



MODULE HAND BOOK

MECHANICAL ENGINEERING VOCATIONAL EDUCATION STUDY PROGRAM

FACULTY OF ENGINEERING – UNIVERSITAS NEGERI PADANG

COURSE NAME	CODE	Course classification	CU		Sem	Version
			Theory	Pract		
Special teaching method	MES1.61. 6106	Compulsory Courses/ Proficiency	1	1	6	1
Responsible	Prof. Dr. Nizwardi Jalinus, M.Ed, Prof. Dr. Ambiyar, M.Pd, Nelvi Erizon S.Pd, M.Pd			Signature		
INFORMATION	Dean		Head of Department		Coordinator of study program	
	Dr. Fahmi Rizal, M.Pd., MT NIP. 195912041985031004		Drs. Purwantono, M.Pd NIP. 196308041986031002		Drs. Purwantono, M.Pd NIP. 196308041986031002	
Program Learning Outcome	Program learning outcome of Mechanical engineering vocational education: <ol style="list-style-type: none"> 1. Possess a good ability to apply the basic science (mathematics and natural sciences) and other disciplines in profesional jobs / projects (Knowledge-understanding) <ol style="list-style-type: none"> 1.1. possess a good understanding and can apply the basic concept of mathematics to solve various technical problems 1.2. possess a good understanding and can apply basic the concept of physic to solve various technical problems 1.3. possess a good understanding and can apply basic the concept of chemistry to solve various technical problems 2. Possess a critical and creative thinking in identifying, formulating, problem solving and evaluating various problems in mechanical engineering using the most appropriate and effective scientific method (Engineering analysis, investigations and assessment): <ol style="list-style-type: none"> 2.1. problem identification skills 2.2. problem analysis skills 					

- 2.3. problem evaluation skills
3. Possess a good ability in designing, manufacturing and operating machines (**Engineering design**)
 - 3.1. able to formulate ideas/concepts into a technical drawing, design and budget plans
 - 3.2. able to operate various machines and other engineering equipment with the correct standard operating procedure
 - 3.3. able to design a machine or machinery system based on a valid scientific theory
 - 3.4. able to realize a concept/design into a prototype, manufacturing process and engineering system
4. Possess a good ability to design, organize and evaluate the education and learning process in *mechanical engineering vocational education*. (**Education design**)
 - 4.1. able to design curriculum and learning process by considering various aspects
 - 4.2. able to organize, control, evaluate and improve the quality of the learning process
 - 4.3. able to develop an interesting, effective and efficient learning medias
5. Possess a good ability to adapt to development in science and technology and apply it into professional jobs by considering any non-technical aspects. (**Engineering practice**)
 - 5.1. able to innovate and develop technology in the field of mechanical engineering by considering social, economic and environmental aspects
 - 5.2. able to carry out the optimization process and increase the efficiency of machines or machining system.
 - 5.3. able to improve the performance of machine/ machinery system by applying the information technology
6. Possess a good softskil and spirit of lifelong learning (**Transferable skill / softskill**)
 - 6.1. possess a religious character
 - 6.2. possess a spirit of nasionalisme, social sensitivity and environmental consevation orientation
 - 6.3. possess the ability to communicate effectively and work together in teamwork
 - 6.4. possess the ability to transfer science and technology to society to improve the quality of life
 - 6.5. possess a good characters of entrepreneur

