



**MODULE HAND BOOK**  
**MECHANICAL ENGINEERING VOCATIONAL EDUCATION STUDY PROGRAM**  
**FACULTY OF ENGINEERING – UNIVERSITAS NEGERI PADANG**

COURSE NAME	CODE	General Course	CU		SEM	Version
			Theory	Pract		
Fundamental of Education	UNP1.61.2104	National Compulsory Courses/ MEVE (Education aspect) core course	2	0	1	
Responsible	Dr .. Fetri Yeni JMPd			Signature		
<b>INFORMATION</b>	<b>Dean</b>		<b>Head of Department</b>		<b>Coordinator of study program</b>	
	<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	
<b>Learning Outcomes of Graduates</b>	<b>Program learning outcome of Mechanical engineering vocational education::</b> <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><i>Engineering analysis, investigations and assessment</i></b>):</li> </ol>					

	<ul 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> <li>3. Possess a good ability in designing, manufacturing and operating machines (<b>Engineering design</b>) <ul 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> <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> </ul> </li> <li>4. Possess a good ability to design, organize and evaluate the education and learning process in <i>mechanical engineering vocational education</i>. (<b>Education design</b>) <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. (<b>Engineering practice</b>) <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 (<b>Transferable skill / softskill</b>) <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</b>	<b>Course learning outcomes</b>

<b>outcomes</b>	<b>CLO</b>	<b>PLO</b>
	1. Students are able to master basic concepts and explain in their own language about human nature according to the Koran and experts orally and in writing and can implement them into the learning process.	4.1, 4.2, 4.3
	2. Students are able to explain the meaning of education according to experts from abroad and within the country and are able to conclude the concept of education according to their own language.	4.1, 4.2, 4.3
	3. Students are able to explain the foundation of education and its application in learning activities	4.1, 4.2, 4.3
	4. Students are able to explain the principles of education and their implementation in learning.	4.1, 4.2, 4.3
	5. Students are able to explain and link between the pillars of education in learning practice	4.1, 4.2, 4.3
	6. Students are able to understand education as a system	4.1, 4.2, 4.3
	7. Students are able to explain the implementation of the National Education system in accordance with the Law. No. 20 of 2003	4.1, 4.2, 4.3
	8. Students are able to explain some thoughts about education according to classical and new thinking.	4.1, 4.2, 4.3
	9. Students are able to explain influential education figures in Indonesia	4.1, 4.2, 4.3
	10. Students are able to explain the types of main problems of education in Indonesia.	4.1, 4.2, 4.3
	11. Students are able to analyze the factors that affect education problems in Indonesia	4.1, 4.2, 4.3
	12. Students are able to explain educational renewal efforts that have been carried out in Indonesia and come up with innovative ideas for educational renewal	4.1, 4.2, 4.3
	13. Students are able to understand the role and use of ICT in education	4.1, 4.2, 4.3
<b>Course descriptions</b>	The Basic Education Science course provides basic knowledge and understanding of human nature, the nature of education, the importance of education, educational foundations and principles, thoughts on education, pillars of education, education as a system, the implementation of national education with all its problems , the role and utilization of ICT in education.	
<b>References</b>	<b>Main Reference (RU):</b>	
	1. RI Government Regulation. number 19 of 2005 regarding. National Education Standards,	

2. Prayitno. 2005. Scientific Figure of Education. Padang: FIP UNP
3. .... 2009. Basic, Theory, and Praxis of Education. Jakarta: Gramedia Widia Sarana Indonesia
4. ...., 2018. Basic Scholarly and Professional Education Patterns: Padang State University.
5. Rusman. 2014. ICT-Based Learning. Bandung: Rajawali Press
6. Syafril, Zelhendri Zen, 2017 .. Basics of Education. Jakarta: Prenada Media Group.
7. Suardi. 2012. Introduction to Educational Theory and Applications. Jakarta: PT. Index
8. RI Law. No. 20 of 2003 concerning the National Education System. Jakarta: Balai Pustaka Cipta Karya.
9. RI Law. No. 14 of 2005 concerning Teachers and Lecturers. Jakarta: Depdiknas
10. State University of Padang 2015. E - Learning System. UNP Pres Padang.
11. Zuchdi, Darmiyati. 2008. Humanization of Education. Jakarta: Earth Literacy.

