have insight and are able to implement the principles of sustainable development according to their field of expertise in solving problems in society and the surrounding environment.	PLO-11 PLO-10 PLO-10 PLO-10

	CLO 5: Able to understand the basics of using technology by optimizing information and communication technology in solving problems in society and its environment. CLO 6: Able to use open source-based information technology to create agency websites. CLO 7: Able to use applied information technology to solve common problems in society CLO 8: Able to develop a cooperative attitude and have social sensitivity and high concern for society and the environment. CLO 9: Students can be part of the solution to problems that exist in community groups CLO 10: Skilled in the use of technology and creativity in solving problems in society and the environment.	PLO-10 PLO-10 PLO-10 PLO-10 PLO-10 PLO-12
Content	Technology Insights and Applications courses will provide inspiration to students in developing insight into science, technology and innovation as well as the forms of their application in society and the environment. As citizens, students will be able to have skills and creativity in comprehensively utilizing technology. During the recovery process, students develop a thinking pattern based on a constructive information transformation thinking model with a systemic logframe matrix, by leveraging open source technology and mobile applications. Starting from observing problems, exploring problems to finding effective forms of solutions that allow concrete solutions to be achieved. In developing forms of problem solving in the community based on the principle of sustainable development. Strengths that are prioritized to be increased in the application of information and communication technology accompanied by increased social sensitivity so that they become more adaptive individuals in working together to achieve the target of solving problems in society. The ability to observe and interview in the field also supports the skills given to students so that factual data in the field can be used optimally. Towards the end of lectures, students are able to optimally design a Real Work Lecture (KKN) proposal based on field facts. By utilizing ICT and involving the skills that each student has according to their scientific background creatively for the benefit of development in society and the environment. At the end of the lecture, students carry out a Thematic Field Work Practice (KKN) that emphasizes capacity building in the community. So that students as intelligent people need to be given the opportunity to be and be part of the solution to problems that exist in society.	

Study and examination requirements and forms of examination	● Mid-term examination ● Discussion and Presentation ● Community Service Program Report
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading list	Main : 1. Buku Transformasi Informasi, Dr.techn. Pujo Aji, ST.MT., ITS Pres., 2016 2. Alfred Watkins and Michel Ehst, "Science, Technology and Innovation: Capacity Building for Sustainable Growth and Poverty Reduction", The International Bank for Reconstruction and Development, Washington DC, 2008. 3. Frieder Meyer Krahmer, "Innovation and Sustainable Development-Lesson for Innovation Policies, " A Springer-Verlag Company, Heidelberg, 1998. 4. Arahana Pelaksanaan Tujuan Pembangunan, Alamat Kontak: Website : sdgs.bappenas.go.id

I. Rencana Pembelajaran Semester / Semester Learning Plan

	INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS) FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY DEPARTMENT OF BIOMEDICAL ENGINEERING					Document Code
SEMESTER LEARNING PLAN						
MATA KULIAH (MK) COURSE	KODE CODE	Rumpun MK Course Cluster	BOBOT (sks) Credits		SEMESTER	Tgl Penyusunan Compilation Date
Wawasan dan Aplikasi Teknologi Technology Insights and Applications	UG184916	ITS Compulsory	T=2	P=0	VII	Feb 27, 2018
OTORISASI / PENGESAHAN AUTHORIZATION / ENDORSEMENT	Dosen Pengembang RPS Developer Lecturer of Semester Learning Plan		Koordinator RMK Course Cluster Coordinator		Ka DEPARTEMEN Head of Department	
	(Dra. Endang Susilowati, M.Kes)		(M. Hilman Fatoni, S.T., M.T.)		(Dr. Achmad Arifin, S.T., M.Eng.)	
Capaian Pembelajaran	CPL-PRODI yang dibebankan pada MK PLO Program Charged to The Course					
Learning Outcomes	CPL-10 PLO-10	Mampu menerapkan prinsip-prinsip teknologi dan kemampuan manajerial untuk dapat berkarya di bidang Teknik Biomedika maupun dalam kehidupan bersama di masyarakat pada tingkat nasional dan internasional Able to apply the principles of technology and managerial ability to be able to work in the field of Biomedical Engineering as well as in community life in the national and international level				
	CPL-11 PLO-11	Mampu memahami kebutuhan akan pembelajaran sepanjang hayat Able to understand the need for lifelong learning				
	CPL-12 PLO-12	Mampu bersikap dan berperilaku religius, nasionalis, saling menghormati, mandiri, dan gigih Able to behave and act religiously, nationally, respectfully, independently, and persistently				
	Capaian Pembelajaran Mata Kuliah (CPMK) Course Learning Outcome (CLO) - If CLO as description capability of each Learning Stage in the course, then CLO = LLO					

