MODULE HANDBOOKS

MECHANICAL ENGINEERING EDUCATION STUDY PROGRAM

"Growing with Character"

UNESA

ASIIN

Faculty of Engineering
Universitas Negeri Surabaya

2020

pendidikan-mesin.ft.unesa.ac.id | Campus UNESA Ketintang Surabaya 60227 | East Java - Indonesia

Module Handbook

Module Name	Engineering of Physics I
Module Level	Undergraduate / Bachelor
Code (if any)	52324204
Subtitles (if any)	
Courses included in the module (if any)	
Semester / year levels	1/ 1st year
Name of Coordinator	Dyah Riandadari, S.T., M.T.
Lecturers	Dyah Riandadari, S.T., M.T.
Language	Indonesian
Classification in the curriculum	*Compulsory course* /~~*elective studies*~~
Learning Format / Number of hours per week	Per week consists of: 2 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured assignments = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours of practicum, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	1. Ability to apply knowledge of mathematics, natural sciences, materials, and engineering in the field of mechanical engineering to understand a comprehensive understanding of the principles of engineering. 2. Able to mention and explain natural phenomena and applications in technology. 3. Students can understand the basic concepts of physics and their application in mechanical engineering, including quantities, system units, kinematics, dynamics, elasticity, waves, temperature, and heat. 4. Able to solve problems that arise in everyday life and in the industrial sector using physics concepts.
Module Content	The study of basic concepts of physics and its application in mechanical engineering, including quantities, unit systems, kinematics, dynamics, elasticity, waves, temperature and heat.
Soft skill attribute	Good active communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.

<table>
<tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,7</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media</td><td>Slidepower point</td></tr>
<tr><td>References</td><td>

1. Sears Zemansky. 1986. Fisika Untuk Universitas I. Binacipta
2. Frederick j. Buece. 2006. Schaums Outline of theory and problems of College Physics, edisi kesepuluh. Erlangga
3. Halliday, Resnic, Jearl Walker. 2011. Principles of Physics, Ninth Edition. John Wiley & Son.
4. Diah Wulandari. 2014.Fisika Teknik I. Swadana

</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Notes</td><td></td></tr>
</table>

Module Handbook

Module Name	Health and Work Safety
Module Level	Undergraduate / Bachelor
Code (If Any)	52524201
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	2/ 1st Year
Name of Coordinator	Drs. Made Muliatna, M.Kes
Lecturers	Drs. Made Muliatna, M.Kes Muamar ZainulArif, S,Pd., M.Pd
Language	Indonesian
Classification in the Curriculum	Compulsory course (Scientific and Skills Course) /~~elective studies~~
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours face to face (100 minutes), with details: 70 minutes of assignment presentation and discussion 30 minutes of elaboration and strengthening of lecture materials
Learning Activities	2 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2/1
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): 5. Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry. 6. Have a positive, honest, disciplined, diligent, aesthetic, efficient-effective, and responsible personality. 7. Able to operate mechanical and digital-based production machines to produce workpieces and maintain and repair motorized vehicles according to standard procedures relevant to the development of the global industry. 8. Able to apply technopreneurship, service advisor, supervisor of the mechanical engineering industry relevant to the development of the global industry.

<table>
<tr><td></td><td>Course Learning Outcomes (CLO)
1. Students can explain correctly with a coherent and systematic flow of thought about history and scope, regulation, safety and health due to work, accident prevention principles, physical threshold values, work ergonomics, calculating losses due to work accidents, carrying out fire control, First aid kit, risk analysis and control, analyze the application of K3, and formulate records and improvements regarding the application of K3 in workshops and industry</td></tr>
<tr><td>Module content</td><td>This course discusses and studies Occupational Health and Safety (K3). Its scope Covers the history and scope of K3, K3 regulations and the principle of preventing accidents, accidents due to work, occupational health, threshold values for physical factors, first aid in accidents, electrical hazards and fire control, work ergonomics concepts, risk analysis and control, and work safety management system</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slidepower point</td></tr>
<tr><td>References</td><td>1. Silalahi. Benner N.B &Silalahi Rumondang B. (1995). Manajemen Keselamatan&KesehatanKerja. Seri Manajemen No 112 Cetakanke 3. Jakarta: PT.</td></tr>
</table>

	UstakaBinamanPressindo 2. SoehetmanRamli. (2013). SistemManajemenKeselamatan&KesehatanKerja OHSAS 18001 (husyainDjajaningrat.ed). Seri Manajemen K3-01. Cetakan ke3. Jakarta: PT. Dian Rakyat 3. Soeripto M (2008). HigieneIndustri. Jakarta: BalaiPenerbit FKUI 4. Suma'mur PK. (2014). Higiene Perusahaan danKesehatanKerja (HIPERKES). Edisi 2. Jakarta: CV. SagungSeto 5. WowoSunaryo K, (2017). ErgonomidanKeselamatandanKesehatanKerja. Bandung: PT RemajaRosdakarya 6. Yogyakarta: Gosyen Publishing.
Date of last amandement made	
Notes	

Module Handbook

Module name	CHEMICAL ENGINEERING
Module level	Bachelor (S-1) / Bachelor
Abbreviation / code (if any)	8320302050
Subtitles (if any)	
Courses included in the module (if any)	
Semester / year level	2 / 1st year
Module coordinator	Bellina Yunitasari, S.Si., M.Si.
Pengampu	Bellina Yunitasari, S.Si., M.Si.
The language used	Indonesian
Classification in the curriculum	Compulsory course (compulsory courses) / elective studies (elective courses)
Learning format / number of class hours per week	Per week consists of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face to face / semester
SKS	2
Precondition	-
Learning objectives	1. Ability to apply knowledge of mathematics, natural sciences, materials and engineering in the fields of Mechanical Engineering to gain a thorough understanding of engineering principles. 2. Able to explain basic concepts and principles of atomic structure, periodic table of elements, chemical bonding, stoichiometry, thermochemistry, chemical kinematics, chemical equilibrium, electrochemistry, and nuclear chemistry as a basis for further study of materials science. 3. Able to formulate and solve chemical problems 4. Be able to analyze the relationship between molecular behavior and observable physical properties
Content / content	Introduction to chemistry, atomic structure, periodic table of elements, chemical bonding, stoichiometry, thermochemistry, chemical kinematics, chemical equilibrium, electrochemistry, and nuclear chemistry
Soft skill attributes	Good active communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a final score of at least 55 which consists of cumulative USS, US, structured activities (assignments / T) and participatory activities (P).

The final grade (NA) is calculated according to the formula:
NA = (2xP) + (3xT) + (2xUTS) + (3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows:

<table>
<tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- <85</td></tr>
<tr><td>B +</td><td>3.50</td><td>75 ≤ B + <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B <75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- <70</td></tr>
<tr><td>C +</td><td>2.50</td><td>60 ≤ C + <65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C <60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D <55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E <40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Power point slides</td></tr>
<tr><td>Reference</td><td>
5. Petrucci, Ralph H., et al. 2011. General Chemistry: Priciples and Modern Application. 10th ed. Pearson Prentice Hall: USA
6. Laird, Brian B. 2009. University of Chemistry. New York: McGraw-Hill
7. Lawrence S. Brown & Thomas A. Holme. 2011. Chemistry for Engineering Students, Second Edition. Cengage Learning: USA.
</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Mathematics I
Module level	Bachelor (S-1)
Abbreviation/code (if available)	52324201
Course include in module (if available)	
Semester/ year rate	1/1st year
Module coordinator	Tri Hartutuk Ningsih, S.T., M.T.
Lecturer	Tri Hartutuk Ningsih, S.T., M.T.
Language used	Indonesian
Classification in the curriculum	Compulsory course (Compulsory courses~~) /elective studies (courses selection)~~
Learning Format / Number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour). (1 hour of structured assignments= 50 minutes / hour). (1 hour of self study = 60 minutes / hour).
Load	2 hours face to face, 1 hour structured assignments, 1 hour independent study, for 15 weeks, total 60 hours /semester.
University Credit Unit (SKS)	2
Precondition	-
Learning Objectives	1. Able to mention and explain concepts, examples, results, techniques/methods and communicate effectively in verbal and writing to solve math, problems and apply in the field of mechanical engineering. 2. Students can understand the basic concepts of mathematics and application in mechanical engineering, including the number system, the set of solutions, vectors, functions, limits and continuities with the application. 3. Able to solve problems that arise in daily life and in mechanical engineering using mathematical concepts.
Contents	The study of basic mathematical concepts and application in engineering machines, including the number system, the set of solutions, vectors, functions, limits and continuity with the applications.
Soft skill atribute	good active communication.
Learning Achievement / examination	Students are considered competent and pass if at least get minimum value of 55 consisting of UTS, US, structured activities

<table>
<tr><td></td><td>(assignments / T) and participatory activities (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS) / 10
Convert 0-100 scale value to a 0-4 scale value and letters are arranged as follows:
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,7</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>40 ≤ D < 55</td></tr>
</table></td></tr>
<tr><td>Form of media</td><td>Slidepower point</td></tr>
<tr><td>Reference</td><td>D. Varberg, E. J. Purcell, S.E. Rigdon, Calculus, 9th ed., PEARSON, Prentice Hall, 200.
Howard Anton,Elementary Linear Algebra 9th Edition, Wiley, 2005.
Gilbert Strang,Introduction to Linear Algebra 3rd Edition, Wellesley Cambridge Press, 2003.
Stroud, KA, 1989, Matematika untuk Teknik, Alih bahasa: Erwin Sucipto, Jakarta Erlangga.</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Menggambar Teknik
level	Sarjana (S-1) / Bachelor
Abbreviation / code (if any)	52324220
Sub titles (if any)	
Subjects included in the module (if any)	
Semester / year level	1/tahun ke 1
Semester / year level	Agung Prijo B. S.T., M.T.
Lecturer	Agung Prijo B. S.T., M.T. Akhmad Hafizh Ainur Rasyid, S.T., M.T. Djastian Vinaya
Language	Bahasa Indonesia
Classification in the curriculum	Compulsory course (matakuliah wajib) /~~elective studies (matakuliah pilihan~~)
Learning format / number of class hours per week	Per minggu terdir idari: 2 jam tatap muka, 1 jam tugas terstruktur, dan 1 jam belajar mandiri. (1 jam tatapmuka = 50 menit/jam) (1 jam tugas terstruktur = 50 menit/jam) (1 jam belajar mandiri
Load	2 jam tatap muka, 1 jam tugas terstruktur, 1 jam belajar mandiri, selama
SKS	2/1
Prerequisite	-
Learning objectives	1. Mahasiswa dapat memahami persiapan menggambar teknik 2. Mahasiswa dapat memahami sistem proyeksi 3. Mahasiswa dapat memahami gambar potongan 4. Mahasiswa mampu membaca dan membuat gambar
Content	Memahami persiapan menggambar teknik dengan menjelaskan macam- macam peralatan gambar dan kegunaannya, menggambar garis dan huruf. Memahami sistem proyeksi dengan menggambar proyeksi piktorial, menggambar proyeksi orthogonal, menggambar proyeksi Eropa dan Amerika, menentukan pemilihan pandangan benda. Memahami gambar potongan/penampang dengan menjelaskan fungsi gambar potongan, menjelaskan cara
Attribut soft skill	Memilih peralatan gambar yang sesuai, Komunikasi aktif yang

Learning / examination achievement	Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final score (NA) is calculated by following the formula: $NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$ Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.

Letter	Number	Interval
A	4,00	85 ≤ A <100
A-	3,75	80 ≤ A- < 85
B+	3,50	75 ≤ B+ <80
B	3,00	70 ≤ B < 75
B-	2,75	65 ≤ B- < 70
C+	2,50	60 ≤ C+ < 65
C	2,00	55 ≤ C < 60
D	1,00	40 ≤ D < 55
E	0,00	0 ≤ E < 40

Media form	*Slide power point,* Props
Reference	1. Anwari. 1978. *Menggambar Teknik Mesin 2*. Jakarta: Departemen Pendidikan dan kebudayaan 2. Baharudin Yakob. 1979. *Menggambar Mesin 3*. Jakarta: Departemen Pendidikan dan Kebudayaan. 3. Juhana Ohan, Suratman. M. 2000. *Menggambar Teknik Mesin*. Bandung: Pustaka Grafika. 4. Marbun, Moyn. 1993. *Menggambar Teknik Mesin*. Bandung: Penerbit M2S. 5. Sato Takhesi, Sugiarto. 1986. *Menggambar Mesin.* Jakarta: Pradnya Paramita. 6. Yogaswara, Eka. 2004. *Membaca Gambar Teknik SMK.* Bandung: Armico.
Date of last amandement made	
Note	

Module Handbook

Module name	Digital Literacy
Module degree	Undergraduate
Abbreviation/code (if available)	52324212
Subtitle (if available)	
Subject included in the module (if available)	
Semester/year	4/2nd year
Module coordinator	MKWU Team
Lecturer	Dr. M. Effendy, M.T. N.S. Drastiawati, M. Eng D.V. Wijanarko, M.T. D.I. Santoso, M.T.
Language	Bahasa Indonesia
Classification	Compulsory course / ~~elective studies~~
Number of hours per week	Per week consist of: 2 hours face to face, 1-hour structured assignments, and 1-hour independent learning. (1-hour face to face = 50 minutes per hour) (1-hour structured assignment = 50 minutes per hour) (1-hour independent learning = 60 minutes per hour)
Compulsory	2 hours face to face, 1-hour structured assignments, 1-hour independent learning for 15 weeks, total 60 hours face to face per semester
Credit	2
Prerequisite	-
Learning outcomes	9. Students can understand the digital data generated and processed, find and filter appropriate and relevant information, 10. Students can master the basics of programming and use and create technology-based content, 11. Students have a responsible and creative attitude in developing projects as a condition for assessing learning outcomes.
Content	Understanding of making digital infographics with video scribe, making interactive presentations using MS PowerPoint with animated video content from video scribe, making simple logic with Scratch.
Soft skill attribute	Good active communication

<table>
<tr><td>Learning achievement</td><td>Students are considered competent and pass if they get a minimum score of 55 consisting of UTS, US, assignment (T) and participation (P).
We calculate final score (NA) through a formula:
NA = $\frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the value of scale 0-100 to scale 0-4 and letters as follow.

<table><tr><th>Letter</th><th>Number</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr><tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr></table></td></tr>
<tr><td>Media</td><td>Power Point slide</td></tr>
<tr><td>References</td><td>8. Ruth Colvin Clark. 2013. Scenario-Based e-Learning, Evidence-Based Guidelines for Online Workforce Learning. Pfeiffer Publisher.
9. Richard E. Mayer. 2003. Multimedia Learning. Cambridge University.
10. Setya Chendra Wibawa. 2018. Pengembangan Media Pembelajaran Berbasis Multimedia. Unipress Unesa.</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Modul Name	Pancasila
Module Level	Sarjana (S-1) / Bachelor
Code (If Any)	90120206
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	1/ 1st Year
Name of Coordinator	Tim MKDU
Lecturers	Listyaningsih, S.Pd., M.Pd. Septina Alrianingrum, S.S., M.Pd.
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours in class, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): 12. Have a positive, honest, disciplined, diligent, aesthetic, efficient-effective, and responsible personality (PLO 5) Course Learning Outcomes (CLO) : 1. Utilizing information technology to trace data / information in order to identify and resolve national and state development problems in the perspective of the basic values of Pancasila as the ideology and basis of the Indonesian state. 2. Have knowledge of the basic values of Pancasila as the principles and guidelines for living in society, as a nation and as a state. 3. Able to make the right decisions in dealing with problems in the life of the community, nation and state and can provide solutions based on the values of Pancasila

<table>
<tr><td></td><td>4. Having a responsible, caring, honest, cooperative attitude, respecting opinions and having a love for the country in implementing and preserving the values of Pancasila in reality and everyday life</td></tr>
<tr><td>Module content</td><td>This subject will discuss the concept and essence of Pancasila as the basis and ideology of the state, as well as the nation's outlook on life. This course also examines Pancasila historically, juridically and philosophically and its actualization in the life of the nation and state. Pancasila as a foundation in Political Ethics and Development Paradigm and its implementation in the life of society, nation and state through studies, presentation of concepts, discussions, case studies, and assignments of both individuals and groups.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>11. Tim MKU Pendidikan Pancasila Unesa. 2014. Pendidikan Pancasila. Surabaya: Unesa University Press
12. Direktorat Jenderal Pendidikan Tinggi. 2012. Materi Ajar Mata Kuliah Pendidikan Pancasila. Jakarta: Direktorat Pembelajaran dan Kemahasiswaan
13. Syarbaini, Syahrial. 2011. Pendidikan Pancasila: Implementasi Nilai-nilai Karakter Bangsa di Perguruan</td></tr>
</table>

