

Module Handbook

Biomagnetic Engineering



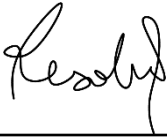
Bachelor Degree Program Department of Biomedical Engineering

Faculty of Intelligent Electrical Technology and Informatics
Institut Teknologi Sepuluh Nopember



MODULE HANDBOOK
Biomagnetic Engineering
DEPARTMENT OF BIOMEDICAL ENGINEERING
INSTITUT TEKNOLOGI SEPULUH NOPEMBER
Number : 6823/IT2.IX.5.1.2/B/PP.03.00.00/2023

ENDORSEMENT PAGE

Proses Process	Penanggung Jawab Person in Charge			Tanggal Date
	Nama Name	Jabatan Position	Tandatangan Signature	
Perumus Preparation	Rezki El Arif, S. T., M.T., Ph.D.	Dosen Lecturer	TTD	November 18, 2022
Pemeriksa dan Pengendalian Review and Control	Dr. Norma Hermawan, S.T., M.Sc.	Tim kurikulum Curriculum team		November 20, 2022
Persetujuan Approval	Dr. Rachmad Setiawan, S.T., M.T.	Koordinator RMK Course Cluster Coordinator		April 13, 2023
Penetapan Determination	Dr. Achmad Arifin, S.T., M.Eng.	Kepala Departemen Head of Department		April 17, 2023

MODULE HANDBOOK

BIOMAGNETIC ENGINEERING

Module name	Biomagnetic Engineering	
Module level	Undergraduate	
Code	EB234505	
Course (if applicable)	Biomagnetic Engineering	
Semester	Fifth Semester (Genap)	
Person responsible for the module	Rezki El Arif, ST., MT., Ph.D	
Lecturer	Rezki El Arif, ST., MT., Ph.D	
Language	Bahasa Indonesia and English	
Relation to curriculum	Undergraduate degree program, mandatory , 5 th semester.	
Type of teaching, contact hours	Lectures, <60 students	
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	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	EB234404 – Engineering Mathematics	
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, CLO 1: Students are able to understand the basic of anatomy and physiology of body tissue that can be electromagnetically excited. CLO 2: Students are able to understand the theory and basic equations concerning bioelectromagnetic phenomena. CLO 3: Students are able to understand the theory behind the bioelectromagnetic science applications on measurement in biomedical engineering. CLO 4: Students are able to understand the theory about safety aspect on electromagnetic field.	PLO-02 PLO-05 PLO-04 PLO-10

Content	The scope of discussion on the basics of biomagnetic engineering which backgrounds the biomedical phenomenon on living things body and its application on biomedical engineering field
Study and examination requirements and forms of examination	• In-class exercises • Assignment 1, 2, 3, 4, 5 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading list	Main : 1. Jaakko Malmivuo, Robert Plonsey, "Bioelectromagnetism: Principles and Applications of Bioelectric and Biomagnetic Fields", Oxford University Press, 1995. Available online di: http://www.bem.fi/book 2. Changzhi Li, Mohammad Tofighi, Dominique Schreurs, Tzyy-Sheng Jason Horng,"Principles and Applications of RF/Microwave in Healthcare and Biosensing", Elsevier Science (Verlag), 2016. Available online di: https://www.lehmanns.de/shop/medizin-pharmazie/37334402-9780128092187-principles-and-applications-of-rf-microwave-in-healthcare-and-biosensing