#### **Additional Reference (RP)**

1. Alawi Al-Maliki, 2002. The Principles of Education of Rasulullah. Jakarta: Publisher Echo Insa
2. Cepi Riana 2012, Media Education. Bandung UPI, Press.
3. Dirjendikti Kemdikbud, 2020. Free Learning Guide Book-Merdeka Campus. Jakarta: Kemendikbud.
4. Dewi Salma. 2012. Insights into Educational Technology. Jakarta: Depdiknas
5. Joy. A. Palmer, 2010. 50 Most Influential Thoughts on Modern Education. Yogyakarta: Publisher Laksana.
6. Joint Ministerial Decree, 2020. Pocket Book Guidelines for Implementation of Learning for the 2020 Academic Year and 2020 Academic Year during the Covid-19 Pandemic. Jakarta: Kemdikbud
7. Muhammad Yasir Nasution, 2012. Human According to Al-Ghazali. Jakarta: PT. RajaGrafindi Persada
8. Yunus Abidin, 2014. Learning System Design in the Context of the 2013 Curriculum. Bandung: PT.Refika Aditama

	9. Yusuf Hadi Miarso. 2011. Sowing the seeds of educational technology. Jakarta: Golden	
<b>Learning Media</b>	<b>Software:</b>	<b>Hardware:</b>
		Computer, LCD Projector and Whiteboard and peripherals
<b>Team Teaching</b>		
<b>Assessment</b>	Mid-Test, Final Exam, Independent & group assignments, Group presentations	
<b>Requirements Subject</b>	no	

### COURSE SUBJECTS

Week	Expected competencies	Topics	Method and strategy for learning	Assignment	Criterion / Assessment indicator	References
1	2	3	4	5	6	7
1	<b>CLO-1: (PLO-4.1, 4.2, 4.3)</b> Able to explain the position of the Basics of Education subject as one of the compulsory courses for students of educational programs	Understand and analyze the position of the basic courses of education as one of the compulsory courses for students of the Education program	1. Lecture Orientation	1. Questions and answers 2. Assignment 3. Understanding the concept using video / voicenote		
2	<b>CLO-1: (PLO-4.1, 4.2, 4.3)</b> Mastering basic concepts and explaining them in their own language about human nature according to the Koran and experts orally and	Discuss in depth about the concept human nature from various points of view	Concept of Human Nature. a. According to the Koran b. According to the expert	Question and answer Discussion Assignment	1.Course passgrade: 80% 2.Assessment Techniques a. Assesmen	

	in writing and can implement them into the learning process.				t of the Learning Process b. Assessment of Learning Outcomes	
3	<b>CLO-2: (PLO-4.1, 4.2, 4.3)</b> Able to explain the meaning of education according to experts from abroad and within the country and be able to conclude the concept of education according to one's own language	Discuss in depth and conduct questions and answers about the essence of education a. Definition of Science Education according to the Koran, experts from abroad and within the country b. Science Education as a theoretical, empirical, practical and normative science c. The Role and Position of Education in the Implementation of Education	The essence of education a. Understanding of Education according to the Koran, experts from abroad and within the country b. Education Science as a theoretical, empirical, practical and normative science of the role and position of education in the delivery of education	Question and answer Discussion Assignment	1. Course passgrade: 80% 2. Assessment Techniques 3. Assessment of the Learning Process 4. Assessment of Learning Outcomes	1,3,4,6
4	<b>CLO-3: (PLO-4.1, 4.2, 4.3)</b> Able to explain the foundation of education and its application in learning activities	Discuss in depth and conduct questions and answers about the basis of education, namely religious, social, cultural	1. Foundation of Education a. Religious b. Sociological c. Cultural	Question and answer Discussion Assignment	1. Course passgrade: 80% 2. Assessment	

		and psychological and their implications in education	d. Law e. Psychological 2. Application of each of the bases in Education		Techniques 3. Assessment of the Learning Process 4. Assessment of Learning Outcomes	
5	<b>CLO-4: (PLO-4.1, 4.2, 4.3)</b> Able to explain the principles of education and their implementation in learning	1. Discuss the principles of education, namely Tut Wuri Handayani, Independence in learning, Lifelong Education, Nature Takambang Becomes a Teacher 2. Carry out questions and answers about the principles of education.	1. Educational Principles a. Tut Wuri Handayani, IngNgarsa Sung Tulada, Ing Madya Mangun Karsa b. Independence in learning c. Lifelong Education d. Alamtambang became a teacher 2. Implementation of each of the Principles in Education	Question and answer Discussion Assignment	1. Course passgrade: 80% 2. Assessment Techniques 3. Assessment of the Learning Process 4. Assessment of Learning Outcomes	
6	<b>CLO-5: (PLO-4.1, 4.2, 4.3)</b> Able to explain and link the pillars of education in	Students are able to understand and explain	1. The Pillars of Education	Question and answer Discussion	1. Course passgrade:	