	Tinggi. Bogor: Ghalia Indonesia 14. Latif, Yudi. 2011. Negara Paripurna: Historisitas, Rasionalitas, dan Aktualitas Pancasila. Jakarta: PT 15. Latif, Yudi. 2014. Mata Air Keteladanan. Pancasila dalam Perbuatan 16. Pusat Studi Pancasila UGM. 2012. Pancasila Dasar Negara. Yogyakarta: PSP Press 17. Thaib, Dahlan. 1991. Pancasila Yuridis Ketatanegaraan. Yogyakarta: UPP AMP YKPN 18. Warsono. 2014. Pancasila-Isme dalam Dinamika Pendidikan. Surabaya: Unesa University Press 19. Majelis Permusyawaratan Rakyat Indonesia (MPR-RI). 2002. Undang-Undang Dasar 1945 Hasil Amandemen IV. 20. Suplemen Arah Pembangunan (RPJM) 2014. -2019.
Date of last amandement made	-
Notes	

Module Handbook

Module name	Measurement Science
Module level	Bachelor
Code (if applicable)	52324221
Subtitle (if applicable)	
Requirement Courses	
Semester (s)/Year	1st/1st year
Person responsible for the module	Firman Yasa Utama, S.Pd, M.T.
Lecturers	Firman Yasa Utama, S.Pd, M.T. Dr. Warju, S.Pd, ST, M.T. Muamar Zainul Arif, S.Pd, M.Pd Rachmat Syarifudin Hidayatullah, S.Pd, M.Pd
Language	Bahasa Indonesia
Curriculum classification	Compulsory course /elective studies
Learning format/ class hours per week	Per week is consist of: 2 hours experiment, 1 hour structured activity, and 1 hour individual study (1 hour experiment = 2 x 50 minutes/hour) (1 hour structured activity = 50 minutes/hour) (1 hour individual study = 60 minutes/hour)
Study load	2 hours experiments, 1 hour structured activity, and 1 hour individual study, for 15 weeks, total 75 hours lectures/semester
Credit points	2
Prerequisite	-
Learning objectives	have good morals, ethics and personality in following lectures have knowledge and understanding of engineering and measuring instruments various things related to engineering measurement have an understanding that includes various technical measuring instruments, engineering measurement, including understanding the meaning of mechanical measurement, the basic method used in measurement in general and calibration have an understanding of the use of the types of measuring instruments, use of digital techniques for mechanical measurements, readings, data processing, treatment of uncertainty, measurement analysis, and mechanically

	have an understanding and development of measurement using a Measuring Tool in accordance with the type of object and their use. The use of measuring instruments in the study program specifications automotive as well as production and some things equipment in the world industry able to interact and work together in teams, think logically and smart in solving problems faced professional in Body Painting and Repair Technology
Content	about a variety of engineering measuring instruments, measurement techniques, including understanding the meaning of mechanical measurement, the basic method used on general measurement and calibration
Attribute soft skill	Good active communication, social interaction cooperation, deep coordination teamwork solves various problems to find solutions

<table>
<tr>
<td>Learning outcomes/Examination form</td>
<td>Students are considered competent and pass if at least get

a minimum final grade of 55 consisting of cumulative USS, US, activities
structured (task / T) and participatory
activities (P).
The final value (NA) is calculated
according to the formula:
NA = $\frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Conversion the 0-100 scale value to a 0-4 scale and the letters are set as
Follow:
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A-<85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B-<70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table>
</td>
</tr>
<tr>
<td>Media form</td>
<td>Power point, alat ukur, & specimen komponen</td>
</tr>
<tr>
<td>Reference</td>
<td>1. M.Sayuthi, Fadlisyah, Syarifuddin, 2008 : Pengukuran Teknik,
Yogyakarta: Graha Ilmu</td>
</tr>
<tr>
<td>Date of last amendment made</td>
<td></td>
</tr>
</table>

Module Handbook

Modul Name	Mechanics Technology
Level Module	Undergraduate / Bachelor
Code (If Any)	52324217
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	2/ 1st year
Name of Coordinator	Mochamad Arif Irfa'i, S.Pd.M.T
Lecturers	Nur Aini Susanti, S.Pd., M.Pd. Firman Yasa Utama, S.Pd., M.T
Language	Indonesian
Classification in the Curriculum	Compulsory course (Scientific and Skills Course) /~~elective studies~~
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours face to face (100 minutes), with details: 70 minutes of assignment presentation and discussion 30 minutes of elaboration and strengthening of lecture materials
Learning Activities	2 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2/1
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). Course Learning Outcomes (CLO) : 1. Students have good morals, ethics and personality in attending lectures, gain knowledge and understanding of mechanical technology in the form of product processing stages, have an understanding of the treatment of machining and various supporting tools relevant to the industrial world and its development, are able to interact and cooperate in a team, responsible, think logically and intelligently in solving problems faced professionally in the field of mechanical engineering.

<table>
<tr><td>Module Content</td><td>The Mechanics Technology course discusses the introduction of various ways of using various mechanical work tools and the manufacture of production machines and objects. foundry base; joint formation and cutting; processing machines; non-conventional manufacturing processes; electroplating; effect of manufacture on surface yield; specifications in the design and implementation of the manufacturing process; custom and shape and size tolerances.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows..

<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>1. S.F. Krar,Technology of Machine Tools, 3rdEdition. Daniel B Dallas,Toolsand manufacturing Engineering Handbook, 3rd Edition.
2. Daniel B Dallas,Toolsand manufacturing Engineering Handbook, 3rd Edition.</td></tr>
<tr><td>Date of last amandement made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module Name	Basic Education
Module Level	Undergraduate / Bachelor
Code (If Any)	90420304
Subtitles (If Any)	-
Semester/ Year Levels	3/2nd year
Name of Coordinator	MKDU Tim
Lecturers	MKDU Tim
Language	Indonesian
Classification in the Curriculum	Compulsory course /~~elective studies~~
Learning Format/Number of Hour Per Week	Per week consists of: 3 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	3 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	3
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to align the curriculum of scientific knowledge in vocational education that is relevant to the demands of global industrial development. Course Learning Outcomes (CLO) : 1. Understanding theoretical concepts about education in depth and able to formulate solutions to procedural problems. 2. Make the right decisions based on analysis of information and data and be able to provide guidance in choosing various alternative solutions independently and in groups. 3. Responsible for the performance of self-learning, agreement with group colleagues in understanding the basic concepts of education both theoretically and practically and being able to properly apply relevant educational theories in their field of study
Module Content	Discussion of (1) basic concepts of education (2) human nature (3) the nature of education (4 national education

<table>
<tr><td></td><td>systems (5) educational foundations (6) the concept of the teaching profession (7) educational problems (8) educational innovation (9) character education</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>1. .M.V. Roesminingsih dan Lamijan Hadi Susarno. 2015. Teori Dan Praktek Pendidikan. Surabaya:Lembaga Pengkajian dan Pengembangan Ilmu Pendidikan Fakultas Ilmu Pendidikan Universitas Negeri Surabaya kerjasama dengan Penerbit Bintang
2. Tim Redaksi Pustaka Yustisia. 2009. Kompilasi Perundangan Bidang Pendidikan : Seri Kompilasi Perundangan Terlengkap dan Terbaru. Yogyakarta: Pustaka Yustisia
3. Peraturan perundang-undangan pendidikan yang berlaku dan relevan.
4. Referensi yang relevan dengan karakteristik dan profesi lulusan di jurusan/program studi masing-masing.</td></tr>
<tr><td>Date of last amandement made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module Name	Material Science 1
Module Level	Undergraduate / Bachelor
Code (If Any)	52324214
Subtitles (If Any)	-
Courses Included in The Module (If Any)	-
Semester/Year Levels	2/1st Year
Name of Coordinator	Arya Mahendra Sakti, S.T., M.T.
Lecturers	Arya Mahendra Sakti, S.T., M.T. Novi Sukma Drastiawati, S.T., M.Eng Andita Nataria Fitri Ganda, S.T., M.Sc.
Language	Indonesian
Classification in the Curriculum	Compulsory course (Scientific and Skills Course) /elective studies /~~elective studies~~
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured assignments = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). Able to adapt to the development of science-technology, social environment, and continuous learning throughout life (PLO 8). Course Learning Outcomes (CLO) 1. Students are able to understand theoretically about the characteristics of engineering materials, various kinds of mechanical engineering materials testing, including

<table>
<tr><td></td><td>tensile testing, compression testing, hardness testing, impact testing, bending testing, knowing and understanding engineering material processing.</td></tr>
<tr><td>Module content</td><td>A Study on how to understand of the material properties and testing, as well as technical material processing.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xAsgmnt)+(2xmid term)+(3x final exam)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows :
<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slidepower point</td></tr>
<tr><td>References</td><td>1. Suherman, W. 1999. Pengetahuan Bahan. Penerbit ITS: Surabaya.
2. Suherman, W. 1999. Pengujian Bahan. Penerbit ITS: Surabaya.
3. Surdia Tata. Pengetahuan Bahan Teknik.
4. Callister, William D. 2003. Material Science and Engineering An Introduction. Sixth Edition. Jhon Wiley & Sons, Inc: USA.</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module name	English
Module level	Bachelor
Code (if applicable)	90320202
Subtitle (if applicable)	
Requirement courses	
Semester(s)/Year	1st /1st year
Person responsible for the module	Ayunita Leliana, S.S., M.Pd.
Lecture	Ayunita Leliana, S.S., M.Pd.
Language	Bahasa Indonesia
Curriculum classification	Compulsory course
Learning format/ class hours per week	Per week is consist of 3 hours lectures, 1 hour structured activity and 1 hour individual study (1 hour lecture= 50 minutes/hour) (1 hour structured activity = 50 minutes/hour) (1 hour individual activity = 60 minutes/hour)
Study Load	3 3 hours lectures, 1 hour structured activity and 1 hour individual study for 15 weeks, total 60 hours lectures/semester
Credit points	2
Prerequisite	-
Learning Outcomes	1. Able to apply and utilize English language skills ICT for (1) communicating and (2) understanding spoken and

	written texts in limited every day and general contexts. 2. Mastering basic knowledge of English for support the ability (1) to communicate in a language acceptable and (2) understanding the text. 3. Make a decision in choosing the right language accordingly with the rules of using acceptable language according to the context. 4. Having responsibility and creativity for (1) usage the language used and (2) related assignments use and understanding of language.
Content	This course equips students with skills and skills language components at the basic level (pre-intermediate). This course also introduces standardized tests that include exercises reading skills (reading skills), listening (listening comprehension) and grammar and vocabulary (structure and vocabulary) which is aimed at the preparation of standard English tests International. All lecture activities will be presented with lecture, discussion system. presentations and discussions, completion assignments problem (problem solving), and reflection.
Attribut soft skill	Good active communication

Learning outcomes/Examination form	Students are considered competent and pass if at least get a minimum final grade of 55 consisting of cumulative USS, US, activities structured (task / T) and participatory activities (P). The final value (NA) is calculated according to the formula: NA = (2xP)+(3xT)+(2xUTS)+(3xUS) Conversion the 0-100 scale value to a 0-4 scale and the letters are set as Follow:

Alphabet	Number	Interval
A	4,00	≤ A 85 <100
A-	3,75	80 ≤ A-<85
B+	3,50	75 ≤ B+ <80
B	3,00	< 70 ≤ B 75
B-	2,7	65 ≤ B-<70
C+	2,50	60 ≤C+ < 65
C	2,00	6 55 ≤ C < 0
D	1,00	40 ≤ D < 55

E	0,00	4 0 ≤ E < 0

Media form	1. *Slide power point* 2. File audio
Reference	1. Sharpe, Pamela. J. 2003. How to prepare for the TOEFL. Barron's Educational Series. NY 2. Phillips, Deborah. 2004. Longman Preparation Course for the TOEFL Test: The Paper Test (Student Book with Answer Key and CD-ROM). Pearson Education. NY 3. _____. 2012. Official Guide to the TOEFL Test With CD-ROM, 4th Edition (Official Guide to the Toefl Ibt). McGraw-Hill. USA. 4. Tim Mata Kuliah Bahasa Inggris. 2016. English for Non English Department Students. Surabaya: Unesa University Press.
Date of last amendment made	
Note	

Module Handbook

Module Name	Machine Element 1
Module Level	Undergraduate / Bachelor
Code (If Any)	52324213
Subtitles (If Any)	-
Courses Included in The Module (If Any)	-
Semester/Year Levels	2/1st Year
Name of Coordinator	Dr. M. Cholik, M.Pd
Lecturers	Dr. M. Cholik, M.Pd Novi Sukma Drastiawati, S.T., M.Eng Dany Iman Santoso, S.T., M.T.
Language	Indonesian
Classification in the Curriculum	Compulsory course (Scientific and Skills Course) /~~elective studies~~
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured assignments = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). Course Learning Outcomes (CLO) 1. Students are able to understand theoretically about basic concepts of force, stress and strain, determining the value of tensile and shear strength in rivet joints, analyzing forces and drawing force diagrams on threaded joints, calculating and analyzing the distribution of stresses, tensile forces, and shear in weld joints both at centered and off-center loading , draws and calculates the force distribution on the shrinkage and compressive joints, performs calculations on the design of the pegs, calculates

<table>
<tr><td></td><td>the bearing and moment reactions on the shaft, and is able to design belts and pulleys.</td></tr>
<tr><td>Module content</td><td>A Study on how to understand of the concept of force, stress, strain, determining the force in rivet joints, threads, centered and off-center welds, describing and calculating the force distribution in shrink and compressive joints; perform calculations of the design of pegs, belts and pulleys; as well as calculating the bearing reaction and the moment on the shaft</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xAsg)+(2x mid term)+(3x final exam)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows :
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>1. Sularso, Kiyokatso Suga. 1983. Dasar Perencanaan dan pemilihan elemen mesin. Jakarta : PT Pradnya Paramita
2. Spott MF. 2000. Design of machine element. USA: Prentice Hall
3. Shigley Mischke. 2000. Mechanical engineering design. USA: McGraw Hill
4. Supadi HS. 2008. Buku ajar elemen mesin jurusan teknik mesin. Surabaya : Unesa</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module Name	Engineering of Physics II
Module level	Undergraduate/Bachelor
Code(If Any)	52324205
Subtitles(If Any)	
Courses included inthe module (IfAny)	
Semester/YearLevels	2/3th year
Name ofCoordinator	BellinaYunitasari, S.Si., M.Si.
Lecturers	BellinaYunitasari, S.Si., M.Si. DiahWulandari, S.T., M.Si.
Language	Indonesian
Classificationinthe Curriculum	Compulsorycourse (scientific andskills course) /~~elective course~~
Learningformat/ number of hoursperweek	Per week consistsof: 2 hours ofstructuredassignments, and 1hourofindependentstudy. (1 hourof practicum=2x 50minutes/hour) (2 hoursof structured assignments=50minutes /hour) (1 hourof independent study=60minutes / hour)
Learning Activities	2hoursofstructuredassignments,1 hourof independent study, for15 weeks, atotalof 45hours/semester
NumberofCredits	2/1
PrerequisiteModule	Engineering of Physics I
Learning Objectives	1. Can explain the basic concepts and laws of physics related to electricity and magnetism. 2. Can solve basic physics problems related to electricity and magnetism using the appropriate laws of physics and mathematical methods.
Module Content	Course of Engineering of Physics II discusses Electrostatics, Direct Current, Magnetic Fields and Magnetic Force, Magnetic Field Sources, Electromagnetic Induction and Alternating Current
Softskill attribute	Good active communication

<table>
<tr><td>Learning /examination achievement</td><td>Studentsare consideredcompetentand passif theygetat leasta finalscoreofatleast55whichconsists ofmidterm exam cumulative grades, final exam, structuredactivities (assignments/T)and presence/participation(P).
Thefinalgrade(NA)iscalculatedaccordingtotheformula:
NA=(2xP) + (3xT) +(2x midtermexam) + (3xfinalexam)
10
Convertthe0-100scalevaluetoa0-4scaleand theletters arearranged asfollows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slidepower point</td></tr>
<tr><td>References</td><td>1. Tipler, P.A., FisikauntukSains dan Teknik: Jilid 1; EdisiKetiga, PenerbitErlangga, Jakarta, 1998.
2. Giancoli, D.C., Fisika: Jilid 1, EdisiKelima, PenerbitErlangga, Jakarta, 2001.
3. Halliday, D. dan R. Resnik, Fisika, Jilid I, EdisiKetiga , TerjemahanP.Silaban dan E. Sucipto, PenerbitErlangga, Jakarta, 1988.</td></tr>
<tr><td>Date of last amandement made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module name	**Mathematics II**
Module level	**Bachelor (S-1)**
Abbreviation/code (if available)	**52324201**
Course include in module (if available)	
Semester/ year rate	**2/1st year**
Module coordinator	**Tri Hartutuk Ningsih, S.T., M.T.**
Lecturer	**Tri Hartutuk Ningsih, S.T., M.T.**
Language used	**Indonesian**
Classification in the curriculum	**Compulsory course (Compulsory course~~s) /elective studies (courses selection)~~**
Learning Format / Number of class hours per week	**Per week of:** **2 hours face to face, 1 hour structured assignments, and 1 hour independent study.** **(1 hour face to face = 50 minutes / hour).** **(1 hour of structured assignments= 50 minutes / hour).** **(1 hour of independent study = 60 minutes / hour).**
Load	**2 hours face to face, 1 hour structured assignments, 1 hour independent study, for 15 weeks, total 60 hours /semester.**
University Credit Unit (SKS)	**2**
Precondition	**-**
Learning Objectives	**1. Able to mention and explain concepts, examples, results, techniques/methods and communicate effectively in verbal and writing to solve math problems and apply in the field of mechanical engineering.** **2. Students can understand the basic concepts of mathematics and application in mechanical engineering, includes integral concepts indeterminate, certain integrals, center of gravity, moment of inertia and pressure liquid substances, double integrals with applications, ordinary differential equations, matrix and determinant, linear equations system with gauss elimination method, gauss-jourdan elimination, inverse matrix,the cramer method with application.** **3. Able to solve problems that arise in daily life and in mechanical engineering using mathematical concepts.**
Contents	**The study of basic mathematical concepts and application in engineering machine, includes integral concept indeterminate integrals, certain integrals, center of gravity, moment of inertia**

