




MODULE HANDBOOK PRELIMINARY OF FINAL PROJECT





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

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

ENDORSEMENT PAGE

	<p>MODULE HANDBOOK Preliminary of Final Project DEPARTMENT OF BIOMEDICAL ENGINEERING INSTITUT TEKNOLOGI SEPULUH NOPEMBER Number : 6877/IT2.IX.5.1.2/B/PP.03.00.00/2023</p>
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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>	Prof. Dr. Ir. Mohammad Nuh, DEA.	Dosen <i>Lecturer</i>	TTD	November 18, 2022
Pemeriksa dan Pengendalian <i>Review and Control</i>	Dr. Rachmad Setiawan, S.T., M.T.	Tim kurikulum <i>Curriculum team</i>		November 20, 2022
Persetujuan <i>Approval</i>	Ir. Josaphat Pramudijanto, M.Eng.	Koordinator RMK <i>Course Cluster Coordinator</i>		April 13, 2023
Penetapan <i>Determination</i>	Dr. Achmad Arifin, S.T., M.Eng.	Kepala Departemen <i>Head of Department</i>		April 17, 2023

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MODULE HANDBOOK

PRELIMINARY OF FINAL PROJECT

Module name	Preliminary of Final Project	
Module level	Undergraduate	
Code	EB234703	
Course (if applicable)	Project Design	
Semester	7	
Person responsible for the module		
Lecturer		
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program, Specialization	
Type of teaching, contact hours	Lectures, <60 students Tuesdays, 11.00-12.50 (GMT+7)	
Workload	1. Lectures : 3 x 50 = 150 minutes per week. 2. Exercises and Assignments : 3 x 50 = 150 minutes per week. 3. Private learning : 3 x 50 = 150 minutes per week.	
Credit points	2 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	EB234603 Project Design	
Learning outcomes and their corresponding PLOs	<p>Course Learning Outcome (CLO) after completing this module,</p> <p>CLO 1: Mahasiswa memahami dan mampu menerapkan kaidah-kaidah penulisan ilmiah <i>Students understand and are able to apply the rules of scientific writing</i></p> <p>CLO 2: Mahasiswa mampu menggunakan instrumen-instrumen pendukung yang diperlukan dalam penulisan karya ilmiah <i>Students are able to use the supporting instruments needed in writing scientific papers</i></p> <p>CLO 3: Mahasiswa mampu menyusun proposal tugas akhir <i>Students are able to prepare a final project proposal</i></p>	<p>PL O- 04</p> <p>PL O- 07</p> <p>PL O- 11</p>

	<p>CLO 4: Mahasiswa mampu memaparkan rancangan proposal tugas akhir dalam kegiatan seminar pada tengah semester <i>Students are able to present the draft of the final project proposal in seminar activities in the middle semester</i></p> <p>CLO-5: Mahasiswa mampu melaksanakan awal penelitian tugas akhir dan melporkan perkembangannya setiap minggu. <i>Students are able to carry out initial final project research and delivering report progress every week.</i></p> <p>CLO-6: Mahasiswa mampu memaparkan perkembangan tugas akhir pada seminar akhir semester <i>Students are able to present the progress of the final project at the end of the semester seminar</i></p>	<p>PL O- 04 PL O- 07</p> <p>PL O- 07</p> <p>PL O- 07</p>
Content	Mata kuliah ini bertujuan mempersiapkan mahasiswa dalam menyusun proyek penelitian individu mahasiswa dengan bimbingan tim dosen pembimbing. Hasil akhir dari mata kuliah ini adalah dihasilkannya proposal tugas akhir yang dipresentasikan dalam bentuk seminar dan menjadi proyek penelitian yang laporan kemajuan pada tahap awal dilakukan pada akhir perkuliahan	
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> ● In-class exercises ● Assignment 1, 2, 3 ● Research proposal seminar (Mid-Semester) ● Research progress seminar (End of Semester) 	
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.	
Reading list	<p>Main:</p> <ol style="list-style-type: none"> 1. C. George Thomas, "Research Methodology and Scientific Writing, 2nd Edition", Springer 2021. 2. Piet Verschuren and Hans Doorewaard, "Designing a Research Project, Second edition", <i>Eleven International Publishing, 2010.</i> <p>Supporting:</p> <ol style="list-style-type: none"> 1. Panitia Pengembang Pedoman Bahasa Indonesia, Kementerian Pendidikan dan Kebudayaan, "Pedoman Umum Ejaan Bahasa Indonesia", Badan Pengembangan dan Pembinaan Bahasa, 2016. 	