	learning practice	about the pillars of education and their implementation in education.	<ul style="list-style-type: none"> <li>a. <i>Learning to know</i></li> <li>b. <i>Learning to do</i></li> <li>c. <i>Learning to be</i></li> <li>d. <i>Learning to live together</i></li> <li>e. <i>Learning to believe in God</i></li> </ul> 2. Implications of each Pillar in Education	Assignment	80% 2. Assessment Techniques 3. Assessment of the Learning Process 4. Assessment of Learning Outcomes	
7	<b>CLO-6: (PLO-4.1, 4.2, 4.3)</b> Able to understand education as a system	1. Discuss education as a system 2. Carry out questions and answers about the components of the education system.	1. Education as a system 2. Education system components <ul style="list-style-type: none"> <li>a. Destination</li> <li>b. Educator</li> <li>c. Learners</li> <li>d. Theory</li> <li>e. Methods, media and educational tools</li> <li>f. Educational Environment</li> </ul>	Question and answer Discussion Assignment	1. Course passgrade: 80% 2. Assessment Techniques 3. Assessment of the Learning Process 4. Assessment of Learning Outcomes	



8 UTS (Mid-Semester Exam)						
9	<p><b>CLO-7: (PLO-4.1, 4.2, 4.3)</b> Able to explain the implementation of the national education system</p>	<ol style="list-style-type: none"> <li>1. Discuss theoretical concepts about the national education system in accordance with law. No. 20 of 2003</li> <li>2. Carry out questions and answers regarding the implementation of the national education system, namely the pathways, education standards, basic, functions and objectives and principles of national education</li> </ol>	<p>Implementation of the National Education System</p> <ol style="list-style-type: none"> <li>a. Pathway, Type of Education</li> <li>b. National Education Standards</li> <li>c. Basic, Function, Objectives and Principles of National Education</li> </ol>	Question and answer Discussion Assignment	<ol style="list-style-type: none"> <li>1. Course passgrade: 80%</li> <li>2. Assessment Techniques</li> <li>3. Assessment of the Learning Process</li> <li>4. Assessment of Learning Outcomes</li> </ol>	1.
10	<p><b>CLO-8: (PLO-4.1, 4.2, 4.3)</b> Be able to explain some thoughts about education according to classical and new thinking</p>	<ol style="list-style-type: none"> <li>1. Discuss theoretical concepts about educational thinking.</li> <li>2. Carry out questions and answers about educational thinking, namely new and classical thinking.</li> </ol>	<p>Some thoughts about Education:</p> <ol style="list-style-type: none"> <li>1. Classical Thought <ol style="list-style-type: none"> <li>a. Empiricism</li> <li>b. Nativism</li> <li>c. Naturalism</li> <li>d. Convergence</li> </ol> </li> <li>2. New thoughts about Education <ol style="list-style-type: none"> <li>a. Teaching experiences</li> </ol> </li> </ol>	Question and answer Discussion Assignment	<ol style="list-style-type: none"> <li>1. Course passgrade: 80%</li> <li>2. Assessment Techniques</li> <li>3. Assessment of the Learning Process</li> <li>4. Assessment</li> </ol>	1.

			<ul style="list-style-type: none"> <li>around</li> <li>b. Teaching Attention Center</li> <li>c. School of Work</li> <li>d. Project Teaching</li> <li>e. Nature school</li> <li>f. Boarding School</li> <li>g. Inclusive Education</li> </ul>		nt of Learning Outcomes	
11	<p><b>CLO-9: (PLO-4.1, 4.2, 4.3)</b> Able to explain influential education figures in Indonesia</p>	<ul style="list-style-type: none"> <li>1. Discuss influential educational figures in Indonesia.</li> <li>2. Carry out questions and answers about figures who have an influence on education.</li> </ul>	<p>An influential educational figure in Indonesia</p> <ul style="list-style-type: none"> <li>a. Ki Hajar Dewantara</li> <li>b. Mohammad Syafei</li> <li>c. Kiyai H. Ahmad Dahlan</li> <li>d. Rahmah El Yunusiah</li> </ul>	Question and answer Discussion Assignment	<ul style="list-style-type: none"> <li>1. Course passgrade: 80%</li> <li>2. Assessment Techniques</li> <li>3. Assessment of the Learning Process</li> <li>4. Assessment of Learning Outcomes</li> </ul>	1.

