



MODULE HANDBOOK FINAL PROJECT






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

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

ENDORSEMENT PAGE



MODULE HANDBOOK
Final Project
DEPARTMENT OF BIOMEDICAL ENGINEERING
 INSTITUT TEKNOLOGI SEPULUH NOPEMBER
 Number : 6843/IT2.IX.5.1.2/B/PP.03.00.00/2023

Proses Process	Penanggung Jawab Person in Charge			Tanggal Date
	Nama Name	Jabatan Position	Tandatangan Signature	
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. Achmad Arifin, S.T., M.Eng.	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


MODULE HANDBOOK

FINAL PROJECT

Module name	FINAL Project	
Module level	Undergraduate	
Code	EB234801	
Course (if applicable)	Final Project	
Semester	Eight Semester	
Person responsible for the module	Ir. Josaphar Pramudijanto, M.Eng.	
Lecturer	Dr. Achmad Arifin, S.T., M.Eng. Dr. Rachmad Setiawan, S.T. M.T. Dr. Tri Arief Sardjono, S.T., M.T. Ir. Josaphat Pramudijanto, M.Eng.	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program, mandatory , 8 th semester.	
Type of teaching, contact hours	Research Seminar	
Workload	1. Research : 4 x 170 = 680 minutes per week.	
Credit points	4 credit points (sks)	
Requirements according to the examination regulations	A student must do seminar in the last week of semester.	
Mandatory prerequisites	-EB234703 Pra Tugas akhir Preliminary of Final Project	
Learning outcomes and their corresponding PLOs	<p>Course Learning Outcome (CLO) after completing this module,</p> <p>CLO 1: Student be able to compose Problem Statements</p> <p>CLO 2: Students be able to design hypothesis to solve the problems</p> <p>CLO 3: Students be able to design methodology for solving the problems including design, experimental protocol, tests, and observations.</p> <p>CLO 4: Students be able to draw scientific conclusions, and have skill to communicate their scientific contributions.</p>	<p>PLO02</p> <p>PLO03</p> <p>PLO04</p> <p>PLO05</p>

	<p>CLO 5: Students are able to understand and solve the solution system.</p> <p>CLO 6: Students are able to implement and realize final project</p> <p>CLO 7: Students are able to understand muscular modeling in biomechanical computation.</p>	<p>PLO – 07, 09, 11</p> <p>PLO – 09, 11, 12</p>
Content	<p>Final Project is a course that contains a student's individual research project with the guidance of a team of mentoring lecturers. This course aims to make students able to formulate scientific problems from the chosen topic. Formulating hypotheses or designs, selecting solutions, conducting experiments and testing hypotheses, drawing conclusions, and skills in scientific communication make important contributions of research.</p>	
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> • Research • Seminar 	
Media employed	<p>LCD, whiteboard, websites (myITS Classroom), Zoom.</p>	
Reading list	<p>Main :</p> <ol style="list-style-type: none"> 1. IEEE Neurophysiology Journal 2. IEEE Biomechanics Journal 	

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
Tugas Akhir Final Project		EB234801	Biocybernetics	T=4	P=0	VIII	Feb 27, 2023
OTORISASI / PENGESAHAN AUTHORIZATION / ENDORSEMENT		Dosen Pengembang RPS Developer Lecturer of Semester Learning Plan		Koordinator RMK Course Cluster Coordinator		Ka DEPARTEMEN Head of Department	
		(Ir. Josaphat Pramudijanto, M.Eng.)		(Ir. Josaphat Pramudijanto, M.Eng.)		(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 PLO-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. <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-04 PLO-04	Mampu berkomunikasi secara efektif baik lisan maupun tulisan <i>Have good skills in oral and writing communications</i>				
		CPL-07 PLO-07	Mampu merencanakan, menyelesaikan, dan mengevaluasi tugas di dalam batasan-batasan yang ada <i>Able to plan, complete, and evaluate tasks within existing boundaries</i>				

