



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		
Fabrication	MES1.61.1101	Compulsory Courses / MEVE Core course	0	3	1	
Responsible	Drs. Purwantono, M.Pd, Drs. Nelvi Erizon, M.Pd, Drs. Jasman., M.Kes, Drs. Irzal, M. Kes,, Bulkia Rahim, M.Pd, Junil adri, M.Pd.T			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 thingking in identifying, formulating, problem solving and evaluating various problems in mechanical engineering using the most appropriate and effective scientific method (<i>Engineering analysis, investigations and assessment</i>): <ol style="list-style-type: none"> 2.1. problem identification skills 					

	<ul style="list-style-type: none"> 2.2. problem analysis skills 2.3. problem evaluation skills 3. Possess a good ability in designing, manufacturing and operating machines (Engineering design) <ul style="list-style-type: none"> 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 <i>mechanical engineering vocational education</i>. (Education design) <ul style="list-style-type: none"> 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) <ul style="list-style-type: none"> 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) <ul style="list-style-type: none"> 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	Course learning outcomes

outcomes	CLO		PLO
	1. Students Understand the basics of Fabrication		2.1, 2.2
	2. Students Understand the kinds of plate joints		2.2, 2.3
	3. Skilled students make boxes, cylinders, cones, traps and calcium		3.1, 3.2, 3.3
	4. Skilled students make various combinations of joints and make finished objects		3.1, 3.2, 3.3, 3.4
Course descriptions	Provides knowledge and skills about drawing openings on plates, cutting / cutting, bending, folding, shaping, crunching, joining and assembling plates on thin plates and forming plates into useful items		
References	Main References (RU):		
	1. Fabrication Team (2010) Fabrication Module 2. Fabrication Team (2012) Fabrication job sheets		
	Additional Reference (RP)		
	1. Bulkia Rahim, M. Pd.T (2016) Constructiveism-Based Fabrication Module		
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	No		

Course Objects

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
(1)	CLO-1: [CPL-2.1, 2.2, 2.3] Students are capable: Understand the importance of work safety, Understand the function of work safety tools in the welding process, Skill in using welding work safety equipment	Electric flame arc welding work safety, tool name, function, how to use it	Lecture [1x200 '] Discussion [1x20 '] Demonstration [1x70 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book	Oral and written	RU-1, Rp-1
(2)	CLO-2: [CPL-2.1, 2.2, 2.3, 5.1, 5.2, 5.3] Students are capable Understand and know the kinds of plate joints that are often used, Skilled in making various kinds of plate joints and Skilled in using tools in plate connection.	Definition of plate joints, Types of plate joints, Construction of plate joints, The process of working on joints	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Connecting practicum Angle brace	Oral and written and practicum	RU-1, RU 2 and RP-1
(3)	CLO-3: [CPL-.2.1, 2.2, 2.3] Students are capable Skilled in making boxes with zinc plate material	Make a box with zinc plate material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Make a box with zinc plate material	Oral and written and practicum	RU-1, RU 2 and RP-1
(4)	CLO-3: [CPL-.5.1, 5.2, 5.3.] Students are capable Skilled in making boxes with zinc plate material	Make a box with zinc plate material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Make a box	Oral and written and practicum	RU-1, RU 2 and RP-1

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
				with zinc plate material		
(5)	CLO-3: [CP-5.1, 5.2, 5.3.] College student Understand Skilled in making cylinders with zinc plate material	Making a cylinder with zinc plate material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Making a cylinder with zinc plate material	Oral and written and practicum	RU-1, RU 2 and RP-1
(6)	CLO-3: [CP-5.1, 5.2, 5.3.] College student Understand Skilled in making cylinders with zinc plate material	Making a cylinder with zinc plate material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Making a cylinder with zinc plate material	Oral and written and practicum	RU-1, RU 2 and RP-1
(7)	CLO-3: [CP 5.1, 5.2, 5.3.] College student Skilled in making cones with zinc plate material.	Making a cylinder with zinc plate material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Making a cylinder with zinc plate material	Oral and written and practicum	RU-1, RU 2 and RP-1
(8)	CLO3: [CP 5.1, 5.2, 5.3.] College student Skilled in making cones with zinc plate material.	Making a cylinder with zinc plate material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Making a cylinder with zinc plate material	Oral and written and practicum	RU-1, RU 2 and RP-1
(9)	CLO-3: [CP 5.1, 5.2, 5.3.] College student Skilled in	Make a trapezoid with zinc plate material	Lecture [1x50 '] Discussion [1x20 ']	Make a summary and description of the	Oral and written and practicum	RU-1, RU 2 and RP-1

