



# MODULE HAND BOOK

## MECHANICAL ENGINEERING VOCATIONAL EDUCATION STUDY PROGRAM

### FACULTY OF ENGINEERING – UNIVERSITAS NEGERI PADANG

COURSE NAME	CODE	Course classification	CU		Sem	Ver sion
			Theory	Pract		
Indonesian	UNP.1.60.1402 / 1403	National Compulsory Courses	2	0	2	
Responsible	Drs. Nurman S, M.Si, Rita Angraini, M.Pd, Irwan, M.Sc and Zaky Farid Luthfi, M.Pd		signature			
Information	Dean	Head of Department	Coordinator of study program			
	<u>Dr. Fahmi Rizal, M.Pd., MT</u> NIP. 195912041985031004	<u>Drs. Purwantono, M.Pd</u> NIP. 196308041986031002	<u>Drs. Purwantono, M.Pd</u> NIP. 196308041986031002			
Learning Outcome Program	<p><b>The learning outcome program of Mechanical engineering vocational education:</b></p> <ol style="list-style-type: none"> <li>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"> <li>1.1. possess a good understanding and can apply the basic concept of mathematics to solve various technical problems</li> <li>1.2. possess a good understanding and can apply basic the concept of physic to solve various technical problems</li> <li>1.3. possess a good understanding and can apply basic the concept of chemistry to solve various technical problems</li> </ol> </li> <li>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 (<b>Engineering analysis, investigations and assessment</b>):               <ol style="list-style-type: none"> <li>2.1. problem identification skills</li> <li>2.2. problem analysis skills</li> <li>2.3. problem evaluation skills</li> </ol> </li> <li>3. Possess a good ability in designing, manufacturing and operating machines (<b>Engineering design</b>)               <ol style="list-style-type: none"> <li>3.1. able to formulate ideas/concepts into a technical drawing, design and budget plans</li> <li>3.2. able to operate various machines and other engineering equipment with the correct standard operating procedure</li> </ol> </li> </ol>					