	CP MK 1 CLO 1	Mahasiswa paham mengenai garis besar perkuliahan dari awal sampai pelaksanaan KKN. <i>Students understand the outline of the lecture from the beginning to the implementation of KKN</i>
	CP MK 2 CLO 2	Mahasiswa mampu merubah informasi menjadi sesuatu yang lebih sederhana untuk dipahami <i>Students are able to change information into something that is simpler to understand</i>
	CP MK 3 CLO 3	Mampu membuat matrik Logframe <i>Able to create Logframe matrix</i>
	CP MK 4 CLO 4	Memiliki wawasan dan mampu mengimplementasikan prinsip pembangunan berkelanjutan sesuai bidang keahliannya dalam menuntaskan persoalan di masyarakat serta lingkungan sekitarnya. <i>Have insight and are able to implement the principles of sustainable development according to their field of expertise in solving problems in society and the surrounding environment.</i>
	CP MK 5 CLO 5	Mampu memahami dasar-dasar penggunaan teknologi dengan mengoptimalkan teknologi informasi dan komunikasi dalam menyelesaikan persoalan di masyarakat dan lingkungannya. <i>Able to understand the basics of using technology by optimizing information and communication technology in solving problems in society and its environment.</i>
	CP MK 6 CLO 6	Mampu menggunakan teknologi informasi berbasis open source untuk membuat website instansi. <i>Able to use open source-based information technology to create agency websites.</i>
	CP MK 7 CLO 7	Mampu menggunakan teknologi informasi terapan untuk menyelesaikan permasalahan-permasalahan umum di masyarakat <i>Able to use applied information technology to solve common problems in society</i>
	CP MK 8 CLO 8	Mampu mengembangkan sikap berkerja sama dan memiliki kepekaan sosial serta kepedulian yang tinggi di masyarakat dan lingkungan. <i>Able to develop a cooperative attitude and have social sensitivity and high concern for society and the environment.</i>
	CP MK 9 CLO 9	Mahasiswa bisa menjadi bagian dari solusi atas permasalahan yang ada di kelompok masyarakat. <i>Students can be part of the solution to problems that exist in community groups.</i>
	CP MK 10 CLO 10	Terampil dalam penggunaan Teknologi dan memiliki kreativitas dalam rangka memecahkan persoalan yang ada di masyarakat dan lingkungan. <i>Skilled in the use of technology and creativity in solving problems in society and the environment.</i>

Peta CPL – CP MK Map of PLO - CLO		CPL-01	CPL-02	CPL-03	CPL-04	CPL-05	CPL-06	CPL-07	CPL-08	CPL-09	CPL-10	CPL-11	CPL-12
	CPMK 1 / SUB CPMK 1 <i>CLO 1 / LLO 1</i>											✓	
	CPMK 2 / SUB CPMK 2 <i>CLO 2 / LLO 2</i>										✓		
	CPMK 3 / SUB CPMK 3 <i>CLO 3 / LLO 3</i>										✓		
	CPMK 3 / SUB CPMK 4 <i>CLO 3 / LLO 4</i>										✓		
	CPMK 4 / SUB CPMK 5 <i>CLO 4 / LLO 5</i>										✓		
	CPMK 4 / SUB CPMK 6 <i>CLO 4 / LLO 6</i>										✓		
	CPMK 5 / SUB CPMK 7 <i>CLO 5 / LLO 7</i>										✓		
	CPMK 6 / SUB CPMK 8 <i>CLO 6 / LLO 8</i>										✓		
	CPMK 7 / SUB CPMK 9 <i>CLO 7 / LLO 9</i>										✓		