Course learning outcomes	Course learning outcomes	
	CLO	PLO
	1. Students are able to design learning in the field of Mechanical Engineering according to the learning standards in the 2013 curriculum	4.1,4.2, 4.3
	2. Students are able to make and implement learning preparations for certain subjects according to K13 guidelines, both theoretical and practical lessons	4.2,
	3. Students are able to design and prepare learning assessments in accordance with the subjects being taught with K13 standards at SMK	4.2, 4.3
	4. Students are able to conduct teaching in class and in workshops according to mechanical engineering material	6.3, 6.4
Course descriptions	This Micro learning course discusses Understanding and Steps About Observation and Learning Micro, Skills to Ask, Skills to Provide Strengthening, Skills to Do Variation, Skills Explaining, Opening and Closing Skills, Skills for Guiding Small Group Discussions, Skills Classroom Management, Small Group and Individual Teaching Skills	
References	Main Reference (RU):	
	1. The Main Source Book of Micro-Learning Self-Study Materials (2006) 2. 2. Abimanyu S. (1984). Skills of Opening and Closing Lessons. Jakarta 3. 3. Hasibuan, JJ Ibrahim, (1988). Teaching and Learning Process Micro Basic Skills. Bandung: Youth Work	
	Additional Reference (RP)	
	1. Rachman, Arief. (2007) Home-Schooling: My Class Home, My School World. Jakarta: Kompas Book Publisher. 2. Pangaribuan Parlin. (2005). Micro Learning. Medan: Unimed 3. Wardani IGAK. (1985). Small Group Coaching Skills. Jakarta: P2LPTK Directorate General of Higher Education 4. Rafli Kosasi. (1985). Explanatory Skills. Directorate General of Higher Education. Ministry of Education and Culture 5. Sugeng Paranto, et al. (1980). Micro Teaching. Jakarta: Ministry of Education and Culture	
Learning Media	Software:	Hardware:
		Computer, LCD Projector and Whiteboard and peripherals
Team Teaching		
Assessment	Mid-Test Exam, Final Exam, Independent & group assignments, Group presentations	
Requirements Subject	Vocational Pedagogy	

COURSE SUBJECTS

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
(1)	CLO-1: (PLO-4.1) Understand the lecture contract and semester learning plan (RPS)	Lecture contracts, and an introduction to RPS for specific teaching methods	Lectures and discussions	Students understand the lecture contract and RPS	<i>Question & Answer</i>	RU-1 and RU-2
(2)	CLO-1: [PLO-4.1] Identifying and differentiating basic teaching skills	Basic teaching skills	Self-study, group discussions, and simulations	Students understand basic teaching skills	<i>Question & Answer</i>	RU-1, RU-2, RU-5
(3)	CLO-1: [PLO-4.1] Explain with examples about the basics of curriculum planning	Models, strategies, methods, and learning approaches. (lesson design)	Self-study, group discussions, and simulations	Analyze the differences between models, strategies, methods, and learning approaches	<i>Question & Answer</i>	RU-1 and RU-2
(4)	CLO-2: [CP-4.3] Summarize the various learning models, strategies, methods, and approaches	Instructional media 1. Syllabus 2. RPP 3. Teaching materials	Self-study, group discussions, and simulations	Analyze the syllabus, lesson plans, and teaching materials	<i>Question & Answer</i>	RU-1, RU-2, RU-3
(5)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing classes (peer teaching).	Teaching theory from students (4 people per meeting)	Simulation and discussion	Doing teaching in front of the class	<i>Question & Answer</i>	RU-1, RU-3, RP-3
(6)	CLO-2, 4: [CP-6.1, 6.2, 6.3]	Teaching theory from students (4 people per	Simulation and discussion	Doing teaching in front of the class	<i>Question & Answer</i>	RU-1, RU-3, RP-3

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
	Teaching and managing classes (peer teaching).	meeting)				
(7)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing classes (micro teaching).	Teaching theory from students (4 people per meeting)	Simulation and discussion	Doing teaching in front of the class	<i>Question & Answer</i>	RU-1, RU-3, RU-5, RP-4
(8)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing classes (micro teaching).	Teaching theory from students (4 people per meeting)	Simulation and discussion	Doing teaching in front of the class	<i>Question & Answer</i>	RU-1, RU-3, RU-5, RP-4
(9)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing classes (micro teaching).	Teaching theory from students (4 people per meeting)	Simulation and discussion	Doing teaching in front of the class	<i>Question & Answer</i>	RU-1, RU-3, RU-5, RP-4
(10)	CLO-1. 2, 3: [CP-4.1, 4.2, 4.3] Explain with examples of graduate Competency Standards and Curriculum Content Standards	Practical teaching from students (4 people per meeting)	Simulation and discussion	Conduct teaching in front of the workshop	<i>Question & Answer</i>	RU-1, RU-3, RU-5, RP-1
(11)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing at workshops	Practical teaching from students (4 people per meeting)	Simulation and discussion	Conduct teaching in front of the workshop	<i>Question & Answer</i>	RU-3, RP-4