CPL-09 PLO-09	Mampu mengetahui/mengikuti perkembangan terkini dibidang ilmu pengetahuan dan teknologi serta menyikapinya secara obyektif dengan mengedepankan nilai-nilai kebenaran universal. <i>Able to know / follow the latest developments in the field of science and technology and to react objectively by promoting the values of universal truth.</i>
CPL-11 PLO-11	Mampu memahami kebutuhan akan pembelajaran sepanjang hayat <i>Able to understand the need for lifelong learning</i>
CPL-12 PLO-12	Mampu bersikap dan berperilaku religius, nasionalis, saling menghormati, mandiri, dan gigih. <i>Able to behave and act religiously, nationally, respectfully, independently, and persistently.</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 <i>Students are able to present the draft of the final project proposal in seminar activities</i>

<p>Peta CPL – CP MK</p> <p><i>Map of PLO - CLO</i></p>	<table border="1"> <thead> <tr> <th></th> <th>CPL-01</th> <th>CPL-02</th> <th>CPL-03</th> <th>CPL-04</th> <th>CPL-05</th> <th>CPL-06</th> <th>CPL-07</th> <th>CPL-08</th> <th>CPL-09</th> <th>CPL-10</th> <th>CPL-11</th> <th>CPL-12</th> </tr> </thead> <tbody> <tr> <td>CPMK 1 / SUB CPMK 1 <i>CLO 1 / LLO 1</i></td> <td></td> <td>√</td> <td></td> <td>√</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CPMK 2 / SUB CPMK 2 <i>CLO 2 / LLO 2</i></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>√</td> <td></td> <td>√</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CPMK 3 / SUB CPMK 3 <i>CLO 3 / LLO 3</i></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>√</td> <td></td> <td>√</td> <td></td> <td>√</td> <td></td> </tr> <tr> <td>CPMK 4 / SUB CPMK 4 <i>CLO 4 / LLO 4</i></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>√</td> <td></td> <td>√</td> <td>√</td> </tr> </tbody> </table>		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>									√		√	√
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<p>Diskripsi Singkat MK</p> <p><i>Short Description of Course</i></p>	<p>Tugas Akhir adalah mata kuliah yang berisi proyek penelitian individu mahasiswa dengan bimbingan tim dosen pembimbing. Mata Kuliah ini bertujuan agar mahasiswa mampu merumuskan permasalahan ilmiah dari topik yang dipilih. Menyusun hipotesis atau design, memilih solusi, melaksanakan eksperimen dan pengujian hipotesis, penarikan kesimpulan, dan kecakapan dalam komunikasi ilmiah membawakan kontribusi penting dari penelitian.</p> <p>Final Project is a course that contains a student's individual research project with the guidance of a team of mentoring lecturers. This course aims to make students able to formulate scientific problems from the chosen topic. Formulating hypotheses or designs, selecting solutions, conducting experiments and testing hypotheses, drawing conclusions, and skills in scientific communication make important contributions of research.</p>																																																																	
<p>Bahan Kajian: Materi pembelajaran</p> <p><i>Course Materials:</i></p>	<ol style="list-style-type: none"> 1. Literatur review (sesuai dengan spesialisasi setiap mahasiswa) dalam bentuk jurnal, book chapter /<i>Literature review (in accordance with the specialization of each student) in the form of journal, book chapter</i> 2. Global Research Project Design 3. Problem Statement 4. Hypothesis 5. Methodology 6. Drawing Conclusions 7. Progress Report 																																																																	

	8. Final Report Writing
Pustaka References	Utama / Main:
	1. <i>IEEE Neurophysiology Journal</i> 2. <i>IEEE Biomechanics Journal</i>
	Pendukung / Supporting:
Dosen Pengampu Lecturers	Achmad Arifin
Matakuliah syarat Prerequisite	EB234703Preliminary of Final Project