	CPMK 8 / SUB CPMK 10 <i>CLO 8/LLO 10</i>										√		
	CPMK 9 / SUB CPMK 11 <i>CLO 9/LLO 11</i>										√		
	CPMK 10 / SUB CPMK 12 <i>CLO 10/LLO 12</i>											√	
	CPMK 10 / SUB CPMK 13 <i>CLO 10/LLO 13</i>											√	
Diskripsi Singkat MK	Mata Kuliah Wawasan dan Aplikasi Teknologi akan memberikan memberikan inspirasi kepada mahasiswa dalam mengembangkan wawasan ilmu pengetahuan, teknologi dan inovasi serta bentuk aplikasinya di masyarakat dan lingkungan. Sebagai warga negara, mahasiswa nantinya mampu memiliki ketrampilan dan kreativitas dalam mendayagunakan teknologi secara komprehensif. Selama proses perkuliahan, mahasiswa mengembangkan pola berpikir didasari model berpikir transformasi informasi dengan matrik logfrem sistemik secara konstruktif, dengan mendaya gunakan Teknologi Opensource dan Aplikasi mobile. Mulai dari melakukan observasi terhadap masalah, eksplorasi masalah hingga mencari bentuk pemecahan efektif yang memungkinkan tercapai penyelesaian yang konkrit. Dalam mengembangkan bentuk penyelesaian persoalan di masyarakat didasari oleh prinsip pembangunan berkelanjutan. Kekuatan yang diutamakan untuk ditingkatkan dalam penerapan teknologi informasi dan komunikasi yang disertai peningkatan kepekaan sosial sehingga menjadi pribadi yang lebih adaptif dalam bekerjasama mencapai target penyelesaian persoalan di masyarakat. Kemampuan observasi dan wawancara di lapangan juga mendukung ketrampilan yang diberikan kepada mahasiswa sehingga data faktual di lapangan dapat dimanfaatkan secara optimal. Menjelang akhir perkuliahan, mahasiswa mampu merancang proposal Kuliah Kerja Nyata (KKN) yang didasari fakta lapangan secara optimal. Dengan mendayagunakan TIK dan melibatkan keahlian yang telah dimiliki masing-masing mahasiswa sesuai latar belakang keilmuannya secara kreatif untuk kepentingan pembangunan di masyarakat dan lingkungan. Pada Akhir perkuliahan, mahasiswa melaksanakan praktek Kuliah Kerja Lapangan (KKN) Tematik yang mengedepankan pada Capacity building pada masyarakat. Sehingga mahasiswa sebagai insan cerdas perlu untuk diberi kesempatan, berada dan menjadi bagian solusi atas permasalahan yang ada di masyarakat.												
Short Description of Course	<i>Technology Insights and Applications courses will provide inspiration to students in developing insight into science, technology and innovation as well as the forms of their application in society and the environment. As citizens, students will be able to have skills and creativity in comprehensively utilizing technology. During the recovery process, students develop a thinking pattern based on a constructive information transformation thinking</i>												

	<i>model with a systemic logframe matrix, by leveraging open source technology and mobile applications. Starting from observing problems, exploring problems to finding effective forms of solutions that allow concrete solutions to be achieved. In developing forms of problem solving in the community based on the principle of sustainable development. Strengths that are prioritized to be increased in the application of information and communication technology accompanied by increased social sensitivity so that they become more adaptive individuals in working together to achieve the target of solving problems in society. The ability to observe and interview in the field also supports the skills given to students so that factual data in the field can be used optimally.</i> <i>Towards the end of lectures, students are able to optimally design a Real Work Lecture (KKN) proposal based on field facts. By utilizing ICT and involving the skills that each student has according to their scientific background creatively for the benefit of development in society and the environment. At the end of the lecture, students carry out a Thematic Field Work Practice (KKN) that emphasizes capacity building in the community. So that students as intelligent people need to be given the opportunity to be and be part of the solution to problems that exist in society.</i>
Bahan Kajian: Materi pembelajaran Course Materials:	1. Pengantar dan Transformasi Informasi / <i>Introduction and Information Transformation</i> 2. Log Frame / <i>Log Frame</i> 3. Teori sistem dan berpikir sistemik / <i>Systems theory and systemic thinking</i> 4. Konsep SDGs / <i>SGDs Concepts</i> 5. Teknologi Informasi dan Komunikasi (TIK) / <i>Information and Communication Technologies</i> 6. KKN / <i>Community Service Program</i>
Pustaka References	Utama / Main: 1. <i>Buku Transformasi Informasi, Dr.techn. Pujo Aji, ST.MT., ITS Pres., 2016</i> 2. <i>Alfred Watkins and Michel Ehst, "Science, Technology and Innovation: Capacity Building for Sustainable Growth and Poverty Reduction", The International Bank for Reconstruction and Development, Washington DC, 2008.</i> 3. <i>Frieder Meyer Krahmer, "Innovation and Sustainable Development-Lesson for Innovation Policies, " A Springer-Verlag Company, Heidelberg, 1998.</i> 4. <i>Arahan Pelaksanaan Tujuan Pembangunan, Alamat Kontak: Website : sdgs.bappenas.go.id</i> Pendukung / Supporting:
Dosen Pengampu Lecturers	Ir.Josaphat Pramudijanto, M.Eng