	<ul style="list-style-type: none"> <li>3.3. able to design a machine or machinery system based on a valid scientific theory</li> <li>3.4. able to realize a concept/design into a prototype, manufacturing process and engineering system</li> <li>4. Possess a good ability to design, organize and evaluate the education and learning process in <i>mechanical engineering vocational education. (Education design)</i> <ul style="list-style-type: none"> <li>4.1. able to design curriculum and learning process by considering various aspects</li> <li>4.2. able to organize, control, evaluate and improve the quality of the learning process</li> <li>4.3. able to develop an interesting, effective and efficient learning medias</li> </ul> </li> <li>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. (<i>Engineering practice</i>) <ul style="list-style-type: none"> <li>5.1. able to innovate and develop technology in the field of mechanical engineering by considering social, economic and environmental aspects</li> <li>5.2. able to carry out the optimization process and increase the efficiency of machines or machining system.</li> <li>5.3. able to improve the performance of machine/ machinery system by applying the information technology</li> </ul> </li> <li>6. Possess a good softskil and spirit of lifelong learning (<i>Transferable skill / softskill</i>) <ul style="list-style-type: none"> <li>6.1. possess a religious character</li> <li>6.2. possess a spirit of nasionalisme, social sensitivity and environmental consevation orientation</li> <li>6.3. possess the ability to communicate effectively and work together in teamwork</li> <li>6.4. possess the ability to transfer science and technology to society to improve the quality of life</li> <li>6.5. possess a good characters of entrepreneur</li> </ul> </li> </ul>						
<b>Course Learning Outcomes</b>	<b>Course learning outcomes</b>						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%; text-align: left;">CLO</th> <th style="width: 20%; text-align: center;">PLO</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1. Be able to explain the concepts: the urgency of Pancasila in Higher Education, Pancasila in the context of the history of the nation's struggle, Pancasila as the basis of the state, Pancasila as an ideology, Pancasila as a philosophy, Pancasila as an ethical system , and Pancasila as the basis for developing science</td> <td style="text-align: center; vertical-align: top;">6.2, 63</td> </tr> <tr> <td style="padding: 5px;">2. Able to analyze: the urgency of Pancasila in Higher Education, Pancasila in the context of the history of the nation's struggle, Pancasila as the basis of the state, Pancasila as an ideology, Pancasila as a philosophy, Pancasila as an ethical system, and Pancasila as the base for developing science</td> <td style="text-align: center; vertical-align: top;">6.2, 63</td> </tr> </tbody> </table>	CLO	PLO	1. Be able to explain the concepts: the urgency of Pancasila in Higher Education, Pancasila in the context of the history of the nation's struggle, Pancasila as the basis of the state, Pancasila as an ideology, Pancasila as a philosophy, Pancasila as an ethical system , and Pancasila as the basis for developing science	6.2, 63	2. Able to analyze: the urgency of Pancasila in Higher Education, Pancasila in the context of the history of the nation's struggle, Pancasila as the basis of the state, Pancasila as an ideology, Pancasila as a philosophy, Pancasila as an ethical system, and Pancasila as the base for developing science	6.2, 63
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	<ol style="list-style-type: none"> <li>3. Able to identify: the urgency of Pancasila in Higher Education, Pancasila in the context of the history of the nation's struggle, Pancasila as the basis of the state, Pancasila as an ideology, Pancasila as a philosophy, Pancasila as an ethical system, and Pancasila as the base for developing science</li> </ol>	6.2, 63
	<ol style="list-style-type: none"> <li>4. Able to show attitudes in accordance with the values of Pancasila</li> </ol>	6.2, 63
	<ol style="list-style-type: none"> <li>5. Able to speak, act and behave in accordance with the values of Pancasila</li> </ol>	6.2, 63
<b>Course description</b>	<p>The Pancasila course makes students become scientists who have the spirit of Pancasila and behave and behave in accordance with the values of Pancasila, understand and live the state system based on the 1945 Constitution, understand the history of the struggle of the Indonesian nation so that it can foster an attitude of nationalism and patriotism and have critical insights and thoughts. In addition, students are expected to be able to apply Pancasila values in social, national and state life through the study of Pancasila as a philosophy and philosophical system, designing assessments and assessment rubrics and carrying out case studies so that they are able to behave in faith and devote to God Almighty, with fair humanity. and being civilized, supporting the unity of the nation and the people who prioritize common interests above personal and group interests to realize social justice for all Indonesian people. Have critical and communicative skills and attitudes with the professions of teachers, technicians, analysts and administrators.</p>	
<b>References</b>	<p><b>Main references (RU):</b></p> <ol style="list-style-type: none"> <li>1. Jakarta: Idayu Foundation.</li> <li>2. Admoredjo, Sudjito bin. 2009. "The rule of law in the perspective of Pancasila". Paper at the Pancasila Congress at UGM Yogyakarta, 30 - 31 May to 1 June 2009.</li> <li>3. Aiken, HD. 2009. Ideology Century, Yogyakarta: Relief Publishers.</li> <li>4. Ali, As'ad Said. 2009. The State of Pancasila is the Way of National Benefit. Jakarta: LP3ES Library.</li> <li>5. Asdi, Endang Daruni. 2003. Whole Man in the Moral of Pancasila. Jogjakarta: Pustaka Raja.</li> <li>6. Bahar, Saafroedin, Ananda B. Kusuma, and Nannie Hudawati (ed.). 1995, Minutes of the Session of the Investigation Committee for Preparatory Efforts for Independence (BPUPKI), Preparatory Committee for Indonesian Independence (PPKI) 28 May 1945 - 22 August 1945, State Secretariat of the Republic of Indonesia, Jakarta.</li> <li>7. Bahm, Archie. 1984. Axiology: The Science of Values. New Mexico: Albuquerque.</li> <li>8. _____ .. 1995. Epistemology; Theory of Knowledge. New Mexico: Albuquerque.</li> <li>9. Bakker, Anton. 1992. Ontology: General Metaphysics. Yogyakarta: Kanisius.</li> <li>10. Bakry, Noor Ms. 2010. Pancasila Education. Student Library: Yogyakarta.</li> <li>11. Branson, MS 1998. The Role of Civic Education, A Fortcoming education policy Task Force Position. Paper from the Communitarian Network.</li> <li>12. Darmodiharjo, Darjiddk. 1991. Santiaji Pancasila: A Constitutional Philosophical, Historical and Juridical Review. Surabaya: National Business.</li> </ol>	

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25. Kaelan. 2013. The National Pancasila State: Cultural, Historical, Philosophical, Juridical, and Its Actualization. Yogyakarta: Paradigm Publisher

#### **Additional references (RP)**

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2. Koentjaraningrat. 2004. Culture Mentality and Development. Jakarta: PT. Gramedia Pustaka Utama
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<b>Learning media</b>	<b>Software:</b>	<b>Hardware:</b>
		Computer, LCD Projector and whiteboards and other devices
<b>Teaching team</b>		
<b>Assessment</b>	Mid Test, Final Test, Individual task & team, group discussion and presentation	

<b>Prerequisite courses</b>	No.
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### Course Subject