<table>
<tr><td></td><td>and pressur liquid substances, double integral with applications, ordinary differential equations, matrix and determinants, Linear equation system with Gauss elimination method, Gauss elimination- jourdan, inverse matrix, cramer method and its applications</td></tr>
<tr><td>Soft skill atribute</td><td>good active communication.</td></tr>
<tr><td>Learning Achievement / examination</td><td>Students are considered competent and pass if at least get minimum value of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS) / 10
Convert 0-100 scale value to a 0-4 scale value and letters are arranged as follows:
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,7</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>40 ≤ D < 55</td></tr>
</table></td></tr>
<tr><td>Form of media</td><td>Slidepower point</td></tr>
<tr><td>Reference</td><td>1. D. Varberg, E. J. Purcell, S.E. Rigdon, Calculus, 9th ed., PEARSON, Prentice Hall, 2007.
2. Thomas, 7th ed dan Howard Anton, 10th ed.
3. Stroud, KA, 1989, Matematika untuk Teknik, Alih bahasa: Erwin Sucipto, Jakarta Erlangga</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Engineering Mechanics 1
Module Level	Undergraduate / Bachelor
Code (If Any)	52324208
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	2/ 1st Year
Name of Coordinator	Dr. Drs. Djoko Suwito, M.Pd
Lecturers	Dr. Drs. Djoko Suwito, M.Pd Novi Sukma Drastiawati, S.T., M.Eng Heru Aizal, S.Pd., M.M., M.Pd
Language	Indonesian
Classification in the Curriculum	Compulsory course (Scientific and Skills Course) /~~elective studies~~
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured assignments = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): 1. Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). Course Learning Outcomes (CLO) 1. Students are able to understand theoretically about combines several forces into a force (resultant) graphically and analytically, determines the center of gravity on the plate and composite, analyzes and determines the moment of inertia of a plane and the moment of polar inertia, is able to calculate, analyze and apply the construction of rod forces by the method: Cremona, Ritter, Cullman.

<table>
<tr><td>Module content</td><td>A Study on how to understand of decomposition of forces in two and three dimensions, center of gravity, moment of inertia, rod (frame) construction and Cremona diagrams, Cullman and Ritter sections .</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = $\frac{(2xP)+(3xAssgmt)+(2xmid\ term)+(3x\ final\ exam)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slidepower point</td></tr>
<tr><td>References</td><td>1. Ferdinand P. Bear dan E.Russell Johnston, Jr. 1987. Statika. (Mekanika untuk Insinyur). Jakarta : Erlangga
2. Timoshenko dan D.H. Young . 1990. Mekanika Teknik. Erlangga Jakarta
3. Soenarko. 1988. Mekanika Kekuatan Material 1. Surabaya : Institut Teknologi Sepuluh Nopember.</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module Name	Religion Education
Module Level	Undergraduate / Bachelor
Code (If Any)	90120201
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	1/1st year
Name of Coordinator	MKDU Tim
Lecturers	Drs. H. M. Husni Abdullah, M.Pd.I. Dr. H. Muhammad Turhan Yani, M.A.
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours in class, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours face-to-face / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Have a positive, honest, disciplined, diligent, aesthetic, efficient-effective, and responsible personality (PLO 5). Course Learning Outcomes (CLO) : 1. Utilizing learning resources and ICT to support the design and implementation of Islamic Religious Education learning including insight / knowledge about Islam (Islamic knowledge), religious dispositions (attitude), skills in carrying out Islamic teachings (Islamic skills), commitment to Islam (Islamic). commitment), self-confidence as a Muslim (Muslim confidence), and proficiency in implementing religious teachings (Islamic competence). In the psycho-social constellation, either as individuals, family members, community members, or as Indonesian citizens. 2. Students have knowledge and think critically about

	(Islamic knowledge according to reference sources. 3. Students have the ability to analyze case studies, presentations and discussions, project assignments / problem solving (problem solving), and reflect on learning 4. Students have the character of faith, smart, independent, honest, caring, responsibility, tough and adorn themselves with divine values, humanity, unity, deliberation and justice within the framework of Pancasila and NKRI, noble character, anti-radicalism, responsive to disasters and have literacy intelligence.
Module content	The Islamic Religious Education course provides provisions for the formation of a student's personality as a whole (kaffah) by making Islamic teachings the basis for thinking, behaving, and behaving in scientific and professional development. A complete personality can only be realized if each student has faith and piety to Allah SWT. Faith and piety will only be realized if it is supported by the development of its elements, namely: insight / knowledge about Islam (Islamic knowledge), religious attitudes (religion dispositions), skills in carrying out Islamic teachings (Islamic skills), commitment to Islam (Islamic). commitment), self-confidence as a Muslim (Muslim confidence), and proficiency in implementing religious teachings (Islamic competence). In the psycho-social constellation, both as individuals, family members, community members, and as Indonesian citizens, this course upholds the values of divinity, humanity, unity, deliberation and justice within the framework of Pancasila and NKRI. This lecture also integrates disaster response materials, digital literacy, cultivation of noble characters and anti-radicalism. Lectures are carried out with a system of case study analysis, presentations and discussions, project assignments / problem solving (problem solving), and reflection.
Soft Skill Attribute	Active communication, cooperation, discipline, and responsibility.

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = $\frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>1. Alquran dan Terjemahannya. 2014. Jakarta : Kementerian Agama Republik Indonesia.
2. Ausop, Asep Zaenal. 2014. Islamic Character Building. Bandung : Salamadani.
3. Achmad Sauqi. 2010. Meraih Kedamaian Hidup ; Kisah Spiritualitas Orang Modern . Yogyakarta: Sukses Offset.
4. Juhaya S. Praja. 2002. Filsafat dan Metodologi Ilmu dalam Islam dan Penerpannya di Indonesia. Jakarta: Teraju.
5. Maman. 2012. Pola Berpikir Sains Membangkitkan kembali Tradisi Keilmuan Islam. Bogor: QMM Publishin.
6. Munawar Rahmat. 2010. Pendidikan Insan Kamil Berbasis Sufisme Syaththariah . Bandung: ADPISI Press.
7. Mustaqim, Abdul. 2012. Epistemologi Tafsir Kontemporer. Yogyakarta: LKIS.
8. Nurcholis Madjid. 2008. Islam Kemoderenan dan Keindonesiaan. Bandung: PT Mizan Pustaka.
9. ----------. 2008. Islam Agama Peradaban . Jakarta: Paramadina.
10. Sukidi. 2002. Kecerdasan Spiritual . Jakarta: Gramedia.
11. Syahidin. 2005. Pemberdayaan Umat Berbasis Masjid.</td></tr>
</table>

	Bandung: CV Alfabeta. 12. Tim Penulis Kemendikbud, 2014, Pendidikan Agama Islam pada Perguruan Tinggi Umum. Jakarta : Kementerian Pendidikan dan Kebudayaan Republik Indonesia. 13. Tim Dosen PAI-Unesa. 2010, Pendidikan Agama Islam pada Perguruan Tinggi Umum , Surabaya : Unesa University Press. 14. Toshihiko, Izutsu. 2003. Konsep-konsep Etika Religius dalam Al-Quran. (Penerjemah AE Priyono dkk.). Yogyakarta: Tiara Wacana Yogya.
Date of last amandement made	-
Notes	-

Module Handbook

Module name	Citizenship Education
Module level	Bachelor
Abbreviation /code	90120207
Subtitles	
Subjects included in module (if any)	none
Semester / year level	2/First year
Module coordinator	Dr. Theodorus Wiyanto Wibowo, M.Pd.
Lecture	Dr. Theodorus Wiyanto Wibowo, M.Pd. Maya Mustika Kartika Sari, S.Sos., M.IP.
The language used	Bahasa Indonesia
Classification in the curriculum	Compulsory course/~~elective studies~~
Learning format / number of hours classes per week	Per week consists of: 2 hours face to face, 1 hours structured tasks, and 1 hour independent learning (1 hours face to face = 50 minute/hours) (1 hours structured tasks = 50 minute/hours) (1 hour independent learning = 60 minute/hours)
Load	hours face to face, 1 hours structured tasks, and 1 hour independent learning in 16 weeks
semester credit units	2
Precondition	Telah menempuh mata kuliah Pancasila dan memiliki minimal 23 beban SKS yang telah lulus.
Learning objectives	1. Utilizing learning resources and ICT-assisted learning media to explore data / information in order to identify and solve problems related to nationality and citizenship. 2. Recognizing the theoretical concept of citizenship in the context of nation and state 3. Have a mindset, attitude and action patterns that reflect self-confidence and foster pride as an Indonesian citizen and as an Indonesian nation and love the Indonesian homeland in the context of the values and morals of Pancasila, the 1945 Constitution of the Republic of Indonesia, the values and commitment of Bhinneka Tunggal Ika and the Republic of Indonesia. 4. Make decisions based on the theoretical concept of Citizenship Education to solve relevant problems in society, the nation and country. 5. Have a responsible attitude and behavior that reflects being a good citizen (be a good citizen) in the life of the community, nation and state..
Content	Introduction to the nature of Civics which is continued by discussing

<table>
<tr><td></td><td>the rights and obligations of citizens in accordance with the constitution in the context of national identity, implemented democratically and based on applicable law. Then deepened by talking about law enforcement and human rights, Gender, Archipelago Insights, which was continued with National Resilience and ended on Anti-Corruption Education. Lectures are carried out with a system of case study analysis, presentations and discussions, problem solving tasks, and reflection.</td></tr>
<tr><td>Soft skill attributes</td><td>Good active communication, creative, confident and responsible</td></tr>
<tr><td>Learning / examination achievement</td><td>Asessment:
1. Assessment sheet 1 is in the form of questions in writing and contains material for meetings 1-7. These questions are given at UTS, have a score of 20%.
2. Assessment sheets 2, 3 and 4 have a score of 30% related to the assignment. While participation has a value of 20% obtained from the attendance of min 12x and student activities during lectures.
3. Final Exam are questions made by the Team containing all material from 1-16 meetings with a weight of 30%

The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10

Konversi nilai skala 0-100 menjadi skala 0-4 dan huruf diatur sebagai berikut.
<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media form</td><td>Slide power point</td></tr>
<tr><td>Reference</td><td>1. Affandi, Idrus dan Karim Suryadi. 2005. Hak Asasi Manusia. Jakarta : Pusat Penerbitan Universitas Terbuka
2. Cogan, Johan L dan Murry Print. 2012. Civic Education in The Asia Pasific Regional. Roeledge. ISBN -0415932130
3. Niemi, Richard G dan Jane Junn. 2005. Civic Education: What Make Student Learn. The University of Chicago Press.
4. S. Sumarsono, dkk, Pendidikan Kewarganegaraan, Penerbit PT. Gramedia Pustaka Utama, Jakarta, 2001</td></tr>
</table>

	5. Tim. Pendidikan Kewarganegaraan MPK-Unesa. 2015. *Pendidikan Kewarganegaraan*. Surabaya: Unesa University Press 6. Tim Dosen UGM. 2002. *Pendidikan Kewarganegaraan*. Yogyakarta: Paradigma 7. ….., *UU RI No. 3 Tahun 2002 tentang Pertahanan Negara.*Penerbit "Citra Umbara", Bandung, 2002 8. *UU No 12 Tahun 2006 tentang Kewarganegaraan RI* .Penerbit "Cemerlang", Jakarta, 2006. 9. UU yang relevan dengan materi pembelajaran.
Note	

Module Handbook

Module name	Drawing Machines
Module level	Bachelor (S-1) / Bachelor
Abbreviation / code (if any)	35324215
Subtitles (if any)	
Subjects included in module (if any)	
Semester / year level	2 / 1st year
Module coordinator	Agung Prijo BST, MT
Supervisor	Agung Prijo BST, MT Akhmad Hafizh Ainur Rasyid, ST, MT Diastian Vinaya Wijanarko, ST, MT
Language	Bahasa Indonesia
Classification in the curriculum	Compulsory course (compulsory courses) / elective studies (courses selection)
Learning format / number of classes hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour study independently. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour self-study, for 15 weeks, a total of 60 hours face-to-face / semester.
Credit Semester	2/1
Precondition	-
Learning objectives	1. Students can draw specific pieces and drawings 2. Students can provide measurements in working drawings 3. Students can understand size tolerance 4. Students can understand the surface of configuration

	5. Students can draw threads, bolts and springs 6. Students can draw gears and rolling bearings 7. Students can draw weld joints 8. Students can understand work drawings
Content	Draw special pieces and delineations withdescribes the cut image function, explains how to cutobjects, describes how to place a cutout image,draw shading, draw various pieces,draw objects with a special depiction. Give size in a working drawing by explaining the basic rulesin providing size, explaining size classification,draw size symbols, draw size types in the working image. Understand measure tolerances by explaining the use of tolerancessize, understand the types of size tolerances, read and writesize tolerance on working drawings. Understand surface configuration by explaining definitionssurface configuration, understand configuration symbolssurface on a mechanical engineering drawing, using symbolssurface configuration on mechanical engineering drawings. Draw threads, bolts and springs. Drawing of gears and rolling bearings. Draw welded joints by understanding the types of jointswelding, understanding welding symbols, using symbolswelding on machine drawing. Understand working drawings by creating a part drawing (detail drawing), create an assembly drawing .
Soft skill attributes	Determine the appropriate picture caption, Active communication which good
Learning / examination achievement	Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T)and participatory activities (P).

<table>
<tr>
<td></td>
<td>The final score (NA) is calculated by following the formula:
$$N = \frac{(2x\ ) + (3x\ ) + (2x\ \ \ ) + (3x\ \ \ )}{10}$$
Convert 0-100 scale to 0-4 scaleand the letters are set as follows.
<table>
<tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- <85</td></tr>
<tr><td>B +</td><td>3.50</td><td>75 ≤B+<80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B - < 70</td></tr>
<tr><td>C +</td><td>2.50</td><td>60 ≤ C + < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0≤E<40</td></tr>
</table>
</td>
</tr>
<tr>
<td>Media form</td>
<td>Slidepower point, props</td>
</tr>
<tr>
<td>Reference</td>
<td>

1. Anwari. 1978. Drawing Mechanical Engineering 2 . Jakarta:Department of Education and Culture
2. Baharudin Yakob. 1979. Drawing Machines 3 . Jakarta:Department of Education and Culture.
3. Juhana Ohan, Suratman. M. 2000. Drawing Mechanical Engineering .Bandung: Graphic Libraries
4. Marbun, Moyn. 1993. Drawing Mechanical Engineering . Bandung:M2S Issuer.
5. Sato Takhesi, Sugiarto. 1986. Drawing Machines. Jakarta:Pradnya Paramita.
6. Yogaswara, Eka. 2004. Reading SMK Technical Pictures.Bandung: Armico.