Matakuliah syarat <i>Prerequisite</i>		-					
Mg ke/ Week	Kemampuan akhir tiap tahapan belajar (Sub-CPMK) / <i>Final ability of each learning stage (LLO)</i>	Penilaian / <i>Assessment</i>		Bantuk Pembelajaran; Metode Pembelajaran; Penugasan Mahasiswa; [<i>Estimasi Waktu</i>] / <i>Form of Learning; Learning Method; Student Assignment;</i> [<i>Estimated Time</i>]		Materi Pembelajaran [<i>Pustaka</i>] / <i>Learning Material</i> [<i>Reference</i>]	Bobot Penilaian / <i>Assessment Load (%)</i>
		Indikator / <i>Indicator</i>	Kriteria & Teknik / <i>Criteria & Techniques</i>	Tatap Muka / <i>In-class (5)</i>	Daring / <i>Online (6)</i>	(7)	(8)
1	Mahasiswa Mampu - Memahami garis besar perkuliahan - Mentransformasi informasi. - Konsep matrik Logframe <i>Students are able to</i> <i>Understand the course outline</i> <i>Transforming information</i> <i>Logframe matrix concept</i>	Mampu menemukan contoh-contoh permasalahan yang dapat diselesaikan dengan pendekatan matrik logframe <i>Be able to find examples of problems that can be solved using a logframe matrix approach</i>	Non-tes : Tugas 1 tahap 1: Melakukan diskusi dengan kelompok untuk menentukan permasalahan logframe. Non-test : Task 1 stage 1:	- Kuliah dan brainstorming, tanya jawab. [TM : 2 x 50"] [BM : 2 x 60"] [PT : 2 x 60"] - Presentation and brainstorming,	- Chatting dan diskusi dalam forum platform ITS. - Chat and discussion in ITS platform forum.	- Kontrak kuliah: - Motivasi belajar - Rencana pembelajaran - Aturan-aturan perkuliahan - Tujuan perkuliahan - Sistem penilaian, buku ajar/sumber pustaka	3

			<i>Hold discussions with groups to determine logframe problems..</i>	<i>ask and answer.</i> <i>[FF : 1 x 50"]</i> <i>[SA : 1 x 60"]</i> <i>[SS : 1 x 60"]</i>		● Karakteristik Data ● Levels of Measurement ● Representasi Data dengan Grafik ● Representasi Data dengan Tabel [Link materi di MyITSClassroom] ● <i>Course contract:</i> - <i>Motivation to learn</i> - <i>Lesson plan</i> - <i>Lecture rules</i> - <i>Course objective</i> - <i>Assessment system, textbooks / library resources</i> ● <i>Data Characteristics</i> ● <i>Levels of Measurement</i> ● <i>Data Representation with Graph</i> ● <i>Data Representation with Table</i>	
2	Mahasiswa Mampu membuat matrik Logframe	Mampu menemukan contoh-contoh permasalahan yang dapat	Non-tes : Tugas 1 tahap 2:	● Kuliah, diskusi, tanya jawab,		Konsep , dan Praktek membuat Matrik Logframe	3

	<i>Students are able to make Logframe Matrixs</i>	diselesaikan dengan pendekatan matrik logframe. <i>Be able to find examples of problems that can be solved by using logframe matrix approach.</i>	Melakukan diskusi dengan kelompok untuk menentukan permasalahan logframe Non-test : Task 1 stage 2: <i>Hold discussions with groups to determine logframe problems</i>	latihan soal, tugas. [TM : 2 x 50"] [BM : 2 x 50"] [PT : 2 x 50"] • <i>Presentation, discussion, ask and answer, exercise, assignment</i> [FF : 2 x 50"] [SA : 2 x 60"] [SS : 2 x 60"]		<i>Concepts and Practices to create a Logframe Matrix</i>	
3	Mahasiswa mampu memiliki ketrampilan berpikir sistemik dalam menghadapi permasalahan <i>Students are able to have systemic thinking skills in dealing with problems</i>	Mampu menemukan contoh-contoh permasalahan yang dapat diselesaikan dengan pendekatan sistemik dalam teori sistem. <i>Be able to find examples of problems that can be solved with a systemic approach in systems theory.</i>	Non-test : Tugas 1 tahap 3: Melakukan diskusi dengan kelompok untuk menentukan persoalan sistemik. Non-test : Task 1 stage 3: <i>Hold discussions with groups to determine systemic problems.</i>	• Kuliah, diskusi, tanya jawab, latihan soal, tugas [TM : 2 x 50"] [BM : 2 x 50"] [PT : 2 x 50"] • <i>Presentation, discussion, ask and answer, exercise, assignment</i> [FF : 4 x 50"] [SA : 4 x 60"] [SS : 4 x 60"]		Teori sistem dan berpikir sistemik <i>Systems theory and systemic thinking</i>	3