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
Pra - Tugas Akhir <i>Preliminary of Final Project</i>	EB234703	Ilmu Teknik Biomedika <i>Biomedical Engineering</i>	T=2	P=0	8	Jan 17, 20223
OTORISASI / PENGESAHAN AUTHORIZATION / ENDORSEMENT	Dosen Pengembang RPS <i>Developer Lecturer of Semester Learning Plan</i>		Koordinator RMK <i>Course Cluster Coordinator</i>		Ka DEPARTEMEN <i>Head of Department</i>	
	(Nada Fitriyatul Hikmah, S.T, M.T)		(Dr. Norma Hermawan, 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-02	Mampu menemukan, memahami, menjelaskan, merumuskan, dan menyelesaikan permasalahan umum pada bidang Teknik dan permasalahan khusus pada bidang Teknik Biomedika yang meliputi instrumentasi biomedika cerdas, teknik rehabilitasi medika, pencitraan dan pengolahan citra medika, serta informatika medika				
	PLO-02	<i>Able to find, understand, explain, formulate, and solve general problems in the field of Engineering and special problems in the field of Biomedical Engineering which includes intelligent biomedical instrumentation, medical rehabilitation techniques, imaging and processing of medical images, and medical informatics</i>				
	CPL-03	Mampu merancang dan melaksanakan eksperimen laboratorium dan/atau lapangan, menganalisa dan menginterpretasi data, serta menggunakan penilaian yang obyektif untuk menarik kesimpulan				
	PLO-03	<i>Able to design and implement laboratory experiment and / or field experiments, analyze and interpret data, and use objective assessments to draw conclusions</i>				

	CPL-06	Mampu menerapkan ilmu pengetahuan, keterampilan, dan metode terkini dalam menyelesaikan permasalahan di bidang Teknik Biomedika
	PLO-06	<i>Able to apply the latest knowledge, skills and methods in solving problems in the field of Biomedical Engineering</i>
	CPL-08	Mampu bekerja dalam tim lintas disiplin dan budaya serta bertanggung jawab kepada masyarakat dan mematuhi hukum dan etika profesi dalam menyelesaikan masalah Teknik Biomedika
	PLO-08	<i>Able to work in interdisciplinary and intercultural teams and be responsible to the community and comply with legal and professional ethics in solving Biomedical Engineering problems</i>
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 memahami dan mampu menerapkan kaidah-kaidah penulisan ilmiah <i>Students understand and are able to apply the rules of scientific writing</i>
	CP MK 2 CLO 2	Mahasiswa mampu menggunakan instrumen-instrumen pendukung yang diperlukan dalam penulisan karya ilmiah <i>Students are able to use the supporting instruments needed in writing scientific papers</i>
	CP MK 3 CLO 3	Mahasiswa mampu menyusun proposal tugas akhir <i>Students are able to prepare a final project proposal</i>
	CP MK 4 CLO 4	Mahasiswa mampu memaparkan rancangan proposal tugas akhir dalam kegiatan seminar pada tengah semester <i>Students are able to present the draft of the final project proposal in seminar activities in the middle semester</i>
	CP MK 5 CLO 5	Mahasiswa mampu melaksanakan awal penelitian tugas akhir dan melaporkan perkembangannya setiap minggu. <i>Students are able to carry out initial final project research and delivering report progress every week.</i>
	CP MK 6 CLO 6	Mahasiswa mampu memaparkan perkembangan tugas akhir pada seminar akhir semester <i>Students are able to present the progress of the final project at the end of the semester seminar</i>