</td>
</tr>
<tr>
<td>Date of last amandement made</td>
<td></td>
</tr>
<tr>
<td>Note</td>
<td></td>
</tr>
</table>

Module Handbook

Module Name	Thermodynamics I
Module Level	Undergraduate / Bachelor
Code (If Any)	52324211
Subtitles (If Any)	
Courses included in the module (If Any)	
Semester/ Year Levels	2/1st year
Name of Coordinator	Dr. Drs. Muhaji, S.T., M.T.
Lecturers	Dr. Drs. Muhaji, S.T., M.T. Dr. Mohammad Effendy, S.T., M.T. Aris Ansori, S.Pd., M.T. Dany Iman Santoso, S.T., M.T. Ika Nur Jannah, S.Pd., M.T
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week of: 2 hours in class, 1 hour structured assignments, and 1 hour independent study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face to face / semester
Number of Credits	2/1
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). Course Learning Outcomes (CLO) : Students are able to understand the meaning of thermodynamics, system definition, properties and state levels, be able to convert quantities in SI and British units, understand the working principle and energy balance, be able to understand the regulatory mass system, isobar and isovolume processes, be able to understand the volume

<table>
<tr><td></td><td>control system by analyzing the system in nozzle, diffuser, turbine, pump, compressor and heat exchanger</td></tr>
<tr><td>Module content</td><td>Understanding the concept of the first law of thermodynamics about the conservation of energy and the concept of the mass system and the volume control, the mass system and the volume control system.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slidepower point</td></tr>
<tr><td>References</td><td>1. Moran, Michael J., Howard N. Saphiro, Daisie D. Boettner, and Margareth B. Bailey, 2011, Fundamentals of Engineering Thermodynamics 7th ed., John Wiley & Sons.
2. Cengel, Yunus A. and Boles, Michael A, 2010, Thermodynamics An Engineering Aproach 7th ed., McGraw-Hill.
3. Sonntag., Borgnakke., Van Wylen, 1998, Fundamental of Thermodynamics 7th ed., John Willey & Sons.</td></tr>
</table>

	4. Holman, 1980, Thermodynamics, 3rd ed., McGraw-Hill. 5. Reynold, William C. and Perkin Henry C., 1977, Engineering Thermodynamics 2nd ed., McGraw-Hill.Kegiatan Pembelajaran
Date of last amandement made	-
Notes	-

Module Name	Educational Psychology
Level Module	Undergraduate / Bachelor
Code (If Any)	90420302
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	3/2nd year
Name of Coordinator	MKDU Tim
Lecturers	Dr. Wiwin Yulianingsih, S.Pd., M.Pd
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 30 hours face-to-face / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to align the curriculum of scientific knowledge in vocational education that is relevant to the demands of global industrial development (PLO 1). Course Learning Outcomes (CLO) : 1. Understanding the basic concepts of educational psychology, student development, learning theory, and aspects of personality that affect learning, and class management. 2. Make decisions about concepts and theories within the scope of educational psychology that are relevant to solving specific learning cases or learning difficulties in the classroom 3. Responsible for learning performance individually and in groups, by showing active involvement in carrying out the tasks and roles given both individually and in groups during the learning process.

<table>
<tr><td></td><td>4. Utilizing learning resources and ICT-assisted learning media to support the implementation of learning</td></tr>
<tr><td>Module content</td><td>Discussion of (1) basic concepts of educational psychology (2) the development of students and developmental laws. (3) cognitive development theory (4) social development (5) learning theory (6) basic concepts of intelligence (7) emotional concepts and students' self-concepts (8) The concept of motivation (9) the concept of giftedness, gifted children and their education (10) learning difficulties (11) learning environment</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>1. Slavin, Robert E. 2011. Psikologi Pendidikan: Teori dan Praktik edisi ke-9 (Jilid 1 & 2). Jakarta: PT Indeks
2. Santrock, J W. 2013. Psikologi Pendidikan (jilid 1&2). Jakarta: Salemba Humanika
3. Djiwandono, Sri Esti W. 2009. Psikologi Pendidikan. Jakarta: Grasindo
4. Nursalim, M, dkk. 2007. Psikologi Pendidikan. Surabaya: Unesa University Press
5. Nursalim, M, dkk. 2017. Psikologi Pendidikan. Surabaya:</td></tr>
</table>

	Unesa University Press
Date of last amandement made	-
Notes	-

Module Handbook

Module Name	Educational Philosophy
Module Level	Undergraduate / Bachelor
Code (If Any)	90210206
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	3/2nd Year
Name of Coordinator	Dr. Soeryanto, M.Pd.
Lecturers	Dr. Soeryanto, M.Pd. Dr. Djoko Suwito, M.Pd. Dr. Dewanto, M.Pd.
Language	Indonesia
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 3 hours in class, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 3 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	3 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 65 hours face-to-face / semester
Number of Credits	3
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to align the curriculum of scientific knowledge in vocational education that is relevant to the demands of global industrial development (PLO 1). Course Learning Outcomes (CLO) : 1. Utilizing learning and ICT resources to support the design and implementation of Educational Philosophy learning including the existence and nature of humans as natural and social beings, patterns of human interaction as educational persons, understanding and meaning of educational philosophy, philosophical approaches in education, theories of knowledge and values, development of values to create a whole human being, education as value preservation and social change and problems in reform and the concept of future Indonesian

	education, by utilizing learning resources and ICT. 2. Students have the knowledge and think critically about the basic concepts of educational philosophy to understand the problems of contemporary education according to reference sources. 3. Students have the ability to follow the development of education in Indonesia through various media and analyze them according to the concept of educational philosophy and compiled in the form of a paper or reported in the form of a portfolio. 4. Students have the character of faith, smart, independent, honest, caring, responsibility and tough in learning activities in Educational Philosophy.
Module Content	This course discusses the existence and nature of human beings as natural and social beings, patterns of human interaction as human beings in education, understanding and meaning of educational philosophy, philosophical approaches in education, theory of knowledge and values, development of values to create whole humans, education as preservation of values and social changes and problems in the reform and concept of Indonesia's future education. After studying this subject, it is hoped that students will be able to understand the concept of educational philosophy so that it becomes the basis for self-development in carrying out the educational process in line with the foundation of educational philosophy.
Soft Skill Attribute	Active communication, cooperation, discipline, and responsibility.

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>

1. The Liang Gie. Pengantar Filsafat Ilmu. Yogyakarta: Liberty, 2010.
2. Jujun S. Suriasumantri. Filsafat Ilmu: Sebuah Pengantar Populer. Jakarta: Pustaka Sinar Harapan, 2007.
3. Jalaluddin dan Abdullah. Filsafat Penididikan. Jakarta: Gaya Media Pratama. 2010.
4. Redja Mudyahardjo (2008). Filsafat Ilmu Pendidikan. Bandung: Rosda.
5. Muhmidayeli (2011). Filsafat Pendidikan. Bandung: Refika Aditama.
6. Rakhmat Hidayat (2013). Pedagogi Kritis. Jakarta: Raja Grafindo Persada.
7. John Dewey (2008). Pengalaman dan Pendidikan. Yogyakarta: Kepel Press
8. Wowo Sunaryo Kuswana (2013). Filsafat Pendidikan Teknologi, Vokasi dan Kejuruan. Bandung: Alfabeta. I

</td></tr>
<tr><td>Date of last amandement made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module Name	Bahasa Indonesia
Module Level	Undergraduate / Bachelor
Code (If Any)	90210204
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	3/2nd Year
Name of Coordinator	MKDU Tim
Lecturers	Andik Yuliyanto, S.S., M.Si. Dr. Agusniar Dian Savitri, S.S., M.Pd. Drs. Masengut Sukidi, M.Pd.
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours in class, 1 hour structured assignments, and 1 hour independent study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in lesson, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hours / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). Course Learning Outcomes (CLO) : 1. Utilizing learning resources and ICT-assisted learning media to explore data, collect information, and solve problems to support the implementation of Indonesian language learning. 2. Mastering the concepts of writing techniques, presentation techniques, various languages, and editing techniques using discussion, lecture, lesson study models.

<table>
<tr><td></td><td>3. Able to make decisions based on analysis of information and data related to the Indonesian language to plan, implement and evaluate learning activities so that they can be adapted to various learning conditions.
4. Having a responsible attitude towards the task of making language skills products (speaking, reading, and writing)</td></tr>
<tr><td>Module content</td><td>Discussion of (1) the history, position and function of the Indonesian language (2) critical reading (3) the characteristics of scientific Indonesian (4) EyD (5) scientific works (6) writing proposals (7) articles and papers (8) editing (9)) citations and reference lists, and (10) presentations. The methods used are lectures, discussions, projects and case studies.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>1. Tim. 2015. Menulis Ilmiah: Buku Ajar MPK Bahasa Indonesia. Surabaya: Unesa Press
2. Ahmadi, Anas. 2015. Psikologi Menulis. Yogyakarta: Ombak</td></tr>
</table>

	3. Alwi, Hasan, dkk. 2003. a. TBBBI 4. _____. 2003. b. PUPI 5. Permendikbud RI Nomor 50 Tahun 2015. PUEBI. Jakarta 6. Sugono, Dendy, dkk. 2003. a. Pengindonesiaan Istilah Asing dalam Bahasa Indonesia 7. Axelrod, R.B. & Cooper, C.R. 2010. Guide to Writing. Benfork: Boston
Date of last amandement made	-
Notes	-

Module Handbook

Module name	Machine Element 2
Module degree	Undergraduate
Abbreviation/code (if available)	36324204
Subtitle (if available)	
Subject included in the module (if available)	
Semester/year	4/2nd year
Module coordinator	Dr. M. Cholik
Lecturer	Dr. M. Cholik N.S. Drastiawati, M. Eng D.I. Santoso, M.T.
Language	Bahasa Indonesia
Classification	Compulsory course / ~~elective studies~~
Number of hours per week	Per week consist of: 2 hours face to face, 1-hour structured assignments, and 1-hour independent learning. (1-hour face to face = 50 minutes per hour) (1-hour structured assignment = 50 minutes per hour) (1-hour independent learning = 60 minutes per hour)
Compulsory	2 hours face to face, 1-hour structured assignments, 1-hour independent learning for 15 weeks, total 60 hours face to face per semester
Credit	2/1
Prerequisite	Machine Element 1
Learning outcomes	3. Students can calculate gear planning 4. Students can calculate coupling planning 5. Students can calculate and analyze bearing planning 6. Students can calculate and analyze brake planning
Content	Design Understanding of the steps for carrying out the calculation of gear planning, fixed clutch, fluid coupling, conical clutch, rolling bearing, slide bearing, drum brake, single block brake, and double block brake.
Soft skill attribute	Good active communication

<table>
<tr><td>Learning achievement</td><td>Students are considered competent and pass if they get a minimum score of 55 consisting of UTS, US, assignment (T) and participation (P).
We calculate final score (NA) through a formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the value of scale 0-100 to scale 0-4 and letters as follow.

<table><tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr><tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr></table></td></tr>
<tr><td>Media</td><td>Power Point slide</td></tr>
<tr><td>Reference</td><td>1. Robert L. Mott. 2009. Machine elements in mechanical design. Yogayakarta: Andi publisher.
2. Sularso, Kyokatso Kuga. 1983. Dasar perencanaan dan pemilihan elemen mesin. Jakarta: PT Pradnya Paramita.
3. Spott MF. 2000. Design of machine element. USA: Prentice Hall.
4. Richard G. Budynas and J. Keith Nisbett. 2014. Shigley’s Mechanical Engineering Design 10th ed. USA: McGraw Hill.
5. Supadi HS. 2008. Buku ajar elemen mesin. Surabaya: UNESA.</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Automotive Electrical
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if applicable)	35324221
Subtitles (if any)	
Courses included in the module (if any)	
Semester / year level	3 / 2nd year
Module coordinator	Dr.A. Grummy Wailanduw, M.Pd., M.T.
Powerful	Dr.A. Grummy Wailanduw, M.Pd., M.T. Aris Anshori, S.Pd., M.T. Heru Arizal, S.Pd., M.Pd., M.M.
The language used	Indonesia Language
Classification in the curriculum	Compulsory course (matakuliah wajib) /~~elective studies (matakuliah pilihan~~)
Learning format / number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour), (1 hour of structured work = 50 minutes / hour) , (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face to face / semester
SKS	2/1
Precondition	-
Learning objectives	1. Have good morals, ethics and personality in attending lectures 2. Understand the engine electrical system contained in a gasoline / diesel fueled vehicle 3. Understand the body electrical system found in gasoline / diesel fueled vehicles 4. Be able to interact and work together in teams and be responsible, think logically and intelligently in solving problems faced professionally in the automotive electricity sector
Content / content	Study of the electrical system found in a gasoline / diesel fueled vehicle, including the engine electrical system and the body's electrical system
Attribut soft skill	Good active communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final score (NA) is calculated by following the formula:NA = $\frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the scale 0-100 to the scale 0-4 and the letters are set as follows.

<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Slidepower point</td></tr>
<tr><td>Referensi</td><td>

6. Grummy, A.W. 2003.*Kelistrikan Otomotif Seri A*. Upress.
7. Grummy, A.W. 2004.*Kelistrikan Otomotif Seri B*. Upress
8. Toyota Motor Sales. *Automotive Electronics and Resource Site*. USA
9. Bacon, R.H. 1967. *Electricity in Cars*. Netherlands: Philips Technical Library.
10. Bosch, Robert. 2004. *Automotive Electrics and Automotive Electronics*: 4th edition. Germany.
11. Denton, Tom. 1995. *Automobile Electrical and Electronic Systems*. London.
12. Toboldt, K.William, Larry Johnson.1981. *Automotive Encyclopedia*. Illinois.
13. Stone, Richard and Ball, Jeffrey, K. 2004. *Automotive Engineering Fundamentals*. USA.

</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	**Engineering Mathematics**
Module level	**Bachelor (S-1)**
Abbreviation/code (if available)	**52324201**
Course include in module (if available)	
Semester/ year rate	**3/2nd year**
Module coordinator	**Indra Herlamba Siregar, S.T., M.T.**
Lecturer	**Indra Herlamba Siregar, S.T., M.T** **Tri Hartutuk Ningsih, S.T., M.T.**
Language used	**Indonesian**
Classification in the curriculum	**Compulsory course (Compulsory course~~s) /elective studies (courses selection)~~**
Learning Format / Number of class hours per week	**Per week of:** **2 hours face to face, 1 hour structured assignments, and 1 hour independent study.** **(1 hour face to face = 50 minutes / hour).** **(1 hour of structured assignments= 50 minutes / hour).** **(1 hour of independent study = 60 minutes / hour).**
Load	**2 hours face to face, 1 hour structured assignments, 1 hour independent study, for 15 weeks, total 60 hours /semester.**
University Credit Unit (SKS)	**2**
Precondition	**-**
Learning Objectives	**4. Students have good morals, ethics and personality in attending lectures.** **5. Students have knowledge about concept procedures energy, energy sources, energy conversion technology.** **6. Students have the skills to analyze the system energy conversion.** **7. Students are able to interact and work together in teams, responsible, think logically and intelligently solve problems faced in a professional manner in the field of energy conversion machines.**
Contents	**This course is a course that provides understanding about the apply for application of mathematics required for analyze, formulate and solve phenomena physics related field in mechanical engineering.**
Soft skill atribute	**good active communication.**

<table>
<tr><td>Learning Achievement / examination</td><td>Students are considered competent and pass if at least get minimum value of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS) / 10
Convert 0-100 scale value to a 0-4 scale value and letters are arranged as follows:
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>40 ≤ D < 55</td></tr>
</table></td></tr>
<tr><td>Form of media</td><td>Slidepower point</td></tr>
<tr><td>Reference</td><td>Huw Fox, W., Bolton, 2002, Mathematics for Engineers and Technologists, Elsevier Science & Technology Books.
John Bird , 2007, Engineering Mathematics, Elsevier.
Glyn James, 2010, Advanced Modern Engineering Mathematics, Prentice Hall.</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Engineering Mechanics 2
Module degree	Undergraduate
Abbreviation/code (if available)	36324204
Subtitle (if available)	
Subject included in the module (if available)	
Semester/year	2/1st year
Module coordinator	Dr. D. Suwito
Lecturer	W. D. Kurniawan, M. Pd. D.I. Santoso, M.T.
Language	Bahasa Indonesia
Classification	Compulsory course / ~~elective studies~~
Number of hours per week	Per week consist of: 2 hours face to face, 1-hour structured assignments, and 1-hour independent learning. (1-hour face to face = 50 minutes per hour) (1-hour structured assignment = 50 minutes per hour) (1-hour independent learning = 60 minutes per hour)
Compulsory	2 hours face to face, 1-hour structured assignments, 1-hour independent learning for 15 weeks, total 60 hours face to face per semester
Credit	2/1
Prerequisite	Engineering Mechanics 1
Learning outcomes	7. Students have good morals, ethics, and personality in the following lectures. 8. Students know the properties of support, parallel force analysis, truss moment in particular static and indefinite static theory, tensile, compressive, shear, bending and torsional stresses, thermal, Hooke's law, elastic line equations, and the Mohr circle diagram method. 9. Students can analyze parallel forces, truss moment, tensile stress, compressive, shear, bending and torsional, thermal, Hooke's law, elastic line equations, and Mohr's circle diagram method. 10. Students can work together and be responsible for developing engineering mechanics according to applications in everyday life.
Content	Engineering Mechanics II course discusses support

<table>
<tr><td></td><td>properties, parallel force analysis, truss moment in particular static and indefinite static theory, tensile, compressive, shear, bending and torsional stresses, thermal, Hooke's law, elastic line equations, and Mohr's pie chart method.</td></tr>
<tr><td>Soft skill attribute</td><td>Good active communication</td></tr>
<tr><td>Learning achievement</td><td>Students are considered competent and pass if they get a minimum score of 55 consisting of UTS, US, assignment (T) and participation (P).
We calculate final score (NA) through a formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the value of scale 0-100 to scale 0-4 and letters as follow.