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) <i>COURSE</i>	KODE <i>CODE</i>	Rumpun MK <i>Course Cluster</i>	BOBOT (sks) <i>Credits</i>		SEMESTER	Tgl Penyusunan <i>Compilation Date</i>	
Teknik Biomagnetika <i>Biomagnetic Engineering</i>	EB234505	Ilmu Dasar Teknik <i>Basic Engineering</i>	T=3	P=0	V	27 Oktober 2022	
OTORISASI / PENGESAHAN <i>AUTHORIZATION / ENDORSEMENT</i>	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>		
	(Rezki El Arif, S. T., M.T., Ph.D.)		(Dr. Rachmad Setiawan S.T., M.T.)		(Dr. Achmad Arifin, S.T., M.Eng.)		
Capaian Pembelajaran <i>Learning Outcomes</i>	CPL-PRODI yang dibebankan pada MK <i>PLO Program Charged to The Course</i>						
	CPL-02	Mampu mengkaji dan memanfaatkan ilmu pengetahuan dan teknologi dalam rangka mengaplikasikannya pada bidang Teknik Biomedik, serta mampu mengambil keputusan secara tepat dari hasil kerja sendiri maupun kerja kelompok dalam bentuk laporan tugas akhir atau bentuk kegiatan lain yang luarannya setara dengan tugas akhir melalui pemikiran logis, kritis, sistematis, dan inovatif					
	LLO-02	<i>Able to study and utilize science and technology in order to apply it to the field of Biomedical Engineering and able to make appropriate decisions from the results of one's own work or group work in the form of final assignment reports or forms of learning activities others whose output is equivalent to the final assignment through logical, critical, systematic and innovative thinking.</i>					
	CPL-04 LLO-04	Mampu menerapkan Ilmu Pengetahuan Alam dan Matematika pada bidang Teknik Biomedika <i>Able to apply Natural Sciences and Mathematics in the field of Biomedical Engineering.</i>					
	CPL-05	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					

	LLO-05	<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-10 LLO-10	Mampu bekerja dalam tim lintas disiplin dan budaya serta bertanggung jawab kepada masyarakat dan mematuhi hukum dan etika profesi dalam menyelesaikan masalah Teknik Biomedika <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 pengetahuan dasar anatomi dan fisiologi jaringan tubuh yang dapat tereksitasi secara elektromagnetis. <i>Students are able to understand the basic of anatomy and physiology of body tissue that can be electromagnetically excited</i>
	CP MK 2 CLO 2	Mahasiswa memahami teori dan persamaan-persamaan dasar yang menyangkut fenomena-fenomena bioelektromagnetik. <i>Students are able to understand the theory and basic equations concerning bioelectromagnetic phenomena</i>
	CP MK 3 CLO 3	Mahasiswa memahami teori yang melatarbelakangi aplikasi-aplikasi ilmu bioelektromagnetik pada pengukuran dalam teknik biomedik. <i>Students are able to understand the theory behind the bioelectromagnetic science applications on measurement in biomedical engineering.</i>
	CP MK 4 CLO 4	Mahasiswa memahami teori yang melatarbelakangi aplikasi-aplikasi ilmu bioelektromagnetik pada pengukuran dalam teknik biomedik. <i>Students are able to understand the theory behind the bioelectromagnetic science applications on measurement in biomedical engineering.</i>

Peta CPL – CP MK Map of PLO - CLO	<table><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><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></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>										✓		
	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>										✓																																																								
Diskripsi Singkat MK Short Description of Course	Cakupan bahasan tentang dasar-dasar teknik biomagnetika yang melatarbelakangi fenomena-fenomena biomedis pada tubuh makhluk hidup, dan aplikasinya pada bidang teknik biomedika <i>The scope of discussion on the basics of biomagnetic engineering which backgrounds the biomedical phenomenon on living things body and its application on biomedical engineering field</i>																																																																	
Bahan Kajian: Materi pembelajaran Course Materials:	1. Dasar medan listrik dan medan magnet /<i>Basic electrical field and magnetic field</i> 2. Pengenalan Biomagnetisme /<i>Introduction to Biomagnetism</i> 3. Pengukuran Biomagnetisme / <i>Biomagnetism Measurement</i> 4. Prinsip Magnetic Resonance Imaging / <i>Magnetic Resonance Imaging Principle</i> 5. Impedansi Biomagnetik / <i>Biomagnetic Impedance</i> 6. Prospek MRI menggunakan Impedance dan arus listrik /<i>MRI prospect with using impedance and electrical current</i> 7. Efek medan elektromagnetik pada jaringan biologis /<i>Electromagnetic field effect on biological tissue</i> 8. Aspek Keselamatan pada medan Elektromagnetik /<i>Safety aspect on electromagnetic field</i>																																																																	
Pustaka	Utama / Main:																																																																	