Peta CPL – CP MK												
<i>Map of PLO - CLO</i>	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 4 / SUB CPMK 4 <i>CLO 4 / LLO 4</i>			✓									
CPMK 5 / SUB CPMK 5 <i>CLO 5 / LLO 5</i>						✓						
CPMK 6 / SUB CPMK 6 <i>CLO 6 / LLO 6</i>			✓									
CPMK 7 / SUB CPMK 6 <i>CLO 7 / LLO 7</i>								✓				
Diskripsi Singkat MK <i>Short Description of Course</i>	<p>Mata kuliah untuk mempersiapkan mahasiswa dalam menyusun proyek penelitian individu mahasiswa dengan bimbingan tim dosen pembimbing. Hasil akhir dari mata kuliah ini adalah dihasilkannya proposal tugas akhir yang dipresentasikan dalam bentuk seminar dan menjadi proyek penelitian tugas akhir dengan laporan kemajuan pada tahap awal dilakukan pada akhir perkuliahan</p> <p><i>This course prepares students in preparing individual student research projects under the guidance of a team of supervisors. The final result of this course is the production of a final assignment proposal which is presented in the form of a seminar and becomes a final project research project with progress reports at the initial stage carried out at the end of the lecture</i></p>											

Bahan Kajian: Materi pembelajaran Course Materials:	<ol style="list-style-type: none"> 1. Konsep penelitian/<i>A concept of research</i> 2. Sistematika proposal penelitian/<i>Systematics of research proposal</i> 3. Introduction and literature review 4. Research methodology 5. Research planning 6. Proposal Review 7. Experiment with Human Subject 8. Research presentation 9. Proposal defense 10. Specific research progress 11. Research progress seminar 				
Pustaka References	<p>Utama / Main:</p> <ol style="list-style-type: none"> 1. C. George Thomas, "Research Methodology and Scientific Writing, 2nd Edition", Springer 2021. 2. Piet Verschuren and Hans Doorewaard, "Designing a Research Project, Second edition", <i>Eleven International Publishing, 2010.</i> <p>Pendukung / Supporting:</p> <ol style="list-style-type: none"> 1. Panitia Pengembang Pedoman Bahasa Indonesia, Kementerian Pendidikan dan Kebudayaan, "Pedoman Umum Ejaan Bahasa Indonesia", Badan Pengembangan dan Pembinaan Bahasa, 2016. 				
Dosen Pengampu Lecturers	Norma Hermawan, S.T., M. T.				
Matakuliah syarat Prerequisite	EB234603 Project Design				
Mg ke/ Week		Penilaian / Assessment	Bantuk Pembelajaran; Metode Pembelajaran; Penugasan Mahasiswa;	Materi Pembelajaran [Pustaka] /	Bobot Penilaian

	Kemampuan akhir tiap tahapan belajar (Sub-CPMK) / <i>Final ability of each learning stage (LLO)</i>	Indikator / <i>Indicator</i>	Kriteria & Teknik / <i>Criteria & Techniques</i>	[<i>Estimasi Waktu</i>] / <i>Form of Learning; Learning Method; Student Assignment; [Estimated Time]</i>		<i>Learning Material [Reference]</i>	<i>/Assessment Load (%)</i>
(1)	(2)	(3)	(4)	Tatap Muka / <i>In-class (5)</i>	Daring / <i>Online (6)</i>	(7)	(8)
1,2	<p>Mahasiswa mampu memahami dan menjelaskan konsep penelitian dan sistematika proposal penelitian.</p> <p><i>Students are able to describe the concept of research and systematics of research proposal.</i></p>	<ul style="list-style-type: none"> • Mahasiswa mampu menjelaskan konsep penelitian • Mahasiswa mampu menjelaskan dan merancang sistematika proposal penelitian • <i>Students are able to explain concept of research</i> • <i>Students are able to explain and design a research proposal systematics</i> 	<p>Non-tes : Diskusi Tugas Presentasi</p> <p>Non-test : <i>Discussion Assignment Presentation</i></p>	<ul style="list-style-type: none"> • Kuliah dan diskusi [TM : 2 x 50"] [BM : 2 x 50"] [PT : 2 x 50"] • <i>Presentation and brainstorming.</i> [FF : 2 x 50"] [SA : 2 x 50"] [SS : 2 x 50"] 	<ul style="list-style-type: none"> • Belajar mandiri melalui Share ITS. • <i>Self learning through Share ITS</i> 	<ul style="list-style-type: none"> • Concept of research • <i>Research proposal systematics</i> 	5