4-5	Mahasiswa mampu mengamati persoalan di lingkungan dengan pendekatan pembangunan berkelanjutan <i>Students are able to observe problems in the environment with a sustainable development approach</i>	Mampu menemukan masing-masing contoh persoalan yang ada sesuai aspek dalam SDG's <i>Be able to find each example of problems that exist according to aspects of the SDGs</i>	Non-tes : Tugas 1 tahap 4: Melakukan diskusi dengan kelompok untuk menemukan persoalan sesuai aspek dalam SDG's. Non-test : Task 1 stage 4: Hold discussions with groups to find problems according to aspects of the SDGs	•		Konsep Sustainable, Sosial Development Goals (SDGs) <i>Concept of Sustainable, Social Development Goals (SDGs)</i>	3
6	EVALUASI TENGAH SEMESTER MID-SEMESTER EXAM						20
7-8	Tugas Kelompok Wastek <i>Technology Insight and Applications Group Duties</i>	Mampu mempresentasikan hasil kerja kelompok dengan pendekatan Aspek Kreatif Mahasiswa. <i>Able to present group work with the Student Creative Aspects approach</i>	Non-tes : Tugas 1 tahap 5: Melakukan diskusi dengan kelompok untuk menemukan persoalan sesuai aspek dalam SDG's Non-test : Task 1 stage 5: Hold discussions with groups to find problems according	• Presentasi, Small Group Discussion, tanya jawab. [TM + BM: 2 x 2 x 50 menit] • Presentation, small group discussion, ask and answer.		• Presentasi Tugas Logframe dan Transformasi Informasi • Presentasi Tugas dari minggu ke 3, 4, 5 • Logframe and Information Transformation	3

			<i>to aspects of the SDGs</i>	<i>[FF + SA: 2 x 2 x 50"]</i>		<i>Presentation of Assignments from week 3, 4, 5.</i>	
9	Mahasiswa mengenali wilayah kerja lapangan bersama kelompok serta mendapatkan gambaran mengenai permasalahan yang membutuhkan solusinya. <i>Students recognize the field work area with the group and get an overview of the problems that need a solution.</i>	- Mendapatkan sejumlah data awal mengenai situasi dan kondisi langsung di lapangan. - Mendapatkan data awal : sejumlah persoalan yang ada di lapangan. <i>Obtaining some initial data regarding situations and conditions directly in the field.</i> <i>Obtaining initial data: a number of problems in the field.</i>	Non-tes : Tugas 2 tahap 1: Melakukan observasi langsung di lapangan. Pengamatan langsung, wawancara dengan masyarakat Non-test : Task 2 stage 1: <i>Make direct observations in the field.</i> <i>Direct observation, interviews with the community</i>	- Asistensi SURVEI (Pendahuluan) Lapangan [TM + BM: 2 x 2 x 50 menit] <i>Field Survey Assistance (Preliminary) [FF + SA: 2 x 2 x 50"]</i>		Pengamatan lapangan (Pendahuluan / mahasiswa dan dosen pembimbing KKN) <i>Field observations (Introduction / students and lecturers Community Service Program).</i>	3,75
10	Teknologi Opensource <i>Opensource technology</i>	Memahami Teknologi CMS untuk membuat website/web blog. <i>Able to represent data from two variables according to their characteristics</i> <i>Be able to determine the strength of the</i>	Non-tes : Tugas 2 tahap 2: Menggunakan CMS Wordpress untuk membuat website/web blog. Non-test : Task 2 stage 2:	- Ceramah - Hand-on group project <i>Tanya Jawab [TM + BM: 2 x 50 menit]</i> <i>Lectures</i> <i>Hand-on project group</i>		Teknologi Custome Management System (CMS) untuk membuat website menggunakan wordpress. <i>Custom Management System (CMS) technology to create a</i>	3,75

		<i>correlation between two variables</i>	<i>Using Wordpress CMS to create a website / web blog.</i>	• <i>Frequently Asked Questions [FF + SA: 2 x 2 x 50"]</i>		<i>website using wordpress.</i>	
11	Aplikasi Mobile untuk Masyarakat <i>Mobile Application for Society</i>	Mampu menggunakan aplikasi mobile untuk memecahkan permasalahan umum di masyarakat. <i>Able to use mobile applications to solve common problems in society.</i>	Non-tes : Tugas 2 tahap 3: Mengexploreasi beberapa aplikasi mobile untuk memecahkan permasalahan umum sehari-hari di masyarakat. Non-test : Task 2 stage 3: <i>Exploring several mobile applications to solve common daily problems in society.</i>	• Presentasi • Hand-on group project. • Tanya Jawab [TM + BM: 2 x 50 menit] • Lectures • Hand-on project group • Frequently Asked Questions [FF + SA: 2 x 2 x 50"]		Aplikasi Mobile: Camscanner, Kahoot!, Zipgrade, Teknologi penyimpanan cloud, Collaboration Work, Online Questinnaire, Foto/Video grafi, Online Meeting, google calendar <i>Mobile Applications: Camscanner, Kahoot !, Zipgrade, Cloud storage technology, Collaboration Work, Online Questinnaire, Photo / Video graphics, Online Meeting, google calendar</i>	3,75
12	Presentasi Tugas TIK <i>ICT Task Presentation</i>	Mampu membuat website /web blog dengan menggunakan CMS wordpress.	Non-tes : Tugas 2 tahap 4: Mengeksplorasi teknologi CMS, i.e. wordpress untuk membuat website.	• Presentasi • Demo Projek [TM + BM: 2 x 50 menit] • Presentation • Project Demo		Presentasi Proyek Pembuatan Website/Web blog. <i>Website / Web blog development project presentation.</i>	3,75