References	1. Jaakko Malmivuo, Robert Plonsey, “Bioelectromagnetism: Principles and Applications of Bioelectric and Biomagnetic Fields”, Oxford University Press, 1995. Available online di: http://www.bem.fi/book						
	2. Changzhi Li, Mohammad Tofighi, Dominique Schreurs, Tzyy-Sheng Jason Horng,”Principles and Applications of RF/Microwave in Healthcare and Biosensing”, Elsevier Science (Verlag), 2016. Available online di: https://www.lehmanns.de/shop/medizin-pharmazie/37334402-9780128092187-principles-and-applications-of-rf-microwave-in-healthcare-and-biosensing						
	Pendukung / Supporting:						
Dosen Pengampu Lecturers	Rezki El Arif, S. T., M.T., Ph.D.						
Matakuliah syarat Prerequisite	EB234303 - Matematika Teknik EB234303 – Engineering Mathematics						
Mg ke/ Week	Kemampuan akhir tiap tahapan belajar (Sub-CPMK) / Final ability of each learning stage (LLO)	Penilaian / Assessment		Bantuk Pembelajaran; Metode Pembelajaran; Penugasan Mahasiswa; [Estimasi Waktu] / Form of Learning; Learning Method; Student Assignment; [Estimated Time]		Materi Pembelajaran [Pustaka] / Learning Material [Reference]	Bobot Penilaian /Assessment Load (%)
		Indikator / Indicator	Kriteria & Teknik / Criteria & Techniques				
(1)	(2)	(3)	(4)	Tatap Muka / In-class (5)	Daring / Online (6)	(7)	(8)

1-3	Mahasiswa memahami pengetahuan dasar anatomi dan fisiologi jaringan tubuh yang dapat tereksitasi secara elektromagnetis. <i>Students understand the basic of anatomy and physiology of body tissue that can be electromagnetically excited</i>	- Memahami pengetahuan dasar anatomi dan fisiologi jaringan tubuh yang dapat tereksitasi secara elektromagnetis . - Understand the basic of anatomy and physiology of body tissur that can be electromagneti cally excited	Non-tes : Tugas Tertulis 1: Mengerjakan soal-soal teori dan perhitungan terkait medan listrik, medan magnet Tugas Tertulis 2: Resume mengenai Biomagnetisme Non-test : Written Assignment 1: Working on theory and calculation questions regarding electrical field, magnetic field Written Assignment 2: Resume regarding Biomagnetism	- Kuliah dan brainstorming, tanya jawab. [TM : 3 x 50"] [BM : 3 x 50"] [PT : 3 x 50"] - Presentation and brainstorming, ask and answer. [FF : 3 x 50"] [SA : 3 x 50"] [SS : 3 x 50"]	- Chatting dan diskusi dalam forum platform ITS. - Chat and discussion in ITS platform forum.	- Dasar medan listrik dan medan magnet - Pengenalan Biomagnetisme - Basic electrical field and magnetic field - Introduction to Biomagnetism	Tugas 1: 5 Tugas 2: 5 Assignme nt 1: 5 Assignme nt 2: 5
4-7	Mahasiswa memahami teori dan persamaan-persamaan dasar yang menyangkut fenomena-fenomena bioelektromagnetik. <i>Students understand the theory and basic equations</i>	Memahami teori dan persamaan-persamaan dasar yang menyangkut fenomena-fenomena	Non-tes : Tugas Tertulis 3: Mengerjakan soal-soal teori, aplikasi dan perhitungan	Kuliah, diskusi, tanya jawab, latihan soal, tugas. [TM : 2 x 50"] [BM : 2 x 50"] [PT : 2 x 50"]		- Pengukuran Biomagnetisme - Biomagnetism Measurement	Tugas 3: 5