<b>Week</b>	<b>Expected competencies</b>	<b>Topics</b>	<b>Method and strategy for learning</b>	<b>Assignment</b>	<b>Criterion / Assessment indicator</b>	<b>References</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
1	<b>CLO-1: (PLO-6.2, 6.3)</b> Students are able to understand course objectives, understand strategies, learning resources, evaluation and course assignments, and understand lecture rules	1. Know 2. Understand	Lecture Orientation and Contracts 1. Course Objectives 2. Course Material 3. Lecture Strategy 4. Learning Resources 5. Lecture Evaluation 6. Subjects & Subject Bills 7. Lecture Contract	Lecturer presentations	Oral and attitude	1.5
2	<b>CLO-1: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and infer history, position and function, and variety Indonesian.	1. Understand 2. Analyze 3. Conclude	Polite Language 1. History of the Indonesian Language 2. Position and Function of the Indonesian Language 3. Variety of Indonesian	Lecturer presentations, student presentations, question and answer	Oral, written, and performance	1, 3, 17, 18

3	<b>CLO-2: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and conclude the correct use of Indonesian spelling.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Conclude</li> <li>4. Use</li> </ol>	<p>General Guidelines for Indonesian Spelling</p> <ol style="list-style-type: none"> <li>1. Indonesian Spelling Concept</li> <li>2. History and Development of Indonesian Spelling</li> <li>3. Writing and Using Letters and Words</li> <li>4. Use of Punctuation</li> <li>5. Writing up absorption elements</li> </ol>	Lecturer presentations, student presentations, question and answer, demonstrations, exercises (practice)	Oral, written and performance	1, 2, 3, 6, 8, 11, 13, 17, 18,
4	<b>CLO-2: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, conclude, and use vocabulary and diction with right.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Conclude</li> <li>4. Use</li> </ol>	<p>Vocabulary and Diction</p> <ol style="list-style-type: none"> <li>1. Concept Words, Vocabulary, and Diction</li> <li>2. Source of Vocabulary</li> <li>3. Word Selection Criteria</li> <li>4. Word Classification Based on Diction</li> </ol>	Lecturer presentations, student presentations, group discussions, questions and answers, recitation	Oral, written and performance	1, 2, 4, 9, 17, 18, 23
5	<b>CLO-2: (PLO-6.2, 6.3)</b> use sentences with	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>5. Use</li> </ol>	<p>Basic Sentences</p> <ol style="list-style-type: none"> <li>1. The Essence of Sentences</li> </ol> <p>Basic Sentence Patterns</p>	Lecturer presentations, student presentations, group discussion,	Oral, written and performance	1, 2, 5, 7, 10, 14, 17, 18, 19, 21, 24, 25, 26
6	<b>CLO-3: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and use effective sentences correctly.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Use</li> </ol>	<p>Effective sentence</p> <ol style="list-style-type: none"> <li>1. The Nature of Effective Sentences</li> <li>2. Characteristics / Requirements for Effective Sentences</li> </ol>	Demonstration, exercise, and practice	Oral, writing and show work	1, 2, 3, 4, 5, 7, 9, 10, 11, 13, 14, 17, 18, 19, 21, 24, 25, 26
7	<b>CLO-3: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and use paragraphs well.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Use</li> </ol>	<p>Paragraph</p> <ol style="list-style-type: none"> <li>1. Nature of Paragraph</li> <li>2. Requirements Paragraph</li> <li>3. Paragraph Structure</li> <li>4. Type of Paragraph</li> </ol>	Lecturer presentations, Student presentations, discussions groups, questions and answers, recitation	Oral, writing and show work	1, 2, 3, 4, 7, 15, 16, 17, 18