<p>3-4</p>	<p>Mahasiswa mampu menjelaskan dan menerapkan kaidah-kaidah penulisan ilmiah yang meliputi review literatur, metodologi penelitian dan membuat perencanaan penelitian.</p> <p><i>Students are able to explain and apply the principles of scientific writing which include reviewing literature, research methodology and making research plans.</i></p>	<ul style="list-style-type: none"> • Mahasiswa mampu menjelaskan dan menerapkan kaidah-kaidah penulisan ilmiah yang meliputi review literatur, metodologi penelitian dan membuat perencanaan penelitian. • <i>Students are able to explain and apply the principles of scientific writing which include reviewing literature, research methodology and making research plans.</i> 	<p>Non-tes : Diskusi Tugas Presentasi</p> <p>Non-test : <i>Discussion Assignment Presentation</i></p>	<ul style="list-style-type: none"> • Kuliah dan diskusi [TM : 2 x 50"] [BM : 2 x 50"] [PT : 2 x 50"] • <i>Presentati on and brainstor ming. [FF : 2 x 50"] [SA : 2 x 50"] [SS : 2 x 50"]</i> 	<ul style="list-style-type: none"> • Belajar mandiri melalui Share ITS. • Self learning through Share ITS 	<ul style="list-style-type: none"> • Kaidah penulisan ilmiah • Review literatur • Metodologi penelitian • Perencanaan penelitian • <i>Principles of scientific writing</i> • <i>Literature review</i> • <i>Research methodology</i> • <i>Research planning</i> 	<p>5</p>
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5	<p>Mahasiswa mampu menggunakan instrumen-instrumen pendukung yang diperlukan dalam penulisan karya ilmiah.</p> <p><i>Students are able to use supporting instruments needed in writing scientific papers.</i></p>	<ul style="list-style-type: none"> • Mahasiswa mampu menggunakan instrumen-instrumen pendukung yang diperlukan dalam penulisan karya ilmiah. • <i>Students are able to use supporting instruments needed in writing scientific papers.</i> 	<p>Non-tes : Diskusi Tugas Presentasi</p> <p>Non-test : <i>Discussion Assignment Presentation</i></p>	<ul style="list-style-type: none"> • Kuliah dan diskusi [TM : 1 x 50"] [BM : 1 x 50"] [PT : 1 x 50"] • <i>Presentation and brainstorming.</i> [FF : 1 x 50"] [SA : 1 x 50"] [SS : 1 x 50"] 	<ul style="list-style-type: none"> • Belajar mandiri melalui Share ITS. • <i>Self learning through Share ITS</i> 	<p>Penggunaan instrumen-instrumen pendukung yang diperlukan dalam penulisan karya ilmiah.</p> <p><i>Application of supporting instruments for writing scientific papers.</i></p>	5
6	<p>Mahasiswa mampu menjelaskan prosedur penelitian yang melibatkan subyek manusia dan Menyusun formulir ethical clearance</p> <p><i>Students are able to explain research procedures involving human subjects and prepare ethical clearance forms</i></p>	<ul style="list-style-type: none"> • Mahasiswa mampu menjelaskan prosedur penelitian yang melibatkan subyek manusia dan Menyusun formulir ethical clearance • <i>Students are able to explain research procedures involving human subjects and prepare ethical clearance forms</i> 	<p>Non-tes : Diskusi Tugas Presentasi</p> <p>Non-test : <i>Discussion Assignment Presentatio n</i></p>	<ul style="list-style-type: none"> • Kuliah dan diskusi [TM : 1 x 50"] [BM : 1 x 50"] [PT : 1 x 50"] • <i>Presentation and brainstorming.</i> [FF : 1 x 50"] [SA : 1 x 50"] • [SS : 1 x 50"] 	<ul style="list-style-type: none"> • Belajar mandiri melalui Share ITS. • <i>Self learning through Share ITS</i> 	<ul style="list-style-type: none"> • Penelitian dengan subjek manusia • Ethical clearance • <i>Experiment with human subject</i> • <i>Ethical clearance</i> 	5