		<i>Able to create a website / web blog using wordpress CMS.</i>	Non-test : Task 2 stage 4: <i>Exploiting CMS technology, i.e. wordpress to create a website.</i>	<i>[FF + SA: 2 x 2 x 50"]</i>			
13-14	Mahasiswa memiliki wawasan berhubungan dengan pola kerjasama (teamwork) dan ketrampilan praktis komunikasi interpersonal serta wawasan kegiatan kerja di masyarakat dan lingkungannya dengan memanfaatkan keilmuan mahasiswa sesuai jurusan dan serta mendayagunakan kemajuan teknologi. <i>Students have insights related to teamwork and practical interpersonal communication skills as well as insights into work activities in the community and their environment by utilizing student knowledge according to their majors and utilizing technological advances.</i>	Menyusun struktur kelompok kerja, serta pengenalan masing-masing anggota. Mengenali keunikan dan kapasitas anggota sebagai salah satu kekuatan tim dalam melaksanakan kerja di lapangan. <i>Arrange the structure of the working group, as well as the introduction of each member. Recognizing the uniqueness and capacity of members as one of the team's strengths in carrying out work in the field.</i>	Non-tes : Tugas 3 tahap 1: Melakukan diskusi dengan kelompok. Non-test : Task 3 stage 1: <i>Hold discussions with groups.</i>	• Diskusi kelompok • Tanya Jawab [TM + BM: 2 x 50 menit] • Group discussion • Frequently Asked Questions <i>[FF + SA: 2 x 2 x 50"]</i>		Mencari informasi kreatif untuk kegiatan KKN <i>Looking for creative information for Community Service Program.</i>	12,5
15	Mahasiswa mampu memaparkan hasil kegiatan survei lapangan secara lisan	Penyajian data riil dengan presentasi kelompok sesuai kegiatan lapangan secara	Non-tes : Tugas 3 tahap 2: Presentasi hasil survei awal	• Presentasi kelompok sesuai kegiatan		Presentasi hasil survei awal	12,5

	dan sistematis sesuai dengan situasi riil di lapangan. <i>Students are able to present the results of field survey activities orally and systematically according to the real situation in the field.</i>	sistematis sehingga memunculkan ide penyelesaian masalah secara konkrit. <i>Presentation of real data with group presentations according to field activities systematically so as to generate concrete problem solving ideas.</i>	Non-test : Task 3 stage 2: <i>Presentation of initial survey results</i>	survei di lapangan • Tanya jawab [TM + BM: 2 x 50 menit] • Group presentations according to survey activities in the field • Frequently asked questions [FF + SA: 2 x 2 x 50"]		<i>Presentation of initial survey results</i>	
16	Mahasiswa memiliki wawasan berhubungan dengan pola kerjasama (teamwork) dan ketrampilan praktis komunikasi interpersonal serta wawasan kegiatan kerja di masyarakat dan lingkungannya dengan memanfaatkan keilmuan mahasiswa sesuai jurusan dan serta mendayagunakan kemajuan teknologi.	Menyusun struktur kelompok kerja, serta pengenalan masing-masing anggota. Mengenali keunikan dan kapasitas anggota sebagai salah satu kekuatan tim dalam melaksanakan kerja di lapangan. <i>Arrange the structure of the working group, as well as the introduction</i>	Non-tes : Tugas 3 tahap 3: Melakukan diskusi dengan kelompok. Non-test : Task 3 stage 3: <i>Hold discussions with groups.</i>	• Ceramah • Small Group Discussion * • Tanya Jawab [TM + BM: 2 x 50 menit] • Lectures • Small Group Discussion * • Frequently Asked Questions		Pembekalan KKN <i>Community Service Program provision</i>	12,5

	<i>Students have insights related to teamwork and practical interpersonal communication skills as well as insights into work activities in the community and their environment by utilizing student knowledge according to their majors and utilizing technological advances.</i>	<i>of each member. Recognizing the uniqueness and capacity of members as one of the team's strengths in carrying out work in the field.</i>		<i>[FF + SA: 2 x 2 x 50"]</i>			
17	Pelaksanaan KKN <i>Implementation of Community Service Program</i>	Mampu menuangkan hasil secara sistematis dan menetapkan adanya urgensi dan prioritas dalam pencarian solusi selanjutnya melalui draf kegiatan dan penyusunan laporan kegiatan lapangan. <i>Able to express results systematically and determine the urgency and priority in the search for further solutions through draft activities and preparation of field activity reports.</i>	Non-test : Task 3 stage 3: Melakukan kegiatan KKN di lapangan dan penyusunan laporan. Non-test : Task 3 stage 3: Carry out KKN activities in the field and compile reports.	• Diskusi kelompok • Presentasi [Lima hari kerja] • Group discussion • Presentation [Five working days]		Kegiatan KKN, Penulisan hasil laporan kegiatan KKN. <i>KKN activities, writing the results of the KKN activity reports.</i>	12,5

TM=Tatap Muka, **PT**=Penugasan Terstruktur, **BM**=Belajar Mandiri.
FF = Face to Face, **SA** = Structured Assignment, **SS** = Self Study.