<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Power Point slide</td></tr>
<tr><td>Reference</td><td>
14. Robert L. Mott. 2009. Machine elements in mechanical design. Yogayakarta: Andi publisher.
15. Sularso, Kyokatso Kuga. 1983. Dasar perencanaan dan pemilihan elemen mesin. Jakarta: PT Pradnya Paramita.
16. Spott MF. 2000. Design of machine element. USA: Prentice Hall.
17. Richard G. Budynas and J. Keith Nisbett. 2014. Shigley’s Mechanical Engineering Design 10th ed. USA: McGraw Hill.
18. Supadi HS. 2008. Buku ajar elemen mesin. Surabaya: UNESA.
</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Engineering Mechanics II
Module level	Undergraduate / Bachelor
Code (If Any)	52324209
Subtitles (If Any)	
Courses included in the module (If Any)	
Semester/ Year Levels	2/ 1st year
Name of Coordinator	Dr. Djoko Suwito, M.Pd.
Lecturers	Wahyu Dwi Kurniawan, S.Pd., M.Pd. Dany Iman Santoso, S.T., M.T.
Language	Indonesian
Classification in the Curriculum	Compulsory course (scientific and skills course) /elective ~~course~~
Learning format / number of hours per week	Per week consists of: 2 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (2 hour of structured assignments = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 45 hours / semester
Number of Credits	2/1
Prerequisite Module	Engineering Mechanics II
Learning Objectives	11. Students have good morals, ethics and personality in attending learning. 12. Students have knowledge of support properties, normal force analysis, rod frame moments in certain static and indefinite static theories, tensile, compressive, shear, bending and torsional stresses, thermal, hooke's law, elastic line equations, and diagram methods. mohr circle 13. Students have the ability to analyze normal forces, truss moment, tensile stress, compressive, shear, bending and torsional, thermal, hooke's law, elastic line equations, and Mohr's circle diagram method. 14. Students are able to cooperate and be responsible in developing engineering mechanics in accordance with applications in everyday life.

<table>
<tr><td>Module Content</td><td>Course of Engineering Mechanics II discusses support properties, normal force analysis, truss moment in certain static and indefinite static theory, tensile, compressive, shear, bending and torsional stresses, thermal, hooke's law, elastic line equations, and Mohr's pie chart method.</td></tr>
<tr><td>Soft skill attribute</td><td>Good and responsible active communication</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP) + (3xT) + (2x \text{ midterm exam}) + (3x\text{final exam})}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slidepower point</td></tr>
<tr><td>References</td><td>19. Bear, F.P. dan Johnston, E.R. 1987. Statika. (Mekanika untuk Insinyur), Jakarta: Erlangga.
20. Heinz Frick. 1991. Mekanika Teknik 1 (Statika dan Kegunaanya). Yogyakarta: Kanisius.
21. Timoshenko, S. dan Young, D.H. 1990. Mekanika Teknik. Jakarta: Erlangga.</td></tr>
<tr><td>Date of last amandement made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module name	Fluid mechanics
Module level	Bachelor (S-1)
Abbreviation / code (if any)	52324201
Subtitles (if any)	-
Courses included in the module (If there is)	Math / Calculus
Semester / year level	3 / 2nd year
Module coordinator	Prof. Dr. Ir. I Wayan Susila., MT
Subject lecturer	Prof.Dr.Ir I Wayan Susila.,.MT Dr.Drs. Grummy Wailandow., MT Priyo Heru A, ST.,MT
The language used	Indonesian language
Classification in the curriculum	Compulsory course/ ~~elective studies~~
Learning format / number of class hours per week	Per week consists of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Lectures load	hours face-to-face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face-to-face / semester
SKS	3/1
Precondition	Have taken Mathematics (Calculus) courses Learning objectives
Learning objectives	1. Students can understand the properties / characteristics / properties of fluids (liquid or gas) and the basic concepts of both

	static and dynamic fluids and can distinguish them from the characteristics of solids. 2. Students can apply the basic equations of static and dynamic fluids in everyday life. 3. Students can make the necessary and correct assumptions for problem simplification so that calculations can be made. 4. Students can make a basic plan for all equipment that uses fluid (liquid or gas) as a working medium.
Content	Basic concepts, basic equations of static fluids and their applications, measuring instrument pressure and absolute pressure, hydrostatic force in the submerged surface of the liquid, mass conservation, momentum equations, moments of momentum, applications of the I and II laws of thermodynamics, Euler and Bernoulli's equations, static pressure , stagnation, and dynamic., Dimensional analysis and similarity, laminar flow, turbulence, energy equation, flow in pipes and ducting, external flow.
Attribut soft skill	Good active communication
Learning / examination achievement	Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final grade (NA) is calculated

<table>
<tr><td></td><td>according to the formula:
$\frac{(2xP) + (3xT) + (2xUTS) + (3xUS)}{10}$
Convert the 0-100 Scale Values to a 0-4 scale and the letters are arranged as follows
<table>
<tr><th>Letter</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media form</td><td>Slidepower point</td></tr>
<tr><td>Reference</td><td>1. Fox and Mc Donald.,1978.,Introduction to Fluid Mechanics., 2nd edition., John Wiley & Sons.,Inc., New York
2. Gerhart,M.Philip.,Gross,J. Richard., 1986., Fundamentals of Fluid Mechanics.,Addison-Wesley Publishing Company, Inc. Canada.
3. Benedict,P Robert.,1980.,Fundamentals of Pipe Flow., John Wiley & Sons, Inc.NewYork</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Learning Plan
Module level	Bachelor
Abbreviation /code	5024213033
Subtitles	
Subjects included in module (if any)	
Semester / year level	3/ Second year
Module coordinator	Drs. Budihardjo AH., M.Pd.
Pengampu	Drs. Budihardjo AH., M.Pd.
The language used	Bahasa Indonesia
Classification in the curriculum	Compulsory course /~~elective studies~~
Learning format / number of hours classes per week	Per week consists of: 3 hours face to face, 1 hours structured tasks, and 1 hour independent learning (1 hours face to face = 50 minute/hours) (1 hours structured tasks = 50 minute/hours) (1 hour independent learning = 60 minute/hours)
Load	3 hours face to face, 1 hours structured tasks, and 1 hour independent learning in 16 weeks
semester credit units	3
Precondition	Has taken the Basics Education and Educational Psychology
Learning objectives	1. Students have good morals, ethics and personality inside attend lectures. 2. Students have knowledge of various types of devices, learning includes: syllabus, lesson plans, worksheets / jobsheets / labsheets, materials teaching, media and assessment sheets according to curriculum development 3. Students have the ability to compile various types of learning tools including: syllabus, lesson plans, worksheets / jobsheets / labsheets, teaching materials, media and assessment sheets according to curriculum development.Mahasiswa mampu bekerjasama dan bertanggung jawab dalam mengembangkan perangkat pembelajaran sesuai dengan perkembangan kurikulum
Content	understanding of planning and development of learning devices, instructional media, learning evaluation, syllabus and lesson plans according to the curriculum
Soft skill attributes	Good active communication, creative, confident and responsible

<table>
<tr><td>Learning / examination achievement</td><td>Assessment:
1. Participation score 20% (P)
2. Task Score 30% (T)
3. midterm exam scoe 20%. (UTS)
4. Endterm exam score 30% (UAS)

Nilai akhir (NA) dihitung mengikuti rumus:
NA = (2xParticipation)+(3xTask)+(2xUTS)+(3xUAS)
10

Table 1. Convert Scale Score
<table><tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr><tr><td>C+</td><td>2,0</td><td>60 ≤ C+ < 65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr></table></td></tr>
<tr><td>Media form</td><td>Slide power point</td></tr>
<tr><td>Reference</td><td>1. Harjanto. 2003. Perencanaan Pengajaran. Jakarta: Rineka Cipta.
2. Ibrahim dan Nana Syaodih. 2003. Perencanaan Pengajaran. Jakarta: Rineka Cipta.
3. Suparji. 2009. Perencanaan Pembelajaran. Unesa University Press.</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Learning strategies
Module level	Undergraduate / Bachelor
Abbreviation / code (if any)	52424301
Subtitles (if any)	
Courses included in the module (if any)	
Semester / year level	3/ 2st year
Module coordinator	Dr. Theodorus Wiyanto Wibowo, M.Pd.
supporting lecturer	Dr. Djoko Suwito, M.Pd. Dr. Theodorus Wiyanto Wibowo, M.Pd. Dr. Dewanto, M.Pd. Drs. Budihardjo Achmadi Hasyim, M.Pd. Nur Aini Susanti, S.Pd., M.Pd. Prof. Dr. H. Muchlas, M.Pd.
The language used	Indonesian
Classification in the curriculum	Compulsory course/~~elective studies~~
Learning format / number of class hours per week	Per week consists of: 3 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	3 hours face to face, 1 hour structured assignments, 1 hour independent study, during 16 weeks
SKS	3
Precondition	Has taken Education Fundamentals, Educational Psychology courses
Learning objectives	1. Able to take advantage of science and technology in the field of learning strategies, and able to adapt to situations faced in solving problems. 2. Mastering theoretical concepts in the field of deep learning strategies, and being able to formulate solutions to procedural problems 3. Able to make strategic decisions based on analysis of information and data, and provide guidance in choosing various alternative solutions in the field of learning strategies. 4. Responsible for his own work and can be given responsibility

Content	Concept models, methods, strategies, and learning approaches which include innovative learning, Behavioristic and constructivist approaches, learning strategies, learning methods, learning approaches, direct learning models (MPL), Cooperative Learning Model (MPK), Model Problem Based Learning (MPBM), Project Based Learning Model (MPBPr), and e-learning.
Soft skill attributes	Good active communication, creative, confident and responsible
Learning / examination achievement	Penilaian : 1. Participation weighted value 20% 2. The assignment of weighted scores 30% 3. UTS weighted scores 20%. 4. UAS weighted value 30% The final grade (NA) is calculated according to the formula: NA = (2xP)+(3xT)+(2xUTS)+(3xUS) 10 Convert the 0-100 scale value to a 0-4 scale and the letters are set as follow.
Media form	*Slide power point*
Reference	1. **Eggen, Paul dan Don Kauchak.** 2012. *Strategi dan Model Pembelajaran*. Edisi 6 2. **Zaini, Hisyam, Bermawy Munthe, Sekar Ayu Aryani.** 2007. *Strategi Pembelajaran Aktif*. Yogyakarta: CTSD 3. **Mustaji.** 2009. *Desain Pembelajaran*. Surabaya: University Press 4. **Nur, Mohamad dan I Ketut Budayasa.** 1998. *Teori Pembelajaran Sosial dan Teori Pembelajaran Perilaku*. IKIP Surabaya 5. **Nur, Mohamad dan Prima Retno Wikandari.** 2004. *Pengajaran Berpusat pada Siswa dan Pendekatan Konstruktivis dalam Pengajaran*. Surabaya: PSMS Unesa 6. **Nur, Mohamad.** 2011. *Strategi-Strategi Belajar*. Unesa: PSMS 7. **Nur, Mohamad.** 2011. *Model Pembelajaran Langsung*. Surabaya: PSMS Unesa 8. **Nur, Mohamad.** 2011. *Model Pembelajaran Kooperatif*. Unesa: PSMS 9. **Nur, Mohamad.** 2011. *Model pembelajaran Berbasis Masalah*. Unesa: PSMS 10. **Nurlaela, Luthfiyah dan Euis Ismayati.** 2015. *Strategi Belajar Berpikir Kreatif*. Yogyakarta: Penerbit Ombak
Date of last amandement made	
Note	

Module Handbook

Module name	Gasoline Motor Technology
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if applicable)	35324210
Subtitles (if any)	
Courses included in the module (if any)	
Semester / year level	3 / 2nd year
Module coordinator	Dr. Warju, S.Pd., S.T., M.T
Powerful	Diastian Vinaya Wijanarko, S.T., M.T. Dr. Muhaji, S.T., M.T. Dr. Warju, S.Pd., S.T., M.T. Rachmad Syarifudin Hidayatullah, S.Pd., M.Pd
The language used	Indonesia Language
Classification in the curriculum	Compulsory course (matakuliah wajib) /~~elective studies (matakuliah pilihan~~)
Learning format / number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour), (1 hour of structured work = 50 minutes / hour) , (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face to face / semester
SKS	2/1
Precondition	-
Learning objectives	Students have: 1. Students have good morals, ethics and personality in attending lectures. 2. Students have knowledge of gasoline motor component theories. 3. Students have the ability to apply gasoline motorbike component theories including: fuel system, electrical system, service system, lubrication system, cooling system, exhaust system, valve mechanical system, basic motorbike calculations, fuel, and basic motorcycle theory. . 4. Students are able to cooperate and be responsible in the field of gasoline motorbike technology.
Content / content	Understanding the theory of gasoline motor components includes: fuel systems, electrical systems, ignition systems, lubrication systems, cooling systems, exhaust systems, valve mechanical systems, basic motor calculations, fuels, and basic motorcycle theory.
Attribut soft skill	Active and collaborative communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).
The final score (NA) is calculated by following the formula:NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the scale 0-100 to the scale 0-4 and the letters are set as follows.

<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Slidepower point, video</td></tr>
<tr><td>Referensi</td><td>

1. Obert, Edward F. 1973.*Internal Combustion Engine and Air Pollution*. Third Edition. New York: Harper & Row, Publisher, Inc
2. Heywood, John B. 1988.*Internal Combustion Engine Fundamentals*. New York: McGraw-Hill, Inc
3. Heisler, Heinz. 1995.*Advanced Engine Technology*. London: Edward Arnold
4. Crouse, William H. & Anglin, Donald L. 1997.*Automotive Mechanics.*Ninth Edition. New York: McGraw-Hill Book Company
5. Robert Bosch Gmbh. 1988.*Automotive Electric/Electronic System.*Jerman: Stuttgart
6. Robert Bosch Gmbh. 1999.*Gasoline Engine Management.*Jerman: Stuttgart
7. Arismunandar, Wiranto. 2002.*Penggerak Mula: Motor Bakar Torak*. Edisi Kelima. Bandung: Penerbit ITB
8. Sutantra, I Nyoman. 2001.*Teknologi Otomotif Teori dan Aplikasinya.*Surabaya: Guna Widya
9. Warju. 2009.*Pengujian Performa Mesin Kendaraan Bermotor*. Surabaya: Unesa University Press.
10. Warju. 2013.*Teknologi Reduksi Emisi Gas Buang Kendaraan Bermotor*. Surabaya: Unesa University Press.
11. Suyanto, Wardan. 1989.*Teori Motor Bensin.*Jakarta: Departemen Pendidikan dan Kebudayaan Direktorat Jenderal Pendidikan Tinggi
12. Toyota Astra Motor. 1986.*New Step I*. Jakarta.PT. Toyota-Astra Motor
13. Toyota Astra Motor. 1985.*Materi Pelajaran Engine Group*.

</td></tr>
</table>

	Jakarta: PT. Toyota Astra Motor 14. Wardhana, Wisnu Arya. 2001.*Dampak Pencemaran Lingkungan*. Yogyakarta: Penerbit Andi
Note	

Module Handbook

Module name	Energy Conversion Machine
Module level	Bachelor (S-1)
Abbreviation / code (if any)	36324216
Subtitles (if any)	-
Courses included in the module (If there is)	-
Semester / year level	3 / 2nd year
Module coordinator	Indra Herlamba Siregar, S.T.,M.T
Subject lecturer	Indra Herlamba Siregar, S.T.,M.T
The language used	Indonesian language
Classification in the curriculum	Compulsory course/ ~~elective studies~~
Learning format / number of class hours per week	Per week consists of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Lectures load	hours face-to-face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face-to-face / semester
SKS	2
Precondition	-
Learning objectives	1. Students can distinguish between energy and power 2. Students are able to calculate energy per capita 3. Students are able to make a source of

	energy from biomass 4. Students are able to calculate Air fuel Ratio 5. Students understand the working concepts of otto and diesel engines 6. Students are able to calculate the thermodynamic work of the otto and diesel engines 7. Students are able to choose the type of impeller that suits their needs 8. Students are able to calculate the dimensions of water and wind turbines 9. tudents are able to calculate the COP of conventional cooling systems and absorption cooling systems
Content	In this course, it begins with an introduction that outlines definitions, energy classifications and per capita energy consumption calculations, the next chapter of students is explained related to the fuel used for energy conversion engines, and the following chapters are described about energy conversion engines such as combustion motors. in, pumps, water and wind turbines and cooling systems
Attribut soft skill	Good active communication
Learning / examination achievement	Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final grade (NA) is calculated

<table>
<tr><td></td><td>according to the formula:
$\frac{(2xP) + (3xT) + (2xUTS) + (3xUS)}{10}$
Convert the 0-100 Scale Values to a 0-4 scale and the letters are arranged as follows
<table>
<tr><th>Letter</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media form</td><td>Slidepower point</td></tr>
<tr><td>Reference</td><td>1. Indra Herlamba Siregar, Mesin Konversi Energi, UniPress Surabaya
2. D Yogi Goswami; Frank Kreith , energy Conversion, Boca Raton, CRC press.</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Diesel motor technology
Module level	Bachelor (S-1)
Abbreviation / code (if any)	35324212
Subtitles (if any)	
Courses included in the module(If there is)	
Semester / year level	3/2nd year
Module coordinator	Iskandar, S.T., M.T
Observers	Dany Iman Santoso, S.T., M.T. Iskandar, S.T., M.T. Dr. Warju, S.Pd., S.T., M.T Rachmad Syarifudin Hidayatullah, S.Pd., M.Pd
The language used	Indonesia language
Classification in the curriculum	Compulsory course /~~elective studies~~
Learning format / number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of self-study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour self study, for 15 weeks, a total of 60 hours face-to-face / semester
SKS	2/1
Precondition	-
Learning objectives	Students have: • Students have good morals, ethics and personality in attending lectures. • Students are skilled at repairing disturbances in Diesel motor vehicles
Content	Understanding of assembling and assembling diesel motor components, how to overcome if a disturbance occurs, test motor performance
Soft skill attributes	Active and collaborative, communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).