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
(12)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing at workshops	Practical teaching from students (4 people per meeting)	Simulation and discussion	Conduct teaching in front of the workshop	Question & Answer	RU-5 RP-4
(13)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing at workshops	Practical teaching from students (4 people per meeting)	Simulation and discussion	Conduct teaching in front of the workshop	Question & Answer	RU-1, RP-4
(14)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing learning using IT	Teaching using IT from students (4 people per meeting)	Simulation and discussion	Conduct teaching using IT	Question & Answer	RU-1, RU-2, RU-3, RU-4, RU-5
(15)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing learning using IT	Teaching using IT from students (4 people per meeting)	Simulation and discussion	Conduct teaching using IT	Question & Answer	RU-1, RU-3 RU-5
(16)	CLO-2, 4: [CP-6.1, 6.2, 6.3] Teaching and managing learning using IT	International Vocational Education	Simulation and discussion	Conduct teaching using IT	Question & Answer	RU-1, RU-4
(16)	Final Exam					

Note : 1 credit = (50 'TM + 60' BT + 60 'BM) / Week
 TM = Face to Face (Lecture)

BM = Independent Study
 PS = Simulation Practicum (160 minutes / week)

T = Theory (aspects of science)
 P = Practice (aspects of work skills)

BT = Structured Learning.

PL = Laboratory Practicum (160 minutes / week)

The linkage between CLO and PLO and assessment methods

MSN1.62.6106	Assessment	Weight (%)	PLO-1			PLO-2			PLO-3				PLO-4			PLO-5			PLO-6								
			1	2	3	1	2	3	1	2	3	4	1	2	3	1	2	3	4	5							
CLO-1-2	UAS. 1	5											v	v													
CLO-2-4	UAS. 2	5												v	v					v			v				
CLO-2-3-4	UAS. 3	10												v	v								v				
CLO-2-3-4	UAS. 4	10																	v			v					
CLO-1-2	Micro Teaching 1	10												v											v		
CLO-1-2	Micro Teaching 2	10																								v	
CLO-2-3	Micro Teaching 3	10																								v	
CLO-2-3	Micro Teaching 4	10													v												
CLO-1-2-3-4	Micro Teaching 5	20																		v			v		v		
Presence		10																									
TOTAL		100																									

Assessment Component

- Micro Teaching : 60 %
- Final exams : 30%
- Presence : 10%
- Total : 100%

Scoring/Grading level description

	Excellent	Good	Satisfy	Fail
ability to describe	Able to describe correctly and completely	Able to describe correctly but not complete	Able to describe but less clear and incomplete	Unable to describe

ability to formulate	Able to formulate correctly and completely	Able to formulate correctly but not complete	Able to formulate but less clear and incomplete	Unable to formulate
ability to calculate	Able to calculate correctly and completely	Able to calculate correctly but not complete	Able to calculate but less clear and incomplete	Unable to calculate
ability to analyze	Able to analyze correctly and completely	Able to analyze correctly but not complete	Able to analyze but less clear and incomplete	Unable to analyze

Scoring and grading system

Score	Quality	Quality score	Designation	Score	Quality	Quality score	Designation
85 – 100	A	4.0	Outstanding	55 – 59	C	2.0	Acceptable
80 – 84	A-	3.6	Excellent	50 – 54	C-	1.6	Poor
75 – 79	B+	3.3	Very good	40 – 49	D	1.0	Poor
70 – 74	B	3.0	Good	≤ 39	E	0.0	Fail
65 – 69	B-	2.6	Good	-	T	-	Postpone
60 – 64	C+	2.3	Acceptable				