II. Rencana Asesmen & Evaluasi (RAE) / *Assessment & Evaluation Plan*

	ASSESSMENT & EVALUATION PLAN BACHELOR DEGREE PROGRAM OF BIOMEDICAL ENGINEERING - FTEIC ITS Course : Technology Insight and Applications			RA&E
				Write Doc Code
Kode/code: UG184916	Bobot sks/credits (T/P): 3/0	Rumpun MK: ITS Compulsory Course Cluster: ITS Compulsory	Smt: VII	
OTORISASI AUTHORIZATION	Penyusun RA & E Compiler A&EP Dra. Endang Susilowati, M.Kes	Koordinator RMK Course Cluster Coordinator M. Hilman Fatoni, S.T., M.T.	Ka DEP Head of DEP Dr. Achmad Arifin, S.T., M.Eng.	

Mg ke/ Wee k (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
1	Sub CP-MK 1: Mahasiswa Mampu • Memahami garis besar perkuliahan • Mentransformasi informasi. • Konsep matrik Logframe LLO 1: <i>Students are able to</i> • Understand the course outline • Transforming information • Logframe matrix concept.	Non-tes : Tugas 1 tahap 1: Melakukan diskusi dengan kelompok untuk menentukan permasalahan logframe. Non-test : Task 1 stage 1: <i>Hold discussions with groups to determine logframe problems..</i>	3
2	Sub CP-MK 2: Mahasiswa	Non-tes : Tugas 1 tahap 2:	3

	Mampu membuat matrik Logframe LLO 2: <i>Students are able to make Logframe Matrixs</i>	Melakukan diskusi dengan kelompok untuk menentukan permasalahan logframe Non-test : Task 1 stage 2: <i>Hold discussions with groups to determine logframe problems</i>	
3	Sub CP-MK 3: Mahasiswa mampu memiliki ketrampilan berpikir sistemik dalam menghadapi permasalahan LLO 3: <i>Students are able to have systemic thinking skills in dealing with problems</i>	Non-tes : Tugas 1 tahap 3: Melakukan diskusi dengan kelompok untuk menentukan persoalan sistemik. Non-test : Task 1 stage 3: <i>Hold discussions with groups to determine systemic problems.</i>	3
4-5	Sub CP-MK 4: Mahasiswa mampu mengamati persoalan di lingkungan dengan pendekatan pembangunan berkelanjutan LLO 4: <i>Students are able to observe problems in the environment with a sustainable development approach</i>	Non-tes : Tugas 1 tahap 4: Melakukan diskusi dengan kelompok untuk menemukan persoalan sesuai aspek dalam SDG's. Non-test : Task 1 stage 4: <i>Hold discussions with groups to find problems according to aspects of the SDGs</i>	3
6	Evaluasi Tengah Semester Mid Exam	Tes: Ujian Tulis/Ujian Daring Test: <i>Writing Exams / Online Exams</i>	20
7-8	Sub CP-MK 5:	Non-tes :	3

	Tugas Kelompok Wastek LLO 5: <i>Technology Insight and Applications Group Duties</i>	Tugas 1 tahap 5: Melakukan diskusi dengan kelompok untuk menemukan persoalan sesuai aspek dalam SDG's Non-test : Task 1 stage 5: <i>Hold discussions with groups to find problems according to aspects of the SDGs</i>	
9	Sub CP-MK 6: Mahasiswa mengenali wilayah kerja lapangan bersama kelompok serta mendapatkan gambaran mengenai permasalahan yang membutuhkan solusinya. LLO 6: <i>Students recognize the field work area with the group and get an overview of the problems that need a solution.</i>	Non-tes : Tugas 2 tahap 1: Melakukan observasi langsung di lapangan. Pengamatan langsung, wawancara dengan masyarakat Non-test : Task 2 stage 1: <i>Make direct observations in the field. Direct observation, interviews with the community</i>	3,75
10	Sub CP-MK 7: Teknologi Opensource LLO 7: <i>Opensource technology</i>	Tes: EAS Soal No 4 (12% dari EAS 40%) Test: <i>Question 4 in Final Exam (12% of Final Exam 40%)</i>	3,75
11	Sub CP-MK 8: Aplikasi Mobile untuk Masyarakat LLO 8: <i>Mobile Application for Society</i>	Non-tes : Tugas 2 tahap 2: Menggunakan CMS Wordpress untuk membuat website/web blog. Non-test : Task 2 stage 2: <i>Using Wordpress CMS to create a website / web blog.</i>	3,75
12	Sub CP-MK 9:	Non-tes : Tugas 2 tahap 4:	3,75