7	<p>Mahasiswa mampu menentukan topik tugas akhir dan menyusun proposal tugas akhir.</p> <p><i>Students are able to determine the topic of the final project and develop a final project proposal.</i></p>	<ul style="list-style-type: none"> • Mahasiswa mampu menentukan topik tugas akhir dan menyusun proposal tugas akhir. • <i>Students are able to determine the topic of the final project and develop a final project proposal.</i> 	<p>Non-tes : Diskusi Tugas praktikum</p> <p>Non-test : Discussion Assignment practicum</p>	<ul style="list-style-type: none"> • Kuliah dan diskusi [TM : 1 x 50"] [BM : 1 x 50"] [PT : 1 x 50"] • Lecturing and discussion. [FF : 1 x 50"] [SA : 1 x 50"] [SS : 1 x 50"] 	<ul style="list-style-type: none"> • Belajar mandiri melalui Share ITS. • Self learning through Share ITS 	<ul style="list-style-type: none"> • Penentuan topik tugas akhir • Penyusunan proposal tugas akhir • <i>determining the topic of the final project</i> • <i>Writing a final project proposal</i> 	
8	<p>SEMINAR PROPOSAL TUGAS AKHIR FINAL PROJECT PROPOSAL SEMINAR</p>						30
9 - 10	<p>Mahasiswa dapat melakukan perbaikan proposal dan melakukan konsultasi dengan pembimbing untuk memulai pelaksanaan penelitian</p> <p><i>Students are able to make improvements to proposals and consult with supervisors to start conducting research</i></p>	<ul style="list-style-type: none"> • Ketepatan waktu pengumpulan tugas • Kebenaran melaksanakan tugas • Keberhasilan menjelaskan tugas • Kebenaran jawaban dan analisis • Kelengkapan dan kerapian hasil laporan • Ketepatan waktu pengumpulan laporan praktikum • Kebenaran menjelaskan proyek • <i>On time submission</i> 	<p>Non-tes : Diskusi Tugas praktikum</p> <p>Non-test : Discussion Assignment practicum</p>	<ul style="list-style-type: none"> • Kuliah dan diskusi [TM : 2 x 50"] [BM : 2 x 50"] [PT : 2 x 50"] • Lecturing and discussion. [FF : 2 x 50"] [SA : 2 x 50"] [SS : 2 x 50"] 	<ul style="list-style-type: none"> • Belajar mandiri melalui Share ITS. • <i>Self learning through Share ITS</i> 	<ul style="list-style-type: none"> • Revisi Proposal • Konsultasi dengan dosen pembimbing • <i>Proposal revision</i> • <i>Research consultation with supervisor</i> 	10

		<p><i>of assignment</i></p> <ul style="list-style-type: none"> • <i>Correctness of the assignment</i> • Successfullness in explaining the assignment. • Answer and analysis correctness • Completeness and neatness of the report result • On time submission of practicum report • Correctness in explaining project 					
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<p>11-14</p>	<p>Mahasiswa dapat melaksanakan penelitian tugas akhir dan membuat laporan perkembangan setiap minggu</p> <p><i>Students are able to carry out final project research and make progress reports every week</i></p>	<ul style="list-style-type: none"> • Ketepatan waktu pengumpulan tugas • Kebenaran melaksanakan tugas • Keberhasilan menjelaskan tugas • Kebenaran jawaban dan analisis • Kelengkapan dan kerapian hasil laporan • Ketepatan waktu pengumpulan laporan praktikum • Kebenaran menjelaskan proyek praktikum • <i>On time submission of assignment</i> 	<p>Non-tes : Diskusi Tugas praktikum</p> <p>Non-test : Discussion Assignment practicum</p>	<ul style="list-style-type: none"> • Kuliah dan diskusi [TM : 3 x 50"] [BM : 3 x 50"] [PT : 3 x 50"] • Lecturing and discussion. [FF : 3 x 50"] [SA : 3 x 50"] [SS : 3 x 50"] 	<ul style="list-style-type: none"> • Belajar mandiri melalui Share ITS. • <i>Self learning through Share ITS</i> 	<ul style="list-style-type: none"> • Laporan perkembangan penelitian • Konsultasi dengan dosen pembimbing • <i>Research progress report</i> • <i>Research consultation with supervisor</i> 	<p>10</p>
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		<ul style="list-style-type: none"> • <i>Correctness of the assignment</i> • <i>Successfullness in explaining the assignment.</i> • <i>Answer and analysis correctness</i> • <i>Completeness and neatness of the report result</i> • <i>On time submission of practicum report</i> • <i>Correctness in explaining practicum project</i> 					
15-16	SEMINAR KEMAJUAN TUGAS AKHIR FINAL PROJECT PROGRESS SEMINAR						30

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