The final score (NA) is calculated by following the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table><tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A<100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- <85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+<80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B <75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- <70</td></tr><tr><td>C+</td><td>2,50</td><td>60 ≤ C+ <65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C <60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D <55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E <40</td></tr></table></td></tr>
<tr><td>Media form</td><td>Slidepower point, video</td></tr>
<tr><td>Reference</td><td>Petrovsky,N. 1968.Manne Internal Combustion Engine.Moscow: MIRPublisher.
ObbertEdward F.Internal Combustion Engines andAir Polution. New York: Harper &Row.
Anonim, 1995, NewStep 1 Training Manual. Jakarta: PT. Toyota AstraMotor.
Anonim, 1995, Materi PelajaranEngine Group Step 2. Jakarta: PT. Toyota AstraMotor</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	COMBUSTION AND FUEL ENGINEERING
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if any)	35324218
Subtitles (if any)	
Subjects included in module (if any)	
Semester/level of year	4/2nd year
Module coordinator	I Wayan Susila., Prof.Dr.Ir.MT
Instructor	I Wayan Susila., Prof.Dr.Ir.MT Bellina Yunitasari, MSi Muhaji.,SPd.,MT.,Dr
The language used	Indonesian Language
Classification in the curriculum	Compulsory course / ~~elective studies~~
Learning format / number of class hours every week	Every week consists of : 2 hours face to face, 1 hour structured assignments, and 1 hour self study. • 1 hour face to face = 50 minutes / hour • 1 hour of structured = 50 minutes / hour • 1 hour of self study = 60 minutes / hour
Load	2 hours face to face, 1 hour structured assignments, 1 hour self study for 15 weeks, a total of 60 hours face to face / semester.
SKS	2/1
Precondition	-
Learning objectives	1. Students can understand the chemical reactions that occur in the fuel combustion process in a closed room, various combustion reactions. 2. Students can analyze the content of exhaust gas emissions. 3. Students can make combustion reactions for various types of fuels, whether solid, liquid, or gas. 4. Students can understand the characteristics of solid, liquid, and gas fuels.
Content	Principles and equations of combustion, AFR, knocking, Stoichiometric chemical reactions,
Soft skill attribute	Good active communication, hard work, able to work both with a team work and independently. Solid fuel coal (types, properties, composition analysis, heating value), coke, fuel (gasoline, diesel), biofuels alternative fuels (bioethanol, biodiesel, biomass, biokerosin, bioavtur), gas fuel, biogas.

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final grade of at least 55 consisting of cumulative USS, US, structured activities (assignments / T) and participatory activities (P).

The final grade (NA) is calculated according to the formula:
NA = 2P + 3T + 2UTS +3US
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows:
<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75≤B+<80</td></tr>
<tr><td>B</td><td>3,00</td><td>70≤ B<75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65≤ B- <70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60≤C+<65</td></tr>
<tr><td>C</td><td>2,00</td><td>55≤C<60</td></tr>
<tr><td>D</td><td>1,00</td><td>40≤D<55</td></tr>
<tr><td>E</td><td>0,00</td><td>0≤E<40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Slide power point</td></tr>
<tr><td>Reference</td><td>1. Malev., 1985., “Internal Combustion Engines”., Mc Graw HillBookCompany.
2. Djordjevic, Z, et.al., 2001., Situation and Prospects of Preparation and Processing of Coal., VI Colloquium on Preparation of Ores., Belgrade.
3. Jolly et al., 1996., Indonesian Coal Prospects to 2010, IEA Coal Research Report No.IEAPER/14, International Energy Agency.,UK
4. Campisi et al., (1996)., Chemical and Phiyical Characterization ofLowRank Coal, Curren Proceeding</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Learning Media and ICT
Module Level	Bachelor
Abbreviation/code (if any)	52424304
Substitle (if any)	
Courses included in the module (If any)	
Semester/year level	3 / 2nd year
Module Coordinator	Dr. Djoko Suwito, M.Pd
Lecturer	Dr. Warju, S.Pd., S.T., M.T Muamar Zainul Arif, S,Pd., M.Pd
The Language used	Indonesian
Classification in the curriculum	Compulsory course /~~ elective studies~~
Learning format/number of class hour per week	Per week consists of: 3 hours face to face (150 minutes), with details: 20 minutes introduction to learning media 100 independent tasks 30 minutes of elaboration and strengthening of lecture materials
Load	3 hours face to face for 15 weeks / semester
Credit Unit	3
Precondition	-
Learning objectives	1. College students can explain the limitations, functions, role of media in the learning process 2. College students can describe the basic principles, types and characteristics of learning media and ICT 3. College students can make choices about the use of learning media and ICT 4. College students can design learning media by utilizing ICT
Conntent	This subject examines media which includes limitations, functions, roles in the teaching and learning process, basic principles, types, characteristics, selection, use, and manufacture of instructional media using ICT
Soft skill attributes	Good active communication, receiving opinions

~~elective stud~~
~~(matakuliah~~

<table>
<tr><td>Learning/Examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xAssgmt)+(2xmid term)+(3x final exam)
10
Convert the 0-100 scale value to a 0-4 scale and letters are arranged as follows :
<table>
<tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Slide power point</td></tr>
<tr><td>Reference</td><td>

1. Arsyad, Azhar. 1997. Media Pembelajaran. Jakarta: PT Rajagrafindo Persada
2. Gerlach, Vernon S., Donald P. Ely, and Rob Melnick. 1980. Teaching and Media: a Systematic Approach. New Jersey: Prentice Hall
3. Kustandi, Cecep dan Bambang Sutjipto. 2011. Media Pembelajaran Manual dan Digital. Bogor: Ghalia Indonesia
4. Miarso, Yusufhadi. 2007. Menyemai Benih Teknologi Pendidikan Jakarta: Kencana
5. Mulyanta dan Marlon Leong. 2009. Tutorial Membangun Multimedia Interaktif Media Pembelajaran. Yogyakarta: Universitas Atma Jaya Yogyakarta
6. Musfiqon. 2012. Pengembangan Media dan Sumber Pembelajaran. Jakarta: Prestasi Pustaka Publisher
7. Smaldino, Sharon E., James D. Russell, Robert Henich, and Michael Molenda. 2005. Instructional Technology and Media for Learning. Eight Edition. New Jersey: Prentice Hall
8. Soeparno. 1988. Media Pengajaran Bahasa. Yogyakarta: PT Intan Pariwara
9. Sudjana, Nana dan Ahmad Rivai. 2009. Media Pengajaran. Bandung:
Sinar Baru Algensindo.

</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Thermodynamic 2
Module level	Bachelor (S-1)
Abbreviation / code (if any)	35324202
Subtitles (if any)	-
Courses included in the module (If there is)	-
Semester / year level	4 / 2nd year
Module coordinator	Dr. Drs. Muhaji, S.T., M.T.
Subject lecturer	Dr. Drs. Muhaji, S.T., M.T. Dr. Mohammad Effendy, S.T., M.T. Aris Ansori, S.Pd., M.T. Dany Iman Santoso, S.T., M.T. Ika Nurjannah, S.Pd., M.T
The language used	Indonesian language
Classification in the curriculum	Compulsory course/ ~~elective studies~~
Learning format / number of class hours per week	Per week consists of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Lectures load	hours face-to-face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face-to-face / semester
SKS	2
Precondition	-
Learning objectives	1. Students understand the concept of

	entropy in adjusting mass and volume control systems 2. Students understand the concept of exergy in the control mass system and adjust volume 3. Students understand the Rankine cycle as a power-producing cycle 4. Students understand the standard Otto and Diesel air cycles 5. Students understand the standard Brayton air cycle
content	Understanding of the Second Law of Thermodynamics regarding the concept of entropy, exergy and the application of thermodynamic cycles to the industrial world. The Rankine cycle is a power-producing cycle equipped with supporting equipment to optimize performance such as superheat, reheat and supercritical. ntroduction of gas power systems such as the Otto, Diesel, Dual, and Brayton cycles equipped with reheating and intercooling.
Attribut soft skill	Good active communication
Learning / examination achievement	Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final grade (NA) is calculated according to the formula: (2xP) + (3xT) + (2xUTS) + (3xUS)

<table>
<tr><td></td><td>Convert the 0-100 Scale Values to a 0-4 scale and the letters are arranged as follows
<table>
<tr><th>Letter</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media form</td><td>Slidepower point</td></tr>
<tr><td>Reference</td><td>1. Moran, Michael J., Howard N. Saphiro, Daisie D. Boettner, and Margareth B. Bailey, 2011, Fundamentals of Engineering Thermodynamics 7th ed., John Wiley & Sons.
2. Cengel, Yunus A. and Boles, Michael A, 2010, Thermodynamics An Engineering Aproach 7th ed., McGraw-Hill.
3. Sonntag., Borgnakke., Van Wylen, 1998, Fundamental of Thermodynamics 7th ed., John Willey & Sons.
4. Holman, 1980, Thermodynamics, 3rd ed., McGraw-Hill.
5. Reynold, William C. and Perkin Henry C., 1977, Engineering Thermodynamics 2nd ed., McGraw-Hill.Kegiatan Pembelajaran</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Heat Transfer
Module Level	Bachelor
Abbreviation/code (if any)	52324302
Substitle (if any)	
Courses included in the module (If any)	
Semester/year level	3 / 2nd year
Module Coordinator	Priyo Heru Adiwibowo, S.T., M.T.
Lecturer	Priyo Heru Adiwibowo, S.T., M.T Dr. I Made Arsana, S.Pd., M.T Diah Wulandari, S.T., M.T. Indra Herlamba Siregar, S.T., M.T. Dr. Mohammad Effendy, S.T., M.T. Ika Nurjannah, S.Pd., M.T.
The Language used	Indonesian
Classification in the curriculum	Compulsory course / ~~elective studies~~
Learning format/number of class hour per week	Per week consists of: 3 hours face to face, 1 hour structured assignments, and 1 hour study independently (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	3 hours face to face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 75 hours face to face / semester
Credit Unit	2
Precondition	-
Learning objectives	1. College students are able to recognize the heat transfer phenomenon in the environment 2. College students are able to understand about conduction, convection and radiation heat transfer 3. College students are able to understand about forced and natural convection heat transfer 4. College students are able to understand about heat exchangers (radiator trainer, oil cooler, wire and tube heat exchanger)
Conntent	An understanding of the introduction of conductive heat transfer, convection and radiation, one-dimensional conductive heat transfer and two-dimensional conductive heat transfer for steady conditions (steady state)
Soft skill attributes	Good active communication

<table>
<tr><td>Learning/Examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xAssgmt)+(2xmid term)+(3x final exam)
10
Convert the 0-100 scale value to a 0-4 scale and letters are arranged as follows :

<table><tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr><tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr></table></td></tr>
<tr><td>Media form</td><td>Slide power point</td></tr>
<tr><td>Reference</td><td>1. Cengel, Y.A. 1998. Heat Transfer : A Practical Aproach. New York : Mc. Graw-Hill
2. Holman, J.P. 1994. Perpindahan Kalor, Edisi Keenam, Alih Bahasa Ir. E. Jasjfi, Msc, Erlangga, Jakarta: Penerbit Erlangga.
3. Incropera, Frank P. dan Dewitt, David P. 2011. Fundamental of
Heat and Mass Transfer. 7th Edition. John Wiley & Sons, Inc</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Practice motorbikes and small motorbikes
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if applicable)	35324303
Subtitles (if any)	
Courses included in the module (if any)	
Semester / year level	4 / 2nd year
Module coordinator	Dr. I Made Arsana, S.Pd., M.T
Powerful	Dr. Muhaji, S.T., M.T. Dr. Warju, S.Pd., S.T., M.T. Diastian Vinaya Wijanarko, S.T., M.T. Heru Arizal, S.Pd., M.M., M.Pd. Rachmad Syarifudin Hidayatullah, S.Pd., M.Pd.
The language used	Indonesia Language
Classification in the curriculum	Compulsory course (matakuliah wajib) /~~elective studies (matakuliah pilihan~~)
Learning format / number of class hours per week	Per week consists of: 3 hours face to face practicum, 1 hour structured assignments (1 hour face to face = 100 minutes / hour) (1 hour of structured work = 50 minutes / hour)
Load	3 hours face to face, 1 hour structured assignments, over 15 weeks, a total of 45 hours face to face / semester
SKS	3/4
Precondition	-
Learning objectives	5. Students can analyze the damage to the main components of a motorcycle 6. Students are able to do Overhoul according to the SOP on motorbikes 7. Students are able to do tune-ups according to the SOP on motorbikes
Content / content	Understanding of theory and practice, as well as analysis of the main components of a motorcycle and how they work, tune-up, engine service which includes the ignition system, fuel system, cooling system and lubrication system, braking system and overhouls of motorcycles.
Attribut soft skill	Good active communication, cooperation

<table>
<tr><td>Media form</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).
The final score (NA) is calculated by following the formula:NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the scale 0-100 to the scale 0-4 and the letters are set as follows.

<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Slidepower point, motorcycle unit, small motorbike, toolbox, tool set</td></tr>
<tr><td>Referensi</td><td>1. Daryanto. Buku ajar praktek sepeda motor
2. PT. INDOHERO, Pedoman Reparasi Mesin Seri K, Jakarta: PT. TAM, 1981 pp. 1-28
3. Manual Book Sepeda motor Honda Jakarta,
4. Muhaji, 2007. Petunjuk praktik Sepeda motor, Surabaya. University Press Unesa</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	CAD
level	Sarjana (S-1) / Bachelor
Abbreviation / code (if any)	36324201
Sub titles (if any)	
Subjects included in the module (if any)	
Semester / year level	1/tahun ke 3
Semester / year level	Akhmad Hafizh Ainur Rasyid, S.T., M.T.
Lecturer	Akhmad Hafizh Ainur Rasyid, S.T., M.T. Mochamad arif Irfa'i, S.Pd., M.T.
Language	Indonesian
Classification in the curriculum	Compulsory course (matakuliah wajib) /~~elective studies (matakuliah pilihan~~)
Learning format / number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of self-study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60
SKS	2/1
Prerequisite	engineering drawing
Learning objectives	1. Students can understand technical drawing preparation 2. Students can understand projection systems 3. Students can understand cutout images 4. Students are able to read and make drawings according to
Content	Understanding of drawing the design of Mechanical Engineering components computer-aided ISO standard Making working drawings, Making assembling images, Making
Attribut soft skill	Choosing the appropriate drawing creation step, Good active communication

Learning / examination achievement	Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).The final score (NA) is calculated by following the formula: $NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$ Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
Media form	*Slide power point,* Props
Referensi Mastering	Hidayat, Nur & Ahmad Shanhaji. 2011. Autodesk Inventor: 3D Mechanical Design. Jakarta: Informatika Santoso, Khomeni. 2009. Menggambar Mesin dengan Perintah Autocad. Jakarta: PT Darmawan, Djoko. 2004. Autocad 2002. untuk Teknik Mesin dan Industri. Jakarta: Elexmedia Komputindo Sugiarto, N & G. Takhesi Sato. 2002. Menggambar Teknik Menurut Standar ISO. Jakarta: Pradnya Paramita

Letter	Number	Interval
A	4,00	85 ≤ A <100
A-	3,75	80 ≤ A- < 85
B+	3,50	75 ≤ B+ <80
B	3,00	70 ≤ B < 75
B-	2,75	65 ≤ B- < 70
C+	2,50	60 ≤ C+ < 65
C	2,00	55 ≤ C < 60
D	1,00	40 ≤ D < 55
E	0,00	0 ≤ E < 40

Module Handbook

Module name	Painting and Body Repair Technology
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if any)	35324213
Subtitles (if any)	
Subjects included in module (if any)	
Semester/level of year	5/3rd year
Module coordinator	Firman Yasa Utama, S.Pd, M.T.
Instructor	Firman Yasa Utama, S.Pd, M.T. Saiful Anwar, S.Pd., M.T. Akhmad Hafizh Ainur Rasyid, S.T., M.T Dany Iman Santoso, S.T., M.T
The language used	Indonesian Language
Classification in the curriculum	Compulsory course / ~~elective studies~~
Learning format / number of class hours every week	Every week consists of : 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured = 50 minutes / hour) (1 hour of self study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour self study for 15 weeks, a total of 60 hours face to face / semester.
SKS	2
Precondition	-
Learning objectives	1. Having good morals, ethics and personality in followinglectures 2. Have knowledge and understanding of technologyPainting and Body Repair 3. Have an understanding that includes the preparation of work pieces andmaterials, mix composition, finishing, and managementpainting fee 4. Have an understanding and development of reasoning about TechnologyPainting and Body Repair 5. Have an understanding and development of reasoning about varioussupporting tools and tips that are widely used infield / industry 6. Able to interact and work together in teams, think in a waylogical and smart in solving the problems at handprofessionally in the field of Painting and Repair TechnologyBody
Content	Assessing technology, the painting process (diagnosing, designing), and repair / modification of motorized vehicle

<table>
<tr><td></td><td>bodies</td></tr>
<tr><td>Soft skill attribute</td><td>Good active communication, social interaction cooperation, deep coordinationteamwork solves various problems to find solutions</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final grade of at least 55 consisting of cumulative USS, US, structured activities (assignments / T) and participatory activities (P).