	Presentasi Tugas TIK LLO 9: <i>ICT Task Presentation</i>	Mengeksploarasi teknologi CMS, i.e. wordpress untuk membuat website. Non-test : Task 2 stage 4: <i>Exploiting CMS technology, i.e. wordpress to create a website.</i>	
13-14	Sub CP-MK 10: Mahasiswa memiliki wawasan berhubungan dengan pola kerjasama (teamwork) dan ketrampilan praktis komunikasi interpersonal serta wawasan kegiatan kerja di masyarakat dan lingkungannya dengan memanfaatkan keilmuan mahasiswa sesuai jurusan dan serta mendayagunakan kemajuan teknologi. LLO 10: <i>Students have insights related to teamwork and practical interpersonal communication skills as well as insights into work activities in the community and their environment by utilizing student knowledge according to their majors and utilizing</i>	Non-tes : Tugas 3 tahap 1: Melakukan diskusi dengan kelompok. Non-test : Task 3 stage 1: <i>Hold discussions with groups.</i>	12,5

	<i>technological advances.</i>		
15	Sub CP-MK 11: Mahasiswa mampu memaparkan hasil kegiatan survei lapangan secara lisan dan sistematis sesuai dengan situasi riil di lapangan. LLO 11: <i>Students are able to present the results of field survey activities orally and systematically according to the real situation in the field.</i>	Non-tes : Tugas 3 tahap 2: Presentasi hasil survei awal Non-test : Task 3 stage 2: <i>Presentation of initial survey results</i>	12,5
16	Sub CP-MK 12: Mahasiswa memiliki wawasan berhubungan dengan pola kerjasama (teamwork) dan ketrampilan praktis komunikasi interpersonal serta wawasan kegiatan kerja di masyarakat dan lingkungannya dengan memanfaatkan keilmuan mahasiswa sesuai jurusan dan serta mendayagunakan kemajuan teknologi. LLO 12:	Non-tes : Tugas 3 tahap 3: Melakukan diskusi dengan kelompok. Non-test : Task 3 stage 3: <i>Hold discussions with groups.</i>	12,5

	<i>Students have insights related to teamwork and practical interpersonal communication skills as well as insights into work activities in the community and their environment by utilizing student knowledge according to their majors and utilizing technological advances.</i>		
17	Sub CPM-MK 13: Pelaksanaan KKN LLO 13: <i>Implementation of Community Service Program</i>	Non-test : Task 3 stage 3: Melakukan kegiatan KKN di lapangan dan penyusunan laporan. Non-test : Task 3 stage 3: <i>Carry out KKN activities in the field and compile reports.</i>	12,5
Total bobot penilaian Total assessment load			100%

● **Indikator Pencapaian CPL Pada MK / *Indicator of PLO achievement charged to the course***

CPL yang dibebankan pada MK / <i>PLO charged to the course</i>	CPMK / <i>Course Learning Outcome (CLO)</i>	Minggu ke / <i>Week</i>	Bentuk Asesmen / <i>Form of Assessment</i>	Bobot / <i>Load (%)</i>
CPL-10/ PLO-10	CPMK 2/ CLO 2	Week- 2	Task 1 stage 2	3
	CPMK 3/ CLO3	Week- 3	Task 1 stage 3	3
		Week- 4-5	Task 1 stage 4	3
		Week- 6	Mid Exam	20
	CPMK 4 / CLO 4	Week- 7-8	Task 1 stage 5	3
		Week- 9	Task 2 stage 1	3,75
	CPMK 5/ CLO 5	Week- 10	Task 2 stage 2	3,75
	CPMK 6/ CLO 6	Week- 11	Task 2 stage 3	3,75
	CPMK 7/ CLO 7	Week- 12	Task 2 stage 4	3,75
	CPMK 8/ CLO 8	Week- 13-14	Task 3 stage 1	12,5
	CPMK 9 / CLO 9	Week- 15	Task 3 stage 2	12,5
CPL-11/ PLO-11	CPMK 1/ CLO 1	Week- 1	Task 1 stage 1	3
CPL-12/ PLO-12	CPMK 10/ CLO 10	Week- 16	Task 3 stage 3	12,5
		Week- 17	Task 3 stage 4	12,5
				$\Sigma = 100\%$

No	Form of Assessment	PLO-01	PLO-02	PLO-03	PLO-04	PLO-05	PLO-06	PLO-07	PLO-08	PLO-09	PLO-10	PLO-11	PLO-12	Total
1	Task 1										0,12	0,03		0.15
2	Task 2										0,15			0.15
3	Task 3										0,25		0,25	0.50
4	Mid Exam										0,20			0.20
	Total										0,72	0,03	0,25	1