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
	making trapezium with zinc plate material		Practicum [1x220 '] Conclusion [1x10 ']	material presented in the resume book Practicum Make a trapezoid with zinc plate material		
(10)	CLO-3: [CP 5.1, 5.2, 5.3.] College student Skilled in making trapezium with zinc plate material	Make a trapezoid with zinc plate material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Make a trapezoid with zinc plate material	Oral and written and practicum	RU-1, RU 2 and RP-1
(11)	CLO-4: [CP 5.1, 5.2, 5.3.] College student Skilled in making cone and cylinder combinations with the basic material of zinc plate	Make a combination of boxes and cylinders with zinc plate base material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Make a combination of boxes and cylinders with zinc plate base material	Oral and written and practicum	RU-1, RU 2 and RP-1
(12)	CLO-4: [CP 5.1, 5.2, 5.3.] College student Skilled in making cone and cylinder combinations with the basic material of zinc plate	Make a combination of boxes and cylinders with zinc plate base material	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book Practicum Make a combination of boxes and cylinders with zinc plate base material	Oral and written and practicum	RU-1, RU 2 and RP-1
(13)	CLO-4: [CP 5.1, 5.2, 5.3.] College student Skilled in making finished or useful objects by utilizing various	Making finished or useful objects by using various combinations of joints	Lecture [1x50 '] Discussion [1x20 '] Practicum [1x220 '] Conclusion [1x10 ']	Make a summary and description of the material presented in the resume book	Oral and written and practicum	RU-1, RU 2 and RP-1

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
	combinations of joints			Practicum Making finished or useful objects by using various combinations of joints		
(14)	CLO-4 [CP 5.1, 5.2, 5.3.] College student Skilled in making finished or useful objects by utilizing various combinations of joints	Making finished or useful objects by using various combinations of joints	Lecture [1x50 ' Discussion [1x20 ' Practicum [1x220 ' Conclusion [1x10 '	Make a summary and description of the material presented in the resume book Practicum Making finished or useful objects by using various combinations of joints	Oral and written and practicum	RU-1, RU 2 and RP-1
(15)	CLO-4: [CP 5.1, 5.2, 5.3.] College student Skilled in making finished or useful objects by utilizing various combinations of joints	Making finished or useful objects by using various combinations of joints	Lecture [1x50 ' Discussion [1x20 ' Practicum [1x220 ' Conclusion [1x10 '	Make a summary and description of the material presented in the resume book Practicum Making finished or useful objects by using various combinations of joints	Oral and written and practicum	RU-1, RU 2 and RP-1
(16)	Final Semester Evaluation (Evaluation which is intended to determine the final achievement of student learning outcomes)					

Note : 1 credit = (50 'TM + 60' BT + 60 'BM) / Week BM = Independent Study T = Theory (aspects of science)
 TM = Face to Face (Lecture) PS = Simulation Practicum (160 minutes / week) P = Practice (aspects of work skills)
 BT = Structured Learning. PL = Laboratory Practicum (160 minutes / week)

The linkage between CLO and CPL and assessment methods

MES1.52.1010	Assessment	Point (%)	CPL-1			CPL-2			CPL-3				CPL-4			CPL-5			CPL-6					
			1	2	3	1	2	3	1	2	3	4	1	2	3	1	2	3	1	2	3	4	5	
CLO-1	UTS. 2.1, 2.2, 2.3	2		V	V																			
CLO-1	UTS. 2.1, 2.2, 2.3	2		V	V																			
CLO-2	UTS. 2.1, 2.2, 2.3	2					V	V																
CLO-2	UTS. 2.1, 2.2, 2.3	2					V	V																
CLO-3	UTS. 2.1, 2.2, 2.3	2					V	V																
CLO-3	UAS. 2.1, 2.2, 2.3	5															V	V						
CLO-4	UAS. 2.1, 2.2, 2.3	5															V	V						
CLO-2.1	Practicum	60									V													
CLO-2.2	Practicum											V												
CLO-3.1	Practicum											V												
CLO-3.2	Practicum											V												
CLO-3.3	Practicum											V												
CLO-3.4	Practicum											V												
CLO-4.1	Practicum											V												
CLO-4.2	Practicum										V													
CLO-2,3,4	Practical report	10									V													
Presence		10																						
TOTAL		100																						

Assessment Component

Midtest exam	: 10%
Final exams	: 10%
Duty	: 70%
<u>Presence</u>	<u>: 10%</u>

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	-	Tertunda
60 – 64	C+	2.3	Acceptable				