The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows:
<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75≤B+<80</td></tr>
<tr><td>B</td><td>3,00</td><td>70≤ B<75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65≤ B- <70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60≤C+<65</td></tr>
<tr><td>C</td><td>2,00</td><td>55≤C<60</td></tr>
<tr><td>D</td><td>1,00</td><td>40≤D<55</td></tr>
<tr><td>E</td><td>0,00</td><td>0≤E<40</td></tr>
</table></td></tr>
<tr><td>Media form</td><td>Slide power point and component sepcimen</td></tr>
<tr><td>Reference</td><td>1. Gunadi, M.Pd. 2011. Repainting the Vehicle Body. Yogyakarta:PT.Citra Aji Parama
2. Gunadi, M.Pd. 2011. Introduction to Vehicle Bodies. Yogyakarta:PT.Pustaka Insan Madani
3. Paint Handbook. 981. Mc Graw-Hill Book Company.
4. Auto Body Repair. 1975. Duenk Urhams. Brooks
5. 5. Etc ...</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Educational Management
Module Level	Undergraduate / Bachelor
Code (If Any)	52524202
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	3/2nd year
Name of Coordinator	Dr. Soeryanto, M.Pd,
Lecturers	Dr. Soeryanto, M.Pd, Dr. Yunus, M.Pd, Muamar Zainul Arif, S.Pd.,M.Pd
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours in class, 1 hour structured assignments, and 1 hour independent study. (1 hour face to face = 3 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 65 hours face-to-face / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to align the curriculum of scientific knowledge in vocational education that is relevant to the demands of global industrial development (PLO 1). Course Learning Outcomes (CLO) : 1. Students are able to master the basic concepts, roles and scope of educational management which includes management: students, curriculum, education personnel, facilities, financing, management and institutional relations with the community, as well as educational leadership. 2. Students are able to apply education management functions in the management of educational institutions which include student management, curriculum, educational staff, facilities, financing, management and institutional relations with the community, as well as educational leadership.
Module content	educational institution organization, curriculum

<table>
<tr><td></td><td>management, student management, education staff management, facilities management and financing</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2Xmid term)+(3xfinal exam)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point, AC Trainer</td></tr>
<tr><td>References</td><td>1. Gunawan, Iwan. 2016. Manajemen Pendidikan (Suatu Pengantar Praktik). Bandung: Alfabeta
2. Kompri. 2015.Manajemen Sekolah (Orientasi Kemandirian Kepala Sekolah). Yogyakarta:Pustaka Pelajar
3. Rohman, M & Amri, S.2015.Manajemen Pendidikan (Analisis dan Solusi Terhadap Kinerja Manajemen Kelas dan Strategi Pengajaran Yang Efektif).</td></tr>
<tr><td>Date of last amandement made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module Name	Car Air Conditioner Practicum
Module Level	Undergraduate / Bachelor
Code (If Any)	35324205
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	5/3rd year
Name of Coordinator	Drs. I Made Muliatna, M.Kes.
Lecturers	Drs. I Made Muliatna, M.Kes. Dr.A. Grummy Wailanduw, M.Pd., M.T. Aris Anshori, S.Pd., M.T. Heru Arizal, S.Pd., M.Pd., M.M.
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours of practicum, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 75 hours in class / semester
Number of Credits	2
Prerequisite Module	Car Air Conditioner Technology (theory) and Automotive Electricity (theory)
Learning Objectives	Program Learning Outcomes (PLO): 1. Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). 2. Able to operate mechanical and digital-based production machines to produce workpieces and maintain and repair motorized vehicles according to standard procedures relevant to the development of the global industry (PLO 6). 3. Able to apply technopreneurship, service advisor, supervisor of the mechanical engineering industry relevant to the development of the global industry (PLO 7).

<table>
<tr><td></td><td>Course Learning Outcomes (CLO) :
have good morals, ethics and personality in attending lectures, have knowledge of car air conditioning components and their working principles, have skills to analyze disturbances in car air conditioning systems, have skills for Overhaul, Measurement and Reassembly , have the skills to do Refrigerant Charging (Freon) on Car Air Conditioners, be able to interact and work together in teams, think logically and intelligently in solving problems faced professionally in the field of Car AC.</td></tr>
<tr><td>Module content</td><td>Studies on Car Air Conditioning Equipment, Introduction to Car Air Conditioning Components, Car AC Working Principles, overcoming damage to the Car AC electrical system, carrying out compressor overhauls and assembling properly and implementing Freon charging procedures.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xmid term)+(3xfinal exam)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Engine trainer and its components</td></tr>
<tr><td>Referensi</td><td>1. Dasar-dasar AC Mobil untuk Otomotif, 1987. VEDC Malang
2. I Made Muliatna (2010) Materi Ajar AC Mobil, Surabaya: Jurusan PTM – FT Unesa
3. Toyota Air Conditioner, 1989, Jakarta: Toyota Motor
4. New Step 1. Training Manual, 1995. Jakarta. Toyota Motor</td></tr>
</table>

Module Handbook

Module name	Vocational School Curriculum Studies
Module level	Bachelor(S-1)
Abbreviation / code (if any)	52424302
Subtitles (if any)	
Courses included in the module(If there is)	
Semester / year level	2/ first year
Module coordinator	Dr. Drs. Dewanto, M.Pd
Observers	Dr. Drs. Dewanto, M.Pd
The language used	Indonesialanguage
Classification in the curriculum	Compulsory course /~~elective studies~~
Learning format / number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of self-study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour self study, for 15 weeks, a total of 60 hours face-to-face / semester
SKS	2/1
Precondition	-
Learning objectives	Students have: 1. Understanding the meaning of the curriculum 2. Understanding curriculum design and engineering 3. Understanding the position of the curriculum in education 4. An understanding of the characteristics of the SMK curriculum 5. Skills to design and engineer SMK curriculum 6. Understanding the principles of curriculum development and curriculum development concept models 7. Understanding Curriculum Development Models 8. Understanding Curriculum Evaluation 9. Understanding and interpreting content standards 10. Skills mastery describes the competency standards of graduates 11. Mastery of skills to develop KTSP 12. Mastery of skills in compiling KTSP

Content	Understanding of the curriculum in general, the SMK curriculum in particular, the techniques of curriculum development and its strengths and weaknesses, the difference between the SMK curriculum compared to the curriculum in general, K13 and its preparation techniques, contentlocal and local content determination techniques at SMK
Attribut soft skill	Active and collaborative, communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).

The final score (NA) is calculated by following the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table><tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A<100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- <85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+<80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B <75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- <70</td></tr><tr><td>C+</td><td>2,50</td><td>60 ≤ C+ <65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C <60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D <55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E <40</td></tr></table></td></tr>
<tr><td>Media form</td><td>Slidepower point, vidio</td></tr>
<tr><td>Reference</td><td>1. Yatim Riyanto (2006). Pengembangan Kurikulum dan seputar KTSP. University PresSurabaya
2. E Mulyasa (2007). Kurikulum Tingkat Satuan Pendidikan (KTSP).PT Remaja Rosdakarya, Bandung Cetakan ke tiga Maret 2007. Badung
3. Abdul Majid (2007). Perencanaan Pembelajaran. PTRemaja Rosdakarya, Bandung Cetakan ke tiga Maret 2007.Badung
4. Wina Sanjaya (008). Perencanaan dan desainsistem pembelajaran. Kencana Prenada Media Group</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Learning Evaluation
Module Level	Undergraduate / Bachelor
Code (If Any)	52424305
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	5/3rd year
Name of Coordinator	Dr. Mochamad Cholik, M.Pd.
Lecturers	Dr. Mochamad Cholik, M.Pd. Prof. Dr. H. Muchlas, M.Pd.
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 3 hours in class, 1 hour structured assignments, and 1 hour self -study. (1 hour face to face = 3 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	3 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 65 hours face-to-face / semester
Number of Credits	3
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): 1. Able to align the curriculum of scientific knowledge in vocational education that is relevant to the demands of global industrial development (PLO 1). 2. Able to plan, implement, and evaluate innovative and effective learning programs in vocational engineering education that are relevant to the development of the global industry (PLO 2). Course Learning Outcomes (CLO) : Students have the ability to plan evaluation in mechanical engineering education learning oriented towards assessment standards, have knowledge of learning evaluation theory and student characteristics to compile assessment instruments,

<table>
<tr><td></td><td>have the ability to design and select appropriate learning evaluation models according to student characteristics, have responsible attitude in developing assessment of learning outcomes in accordance with National Education Standards, especially assessment standards.</td></tr>
<tr><td>Module content</td><td>Understanding and assessing various basic principles, procedures for measuring and assessing learning outcomes in the field of study, planning the preparation of various types of implementation, principles of validity and reliability, analyzing and interpreting test results, improving the formulation of cognitive, affective, and psychomotor aspects, measuring psychomotor aspects of skills.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>1. Ari Kunto, Suharsimi. 1986. Dasar-Dasar Evaluasi Pendidikan. Jakarta: Bina Aksara.
2. Tuckman, BW. 1976. Measuring Educational Outcomes. New York: Harcarl B. Javanorics.Kardi,</td></tr>
</table>

	3. Suparman. 1994. Bagaimana Mengembangkan Tes Hasil Belajar. Surabaya: Unipress Ikip Surabaya.
Notes	-

Module Handbook

Module name	Gasoline Motor Technology Practices
Module level	Undergraduate / Bachelor
Abbreviation / code (if any)	35424302
Subtitles (if any)	-
Courses included in the module (if any)	-
Semester / year level	5/ 3st year
Module coordinator	Dr. Warju, S.Pd., S.T., M.T.
supporting lecturer	Dr. Warju, S.Pd., S.T., M.T. Dr. Muhaji, S.T., M.T. Dr. I Made Arsana, S.Pd., M.T. Drs. I Made Muliatna, M.Kes. Rachmad Syarifudin Hidayatullah, S.Pd., M.Pd.
The language used	Indonesian
Classification in the curriculum	Compulsory course /~~elective studies~~
Learning format / number of class hours per week	Per week consists of: 3 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	3 hours of practicum, 1 hour of structured assignments, 1 hour of independent study, during 15 weeks, a total of 75 hours face-to-face / semester
SKS	3
Precondition	Has taken the Gasoline Motor Technology course
Learning objectives	1. Students have good morals, ethics and personality in attending lectures. 2. Students are able to understand about tune-up, unloading, measuring and knowing how the gasoline motor components work, including: cooling system, lubrication, fuel, ignition, and how to overcome if a disturbance occurs. 3. Students are able to cooperate and be responsible in developing the petrol motorbike practice field.
Content	Studies on how to carry out inspection, repair and maintenance of a gasoline motorbike include: tune-up, unloading, measuring, and knowing how the gasoline motor components work including: cooling system, lubrication, fuel, ignition, and how to deal with it when it occurs distraction
Soft skill attributes	Active communication, cooperation, discipline, and

<table>
<tr><td></td><td>responsibility</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum final grade of 55 consisting of cumulative USS, US, activities
structured (task / T) and participatory activities (P).
The final grade (NA) is calculated according to the formula:
NA = $\frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are set as follows
<table><tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr><tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr></table></td></tr>
<tr><td>Media form</td><td>Engine trainer and all of its components</td></tr>
<tr><td>Reference</td><td>1. PT. Toyota-Astra Motor. 1985. Pedoman Reparasi Mesin Seri K (2K, 3K, 4K, 5K). Jakarta: PT. Toyota-Astra Motor.
2. PT. Toyota-Astra Motor. 1995. Pedoman Reparasi Mesin Seri 7K. Jakarta: PT. Toyota-Astra Motor.
3. PT. Toyota-Astra Motor. 2006. Manual Book Engine Type K3-VE (Avanza). Jakarta: PT. Toyota-Astra Motor.
4. PT. Toyota-Astra Motor. 2006. Manual Book Engine Type EJ-VE (Xenia). Jakarta: PT. Toyota-Astra Motor.
5. PT. Toyota-Astra Motor. 2010. Manual Book Engine Type 1NZ-VE (Vios). Jakarta: PT. Toyota-Astra Motor.
6. PT. Toyota-Astra Motor. 1992. Pedoman Reparasi Mesin Toyota Corolla 1.8L. Jakarta: PT. Toyota-Astra Motor.
7. PT. Toyota-Astra Motor. 1997. Electronic Fuel Injection (EFI) Manual Guide. Jakarta: PT. Toyota-Astra Motor.
8. PT. Astra Daihatsu Motor. Manual Book Mesin Daihatsu Zebra Espass. Jakarta: PT. Astra Daihatsu Motor.
9. PT. Suzuki Indomobil. Manual Book Mesin Seri SJ-410 Suzuki Carry/Katana. Jakarta: PT. Suzuki Indomobil.</td></tr>
<tr><td>Date of last amandement made</td><td></td></tr>
<tr><td>Note</td><td>Manual book
other automotive brands were also used</td></tr>
</table>

Module Handbook

Module name	Chassis Technology
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if applicable)	35324214
Semester / year level	5 / 3nd year
Module coordinator	Aris Anshori, S.Pd., M.T
Powerful	Diastian Vinaya Wijanarko, S.T., M.T. Muamar Zainul Arif, S.Pd., M.Pd
The language used	Indonesia Language
Classification in the curriculum	Compulsory course (matakuliah wajib) /~~elective studies (matakuliah pilihan~~)
Learning format / number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour), (1 hour of structured work = 50 minutes / hour) , (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face to face / semester
SKS	2/3
Precondition	-
Learning objectives	1. Students have good morals, ethics and personality in attending lectures. 2. Students are able to understand the understanding of body, chassis and control of the work process of the power transmission system, clutch, brake, steering, suspension, differential, front wheel alignment and axles. 3. Students have skills about understanding body, chassis and control of the work process of the power transmission system, clutch, brake, steering, suspension, differential, front wheel alignment and axles 4. Students are able to cooperate and be responsible in developing the field of chassis technology
Content / content	This course is an introduction to the principles of work and power transfer system components and vehicle chassis found on four-wheeled or two-wheeled vehicles. The discussion begins with the development of vehicle chassis technology four wheels and two wheels, the type / type of drive on wheeled vehicle four and two wheels, clutch system, manual transmission system, transmission automatic (AT) type planetary gear and CVT type, propeller system, deferential, a two-wheeled vehicle power transfer component, tire technology, frame system, hydraulic brake system, ABS brake, EBS brake, suspension system, rack and pinion

<table>
<tr><td></td><td>steering system, type steering system recirculating ball, power steering, EPS (electric powersteering),
wheel balancing and wheel geometry</td></tr>
<tr><td>Attribut soft skill</td><td>Active and collaborative communication</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).
The final score (NA) is calculated by following the formula:NA = $\frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the scale 0-100 to the scale 0-4 and the letters are set as follows.