12	<p><b>CLO-10: (PLO-4.1, 4.2, 4.3)</b> Able to explain the types of main problems of education in Indonesia</p>	<ol style="list-style-type: none"> <li>1. Discuss educational problems in Indonesia</li> <li>2. Carry out questions and answers about the main problems of education.</li> </ol>	<p>The main problems of education in Indonesia</p> <ol style="list-style-type: none"> <li>a. Equity</li> <li>b. Quantity</li> <li>c. Quality</li> <li>d. Efficiency</li> <li>e. Effectiveness</li> <li>f. Relevance</li> </ol> <p>Educators and Education staff</p>	<p>Question and answer Discussion Assignment</p>	<ol style="list-style-type: none"> <li>1. Course passgrade: 80%</li> <li>2. Assessment Techniques</li> <li>3. Assessment of the Learning Process</li> <li>4. Assessment of Learning Outcomes</li> </ol>	1.
13	<p><b>CLO-11: (PLO-4.1, 4.2, 4.3)</b> Able to analyze the factors that affect education problems in Indonesia</p>	<ol style="list-style-type: none"> <li>1. Discuss analysis of the factors that influence the development of educational problems.</li> <li>2. Carry out questions and answers about educational problems</li> </ol>	<p>Analysis of the factors that influence the development of educational problems</p> <ol style="list-style-type: none"> <li>a. Development of cultural and artistic values</li> <li>b. Population growth rate</li> <li>c. Community aspirations</li> <li>d. Underdevelopment of culture and</li> </ol>	<p>Question and answer Discussion Assignment</p>	<ol style="list-style-type: none"> <li>1. Course passgrade: 80%</li> <li>2. Assessment Techniques</li> <li>3. Assessment of the Learning Process</li> <li>4. Assessment of Learning</li> </ol>	1.

			means		Outcomes	
14	<p><b>CLO-12: (PLO-4.1, 4.2, 4.3)</b> Able to explain educational renewal efforts that have been carried out in Indonesia and come up with innovative ideas for educational renewal</p>	<ol style="list-style-type: none"> <li>1. Discuss efforts to update educational problems</li> <li>2. Carry out questions and answers about Web-Based Learning Development</li> </ol>	<p>Education renewal efforts</p> <ol style="list-style-type: none"> <li>a. Renewal of the Curriculum (Basic Secondary Education Curriculum, Higher Education / Independent Learning</li> <li>b. Management of Innovative Education, SMP T, SMA T, UT, etc.)</li> <li>c. Outside School Education Development (Pursuing Package A, Package B, Package C, Courses, Training, etc.)</li> <li>d. <i>Home Schooling</i></li> </ol>	Question and answer Discussion Assignment	<ol style="list-style-type: none"> <li>1. Course passgrade : 80%</li> <li>2. Assessment Techniques</li> <li>3. Assessment of the Learning Process</li> <li>4. Assessment of Learning Outcomes</li> </ol>	1.



3	CLO-3	UTS.3	5											V	V	V												
4	CLO-4	UTS.4	5											V	V	V												
5	CLO-5	UTS 5	5											V	V	V												
6	CLO-6	UTS 6	5											V	V	V												
7	CLO-7	UTS 7	5											V	V	V												
9	CLO-8	UAS 1	7											V	V	V												
10	CLO-9	UAS 2	7											V	V	V												
11	CLO-10	UAS 3	7											V	V	V												
12	CLO-11	UAS 4	7											V	V	V												
13	CLO-12	UAS 5	7											V	V	V												
14	CLO-12	Presentation	10											V	V	V												
15	CLO-13	Presentation	10											V	V	V												
16	CLO-13	Assignment	15											V	V	V												
	TOTAL		100																									

**Assessment components**

Mid Test (UTS) : 30 %

Final Test (UAS) : 30 %

Student assignment : 30 %

Presence : 10 %

Total : 100 %

### 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	-	Tertunda
60 – 64	C+	2.3	Acceptable				