	concerning bioelectromagnetic phenomena	bioelektromagnetik Understand the theory and basic equations concerning bioelectromagnetic phenomena	biomagnetisme pada tubuh manusia Non-test : Written Assignment 3: Working on biomagnetism in the human body theory, application, and calculation questions	Presentation, discussion, ask and answer, exercise, assignment [FF : 3 x 50"] [SA : 3 x 50"] [SS : 3 x 50"]			Assignment 3: 5
	EVALUASI TENGAH SEMESTER MID-SEMESTER EXAM						30
9-14	Mahasiswa memahami teori yang melatarbelakangi aplikasi-aplikasi ilmu bioelektromagnetik pada pengukuran dalam teknik biomedik. <i>Students understand the theory behind the bioelectromagnetic science applications on measurement in biomedical engineering</i>	- Memahami teori yang melatarbelakangi aplikasi-aplikasi ilmu bioelektromagnetik pada pengukuran dalam teknik biomedik - Understand the theory behind	Non-test : Tugas Tertulis 4: Mengerjakan soal-soal teori, aplikasi dan perhitungan yang mendasari instrument MRI, impedansi biomagnetik, serta prospek penggunaan di masa depan Tugas Presentasi : Presentasi secara individu	- Kuliah, diskusi, tanya jawab, latihan soal, tugas [TM : 2 x 50"] [BM : 2 x 50"] [PT : 2 x 50"] - Presentation, discussion, ask and answer, exercise, assignment [FF : 4 x 50"]		- Prinsip Magnetic Resonance Imaging - Impedansi Biomagnetik - Prospek MRI menggunakan Impedance dan arus listrik - Efek medan elektromagnetik pada jaringan biologis	Tugas 4: 5 Tugas 5: 20

		<i>the bioelectromagnetic science applications on measurement in biomedical engineering</i>	mengenai efek medan elektromagnetik pada jaringan tubuh dan keselamatan pada medan elektromagnetik Non-test : Written Assignment 4: <i>Working on theory, application, and calculation which underlie MRI instrument, biomagnetic impedance and future use prospect</i> Presentation Assignment : <i>Individual presentation regarding electromagnetic field effect in the body tissue and safety on electromagnetic field</i>	[SA : 4 x 60"] [SS : 4 x 60"]		• Aspek Keselamatan pada medan Elektromagnetik • <i>Magnetic Resonance Imaging Principal</i> • <i>Biomagnetic Impedance</i> • <i>MRI prospect using Impedance and electrical current</i> • <i>Electromagnetic field effect on biological tissue</i> • <i>Safety Aspect on Electromagnetic field</i>	Assignment 4: 5 Assignment 5: 20
15-16	EVALUASI TENGAH SEMESTER FINAL SEMESTER EXAM						30

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 : Biomagnetic Engineering			RA&E
				Write Doc Code
Kode/code: EB234505	Bobot sks/credits (T/P): 3/0	Rumpun MK: Ilmu Dasar Teknik <i>Course Cluster: Basic Engineering</i>	Smt: V	
OTORISASI <i>AUTHORIZATION</i>	Penyusun RA & E <i>Compiler A&EP</i> Rezki El Arif, ST., MT., Ph.D	Koordinator RMK <i>Course Cluster Coordinator</i> Dr. Rachmad Setiawan S.T., M.T.	Ka DEP <i>Head of DEP</i> Dr. Achmad Arifin, S.T., M.Eng.	