8	<b>CLO-3: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and use paragraphs well.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Use</li> </ol>	Paragraph: Development Pattern Paragraph	Lecturer presentations, Student presentations, discussions groups, questions and answers, recitation	Oral, writing and show work	1, 2, 3, 4, 7, 15, 16, 17,18
9	<b>MIDTERM EXAM</b>					
10	<b>CLO-4: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and conclude scientific essay precisely.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Conclude</li> </ol>	Scientific Essay <ol style="list-style-type: none"> <li>1. Itself Scientific Essay</li> <li>2. Characteristic- Characteristics of Scientific Essays</li> <li>3. Type Scientific Essay</li> <li>4. Step or Scientific Essay Writing Stage</li> </ol>	Demonstrations, exercises and practices	Oral, written and show work	1, 2, 3, 4, 7, 15, 16, 17,18
11	<b>CLO-4: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and use the structure of scientific essays right.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Use</li> </ol>	Scientific Essay: Structure of Scientific Writing	Lecturer presentations, student presentations, group discussions, questions and answers, recitation	Oral, written and performance	1, 2, 3, 5, 7, 8,
12	<b>CLO-5: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and use quotes in scientific essays appropriately.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Use</li> </ol>	Scientific Essay: Quotations / References <ol style="list-style-type: none"> <li>1. The Nature of Quotation</li> <li>2. Quote Type</li> <li>3. Citation Writing Rules</li> </ol>	Lecturer presentations, student presentations, group discussions, questions and answers, recitation	Oral, written and performance	1, 2, 3, 5, 7, 8, 12, 26
13	<b>CLO-5: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and use bibliography in scientific essays appropriately.	<ol style="list-style-type: none"> <li>1. Understand</li> <li>2. Analyze</li> <li>3. Use</li> </ol>	Scientific Essay: Bibliography <ol style="list-style-type: none"> <li>1. References References</li> <li>2. Bibliography component</li> <li>3. Bibliography Writing Rules</li> </ol>	Lecturer presentations, student presentations, group discussions, questions	Oral, written and performance	1, 2, 3, 5, 7, 8, 12, 26

				and answers, recitation		
14	<b>CLO-5: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and conclude scientific article writing well.	1. Understand 2. Analyze 3. Conclude	Scientific Essay: Scientific Articles 1. The Nature of Scientific Articles 2. Characteristics of Scientific Articles 3. Types of Scientific Articles 4. Structure of Scientific Articles	Lecturer presentations, student presentations, group discussions, questions and answers, recitation	Oral, written and performance	1, 2, 3, 5, 7, 8,
15	<b>CLO-5: (PLO-6.2, 6.3)</b> Students are able to understand, analyze, and conclude theories and Students are able to understand, analyze, and write official letters well.	1. Understand 2. Coalition 3. Conclude 4.Understand 5.Analyze Writing	Scientific Presentation Theory Official letter 1.The Nature of Official Letters 2.Official Letter Format / Structure 3.Language of Official Job Application Letter	Student presentations and questions and answers Lecturer presentations, student presentations, group discussions, questions and answers, recitation	Oral, written and performance	1, 2, 3, 5, 7, 8,
16	<b>FINAL EXAMS</b>					

### The linkage between CLO and PLO and assessment methods

MSN1.62.4007	Assessment	Point (%)	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	1	2	3	4	5
CLO-1	SA.1	10																		V	V		
CLO-1	SA.2.3	20																		V	V		
CLO-2	Mid-Test 1	5																		V	V		
CLO-2	Mid-Test 2	5																		V	V		
CLO-2	Mid-Test 3	5																		V	V		

CLO-3	Mid-Test 4	5																		V	V		
CLO-3	Mid-Test 5	5																		V	V		
CLO-3	Mid-Test 6	5																		V	V		
CLO-3	Mid-Test 7	5																		V	V		
CLO-4	Final Test-1	5																		V	V		
CLO-4	Final Test-2	5																		V	V		
CLO-4	Final Test-3	5																		V	V		
CLO-5	Final Test-4	5																		V	V		
CLO-5	Final Test-5	5																		V	V		
Presence		10																		V	V		
TOTAL		100																					

**Assessment criterions**

- 1. Student activities and assignments : 40%
- 2. Mid Test : 20%
- 3. Final Test : 30%
- 4. Attendances : 10%

**Scoring/Grading level description**

	<b>Excellent</b>	<b>Good</b>	<b>Satisfy</b>	<b>Fail</b>
ability to describe	Able to describe <b>correctly</b> and <b>completely</b>	Able to describe <b>correctly</b> but <b>not complete</b>	Able to describe but <b>less clear</b> and <b>incomplete</b>	<b>Unable</b> to describe
ability to formulate	Able to formulate <b>correctly</b> and <b>completely</b>	Able to formulate <b>correctly</b> but <b>not complete</b>	Able to formulate but <b>less clear</b> and <b>incomplete</b>	<b>Unable</b> to formulate
ability to calculate	Able to calculate <b>correctly</b> and <b>completely</b>	Able to calculate <b>correctly</b> but <b>not complete</b>	Able to calculate but <b>less clear</b> and <b>incomplete</b>	<b>Unable</b> to calculate
ability to analyze	Able to analyze <b>correctly</b> and <b>completely</b>	Able to analyze <b>correctly</b> but <b>not complete</b>	Able to analyze but <b>less clear</b> and <b>incomplete</b>	<b>Unable</b> 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				