Mg ke/ Week (1)	Sub CP-MK / <i>Lesson Learning Outcomes (LLO)</i> (2)	Bentuk Asesmen (Penilaian) <i>Form of Assessment</i> (3)	Bobot / <i>Load (%)</i> (4)
1-3	Sub CP-MK 1: Mahasiswa memahami pengetahuan dasar anatomi dan fisiologi jaringan tubuh yang dapat tereksitasi secara elektromagnetis. LLO 1: <i>Students understand the basic of anatomy and physiology of body tissue that can be electromagnetically excited</i>	Non-tes : Tugas 1: Mengerjakan soal-soal teori dan perhitungan terkait medan listrik, medan magnet Tugas 2: Resume mengenai Biomagnetisme Tes: 1 Soal pada ETS Non-test : Task 1: <i>Working on theory and calculation questions regarding electrical field, magnetic field</i> Task 2: <i>Resume regarding Biomagnetism</i> Test: <i>1 Question on Mid-semester Exam</i>	20
4-7	Sub CP-MK 2: Mahasiswa memahami teori dan persamaan-persamaan dasar yang	Non-tes : Tugas 3: Mengerjakan soal-soal teori, aplikasi dan perhitungan biomagnetisme pada tubuh manusia Tes:	25

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
	menyangkut fenomena-fenomena bioelektromagnetik. LLO 2: <i>Students understand the theory and basic equations concerning bioelectromagnetic phenomena</i>	1 Soal pada ETS Non-test : Task 3: <i>Working on biomagnetism in the human body theory, application, and calculation questions</i> Test: <i>1 Question on Mid-semester Exam</i>	
8	Evaluasi Tengah Semester Mid Exam	Tes: Ujian Tulis/Ujian Daring Test: <i>Writing Exams / Online Exams</i>	30
9-14	Sub CP-MK 3: Mahasiswa memahami teori yang melatarbelakangi aplikasi-aplikasi ilmu bioelektromagnetik pada pengukuran dalam teknik biomedik. LLO 3: <i>Students understand the theory behind the bioelectromagnetic science applications on measurement in biomedical engineering</i>	Non-tes : Tugas 4: Mengerjakan soal-soal teori, aplikasi dan perhitungan yang mendasari instrument MRI, impedansi biomagnetik, serta prospek penggunaan di masa depan Tugas Demo dan Laporan: Presentasi secara individu mengenai efek medan elektromagnetik pada jaringan tubuh dan keselamatan pada medan elektromagnetik Tes: 2 Soal pada EAS Non-test : Task 4: <i>Working on theory, application, and calculation which underlie MRI instrument, biomagnetic impedance and future use prospect</i> Demo Assignment and Reports: <i>Individual presentation regarding electromagnetic field effect in the body tissue and safety on electromagnetic</i> Test: <i>2 Question on Final Exam</i>	55
15-16	Evaluasi Akhir	Tes: Ujian Tulis/Ujian Daring	30

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
	Final Exam	Test: <i>Writing Exams / Online Exams</i>	
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 / PLO charged to the course	CPMK / Course Learning Outcome (CLO)	Minggu ke / Week	Bentuk Asesmen / Form of Assessment	Bobot / Load (%)
CPL-02 / PLO-06	CPMK 2 / CLO 2	Week- 4-7	Task 3	25
		Week- 8	1 Question on Mid Exam	15
CPL-04 / PLO-04	CPMK 1 / CLO 1	Week- 1-3	Task 1	10
		Week- 1-3	Task 2	10
		Week- 8	1 Question on Mid Exam	15
CPL-05 / PLO-05	CPMK 3 / CLO 3	Week- 9-14	Task 4	13.75
		Week- 9-14	Demo Assignment	13.75
		Week- 16	2 Question on Final Exam	15
CPL-10 / PLO-10	CPMK 3 / CLO 3	Week- 9-14	Task 4	13.75
		Week- 9-14	Demo Assignment	13.75
	CPMK 6 / CLO 6	Week- 16	2 Question on Final Exam	15
				$\Sigma = 100\%$

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	Tugas 1 (3 Tugas Tertulis) Assignment 1 (3 Task)		0.10				0.15							0.25
2	Evaluasi Tengah Semester		0.15						0.10					0.25

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
	Mid Exam													
3	Tugas 2 (1 Tugas Tertulis & Tugas Demo dan Laporan) Assignment 2 (1 Task & Demo Assignment & Reports)						0.10				0.15			0.25
4	Evaluasi Akhir Semester Final Exam								0.15		0.10			0.25
	Total		0.25				0.25		0.25		0.25			1