<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media form</td><td>Slidepower point, video</td></tr>
<tr><td>Referensi</td><td>1. Anwir, B.S. 1980.Seri Pelajaran Teknologi Secara BergambarTeknik Mobil. Jakarta: Barata Karya Aksara.
2. Toyota.1985.Dasar-Dasar Automobil. Jakarta:Astra Motor Service edition.</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module name	Statistics
Module level	Bachelor (S-1) / Bachelor
Abbreviation / code (if any)	52324210
Subtitles (if any)	
Subjects included in module (if any)	
Semester / year level	2 / 1st year
Module coordinator	Prof. Dr. Ir. Aisyah Endah Palupi, M.Pd.
Pengampu	Prof. Dr. Ir. Aisyah Endah Palupi, M.Pd. Dr. Mochamad Cholik, M.Pd. Bellina Yunitasari, S.Si., M.Si.
The language used	Indonesian
Classification in the curriculum	Compulsory course (compulsory courses) / elective studies (courses ~~selection)~~
Learning format / number of class hours per week	Per week of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes/hour) (1 hour of self-study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour self study, for 15 weeks, a total of 60 hours face-to-face / semester
SKS	2/1
Precondition	-
Learning objectives	1. Students have an understanding of the basic statistical theoretical concepts and types of data. (ABILITIES IN THE FIELD OF KNOWLEDGE) 2. Students have the ability to explain descriptive statistical theory and inferential statistics (parametric and non-parametric). (ABILITIES IN THE FIELD OF KNOWLEDGE) 3. Students have the ability to present and analyze data to support thesis preparation. (ABILITY IN THE FIELD OF WORK)
Content / content	This course provides an understanding of the basic statistical theory and types of data, data presentation and analysis in supporting the preparation of a thesis both in statistical analysis, both descriptive and inferential statistics (parametric and non-parametric). Learning is carried out by applying a constructivist approach. The learning activity ends with an exercise in analyzing and presenting research data
Soft skill attributes	Good active communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get

Minimum value of 55 consisting of UTS, US, structured activities (assignments / T)
and participatory activities (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP) + (3xT) + (2xUTS) + (3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows:

<table>
<tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- <85</td></tr>
<tr><td>B +</td><td>3.50</td><td>75 ≤ B + <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B <75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- <70</td></tr>
<tr><td>C +</td><td>2.50</td><td>60 ≤ C + <65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C <60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D <55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E <40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Power point slides</td></tr>
<tr><td>Reference</td><td>1. Sujana. (1989). Metoda Statistika. Bandung:Tarsito.
2. Sugiono. (1994). Metoda Penelitian Administrasi. Bandung:Alfabeta
3. Djarwanto & Subagyo. (1994). Statistik Induktif. Yogyakarta:BPFE.
4. Sugiono (2016). Metode Penelitian Pendidikan. Bandung:Alfabeta
5. Suparji, dkk (2019). Statistik untuk Penelitian Pendidikan.Surabaya:
Prima Abadi Jaya</td></tr>
</table>

Module Handbook

Module name	Diesel Motor Technology Practice
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if any)	35424306
Subtitles (if any)	

<table>
<tr><td>Subjects included in module (if any)</td><td></td></tr>
<tr><td>Semester/level of year</td><td>5/3rd year</td></tr>
<tr><td>Module coordinator</td><td>Dr. Warju, S.Pd., S.T., M.T.</td></tr>
<tr><td>Instructor</td><td>Dr. Warju, S.Pd., S.T., M.T.
Dr. Muhaji, S.T., M.T.
Dr. I Made Arsana, S.Pd.,
M.T. Drs. I Made Muliatna,
M.Kes.
Rachmad Syarifudin Hidayatullah, S.Pd., M.Pd.</td></tr>
<tr><td>The language used</td><td>Indonesian Language</td></tr>
<tr><td>Classification in the curriculum</td><td>Compulsory course / ~~elective studies~~</td></tr>
<tr><td>Learning format / number of class hours every week</td><td>Every week consists of :
2 hours face to face, 1 hour structured assignments,
and 1 hour self study.
(1 hour face to face = 50 minutes / hour)
(1 hour of structured = 50 minutes /
hour)
(1 hour of self study = 60 minutes / hour)</td></tr>
<tr><td>Load</td><td>3 hours face to face, 1 hour structured assignments, 1 hour self study for 15 weeks, a total of 75 hours face to face / semester.</td></tr>
<tr><td>SKS</td><td>3</td></tr>
<tr><td>Precondition</td><td>Has taken the Gasoline Motor Technology course.</td></tr>
<tr><td>Learning objectives</td><td>1. Students have good morals, ethics and personality in attending lectures.
2. Students are skilled at fixing disruptions to diesel motor vehicles.</td></tr>
<tr><td>Content</td><td>Understanding of assembling of the components of Diesel`s motor, how to overcome of a with disturbances, testing for motor work</td></tr>
<tr><td>Soft skill attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final grade of at least 55 consisting of cumulative USS, US, structured activities (assignments / T) and participatory activities (P).

The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows:
<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75≤B+<80</td></tr>
<tr><td>B</td><td>3,00</td><td>70≤ B<75</td></tr>
</table>
</td></tr>
</table>

	B-	2,75	65≤ B- <70
	C+	2,50	60≤C+<65
	C	2,00	55≤C<60
	D	1,00	40≤D<55
	E	0,00	0≤E<40
Media form	Engine trainer and all its components		
Reference	1. Petrovsky,N.1968.*Manne Internal CombustionEngine*.Moscow: MIRPublisher. 2. ObbertEdward F.*Internal Combustion Engines andAir Polution*. New York: Harper &Row. 3. Anonim, 1995, NewStep 1 Training Manual. Jakarta: PT. Toyota AstraMotor. 4. Anonim, 1995, Materi PelajaranEngine Group Step 2. Jakarta: PT. Toyota AstraMotor.		
Date of last amandement made			
Note	*Manual book* other automotive brands were also used.		

Module Handbook

Module name	Practice Painting and Body Repair Technology
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if any)	35424307
Subtitles (if any)	
Semester/level of year	6/3rd year
Module coordinator	Firman Yasa Utama, S.Pd, M.T.
Instructor	Firman Yasa Utama, S.Pd, M.T. Saiful Anwar, S.Pd., M.T. Akhmad Hafizh Ainur Rasyid, S.T., M.T Dany Iman Santoso, S.T., M.T
The language used	Indonesian Language
Classification in the curriculum	Compulsory course / ~~elective studies~~
Learning format / number of class hours every week	Every week consists of : 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured = 50 minutes / hour) (1 hour of self study = 60 minutes / hour)

<table>
<tr><td>Load</td><td>2 hours face to face, 1 hour structured assignments, 1 hour self study for 15 weeks, a total of 75 hours face to face / semester.</td></tr>
<tr><td>SKS</td><td>3</td></tr>
<tr><td>Precondition</td><td>-</td></tr>
<tr><td>Learning objectives</td><td>1. Having good morals, ethics and personality in followinglectures
2. Have knowledge and understanding of technologyPainting and Body Repair
3. Have an understanding that includes the preparation of work pieces andmaterials, mix composition, finishing, and managementpainting fee
4. Have an understanding and development of reasoning about TechnologyPainting and Body Repair
5. Have an understanding and development of reasoning about varioussupporting tools and tips that are widely used infield / industry
6. Able to interact and work together in teams, think in a waylogical and smart in solving the problems at handprofessionally in the field of Painting and Repair TechnologyBody</td></tr>
<tr><td>Content</td><td>The process of implementing body painting and repair includes:
predegreasing, base coat, main coat, top coat, finishing. Use
various support tools and tips that are widely used in field / industry.</td></tr>
<tr><td>Soft skill attribute</td><td>Good active communication, social interaction cooperation, deep coordinationteamwork solves various problems to find solutions</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final grade of at least 55 consisting of cumulative USS, US, structured activities (assignments / T) and participatory activities (P).

The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows:
<table>
<tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75≤B+<80</td></tr>
<tr><td>B</td><td>3,00</td><td>70≤ B<75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65≤ B- <70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60≤C+<65</td></tr>
<tr><td>C</td><td>2,00</td><td>55≤C<60</td></tr>
<tr><td>D</td><td>1,00</td><td>40≤D<55</td></tr>
</table></td></tr>
</table>

	E	0,00	0≤E<40
Media form	Slide power point and component sepcimen		
Reference	1. Gunadi, M.Pd. 2011. Repainting the Vehicle Body. Yogyakarta:PT.Citra Aji Parama 2. Gunadi, M.Pd. 2011. Introduction to Vehicle Bodies. Yogyakarta:PT.Pustaka Insan Madani 3. Paint Handbook. 981. Mc Graw-Hill Book Company. 4. Auto Body Repair. 1975. Duenk Urhams. Brooks 5. 5. Etc ...		

Module Handbook

Module Name	Thesis Proposal
Module Level	Undergraduate / Bachelor
Code (If Any)	52424101
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	7/4th year
Name of Coordinator	Dr, Soeryanto, M.Pd.
Lecturers	Dr, Soeryanto, M.Pd.
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 1 hour in class, 1 hour structured assignments, and 1 hour of self study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	1 hour in class, 1 hour structured assignments, 1 hour of

<table>
<tr><td></td><td>independent study, for 15 weeks, a total of 15 hours face to face / semester</td></tr>
<tr><td>Number of Credits</td><td>1</td></tr>
<tr><td>Prerequisite Module</td><td>-</td></tr>
<tr><td>Learning Objectives</td><td>Program Learning Outcomes (PLO):
Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4).
Course Learning Outcomes (CLO) :
1. Students can present a scientific paper design in accordance with applicable rules and can present it in front of an examiner
2. Students can independently design scientific papers that reflect production by combining technical technical knowledge and educational knowledge.</td></tr>
<tr><td>Module content</td><td>Discussion on (1) idea determination (2) concept and systematics of proposal writing. (3) Preparation of proposals</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xmid\ term)+(3xfinal\ exam)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>TIM. 2014. Pedoman Penulisan Skripsi: Program Sarjana Strata Satu (S-1) Universitas Negeri Surabaya. Surabaya:</td></tr>
</table>

	UNIPRESS
Date of last amandement made	-
Notes	-

Module Handbook

Module Name	Analisis Performansi Mesin
Module Level	Undergraduate / Bachelor
Code (If Any)	35324222
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	6/3rd year
Name of Coordinator	Dr. Warju, S.Pd., S.T., M.T.
Lecturers	Dr. Warju, S.Pd., S.T., M.T. Dr. Muhaji, S.T., M.T. Diastian Vinaya Wijanarko, S.T., M.T.
Language	Indonesia
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours of practicum, 1 hour of structured assignments, 1 hour of independent study, for 15 weeks, a total of 50 hour in class / semester
Number of Credits	3
Prerequisite Module	Gasoline Engine Technology, Diesel Engine Technology, Motorcycles & Small Engine Practicum, Gasoline engine Practicum, Diesel engine Practicum
Learning Objectives	Program Learning Outcomes (PLO): 1. Able to apply applied research for innovation in vocational learning methods, optimization of

<table>
<tr><td></td><td>production process technology and mechanical engineering services that are relevant to the needs of industrial development (PLO 3)
2. Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4).
3. Able to apply technopreneurship, service advisor, supervisor of the mechanical engineering industry relevant to the development of the global industry (PLO 7).
Course Learning Outcomes (CLO) :
students have good morals, ethics and personality in following lectures, are able to understand and master in theory and practice about motor vehicle engine performance testing which includes testing torque, effective power, specific fuel consumption, average effective pressure, efficiency thermal, exhaust emissions, and noise levels.</td></tr>
<tr><td>Module content</td><td>Study on how to test motor vehicle engine performance which includes testing of torque, effective power, specific fuel consumption, average effective pressure, thermal efficiency, exhaust gas emissions, and noise levels.</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
$NA = \frac{(2xP)+(3xT)+(2xmid\ exam)+(3xfinal\ exam)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
</table></td></tr>
</table>

	E | 0.00 | 0 ≤ E < 40
Media	Motorcycle engines, cars, engine trainers, and all its components
References	1. Warju. 2009. *Pengujian Performa Mesin Kendaraan Bermotor.* Surabaya: Unesa University Press. 2. Warju. 2013. *Teknologi Reduksi Emisi Gas Buang Kendaraan Bermotor*. Surabaya: Unesa University Press. 3. Sutantra, I. N. 2010. *Teknologi Otomotif*. Surabaya: ITS-Press. 4. Obert, E. F. 1973. *Internal Combustion Engine and Air Pollution (3rd Edition)*. New York: Harper & Row, Publishers, Inc. 5. Heywood, J. B. 1988. *Internal Combustion Engine Fundamentals*. New York: McGraw-Hill, Inc. 6. Hesiler, H. 1995. *Advanced Engine Technology*. London: Edward Arnold.
Date of last amandement made	-
Notes	-

Module Handbook

Module name	Corrosion Engineering
Module level	Bachelor (S-1) / Bachelor
Abbreviation / code (if any)	52324218
Subtitles (if any)	
Courses included in the module (if any)	

Semester / year level	2 / 1st year
Module coordinator	Prof. Dr. Ir. Aisyah Endah Palupi, M.Pd.
Pengampu	Prof. Dr. Ir. Aisyah Endah Palupi, M.Pd. Bellina Yunitasari, S.Si.,M.Si.
The language used	Indonesian
Classification in the curriculum	Compulsory course (compulsory courses) / elective studies (elective courses)
Learning format / number of class hours per week	Per week consists of: 2 hours face to face, 1 hour structured assignments, and 1 hour self-study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 60 hours face to face / semester
SKS	2
Precondition	-
Learning objectives	1. Students have good morals, ethics and personality in attending lectures; 2. Able to understand the basic ideas, concepts, examples, results, techniques, and methods for studying Corrosion Engineering, starting from understanding the types of corrosion, the mechanism of occurrence, and the causative factors, and being able to control the occurrence of corrosion 3. Students are able to know and be able to distinguish materials that are resistant or not resistant to corrosion; 4. Students are able to interact and work together in teams, be responsible, think logically and intelligently in solving problems faced professionally in the field of Corrosion Engineering.
Content / content	Understanding of the principles of corrosion, corrosion kinetics and thermodynamics of corrosion, Pourbai Diagram, polarization, passivation, measurement of corrosion speed, metallurgical aspects, corrosion testing, forms of corrosion, high temperature corrosion, cathodic protection, anodic protection, coatings, inhibitors, material selection and design , monitoring and inspection, analysis of corrosion damage, standards related to the corrosion field.
Soft skill attributes	Good active communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a final score of at least 55 which consists of cumulative USS, US, structured activities (assignments / T) and participatory activities (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP) + (3xT) + (2xUTS) + (3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows:
<table>
<tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- <85</td></tr>
<tr><td>B +</td><td>3.50</td><td>75 ≤ B + <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B <75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- <70</td></tr>
<tr><td>C +</td><td>2.50</td><td>60 ≤ C + <65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C <60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D <55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E <40</td></tr>
</table>
</td></tr>
<tr><td>Media form</td><td>Power point slides</td></tr>
<tr><td>Reference</td><td>1. Jones DA, Principles & Prevention of Corrosion, Mc Millan Pubs. Co., 1992
2. Fontana, Corrosion Engineering, 3rd Ed., Mc GrawHill, Tokyo, 1992.
3. Roberge Pierre R, Handbook of Corrosion Engineering, Mc Graw 13 Hill Handbook, 1999
4. Materials from the Internet and other literature</td></tr>
</table>

Module Handbook

Module name	Chassis Technology Practices
Module level	Sarjana (S-1) / Bachelor
Abbreviation / code (if applicable)	36424308
Subtitles (if any)	
Courses included in the module (if any)	
Semester / year level	6 / 3nd year
Module coordinator	Aris Anshori, S.Pd, M.T
Powerful	Diastian Vinaya Wijanarko, S.T., M.T. Muamar Zainul Arif
The language used	Indonesia Language
Classification in the curriculum	Compulsory course (matakuliah wajib) /~~elective studies (matakuliah pilihan~~)

Learning format / number of class hours per week	Per week consists of: 3 hours of practicum, 1 hour of structured assignments, and 1 hour of independent study. (1 hour of practicum = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	3 hours of practicum, 1 hour of structured assignments, 1 hour of independent study, during 15 weeks, a total of 75 hours face-to-face / semester
SKS	3
Precondition	-
Learning objectives	Able to maintain and repair in accordance with the component SOP the main component of the power transfer system and the chassis in the vehicle four wheels, such as; clutch system, manual transmission, transmission automatic, propeller shaft, differential, frame, tire, drum brake system, disc brakes, ABS brakes, rack and pinion type steering system and recirculating ball, power steering, EPS, suspension system and adjustments wheel geometry.
Content / content	Understanding of theory and practicum about maintenance and repair the main components of the vehicle power transfer system which includes clutches, manual and automatic transmissions, axle types propellers, differentials and chassis components, such as tires and rims, brakes drum, disc brakes, ABS brakes, power steering, EPS type steering system rack and pinion and recirculating ball type, suspension system, balancing and wheel geometry
Attribut soft skill	Active and collaborative communication

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P).
The final score (NA) is calculated by following the formula:NA = $\frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the scale 0-100 to the scale 0-4 and the letters are set as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media form</td><td>Slidepower point, traineer</td></tr>
<tr><td>Referensi</td><td>1. A. Aris. 2009. Panduan Praktikum Chasis.
2. PT. Indomobil. 1998. Pedoman Reparasi Chasis dan Sistem Pemindah Tenaga. Jakarta: PT. Indomobil
3. PT. Toyota Astra Mobil. 1981. Pedoman Reparasi Chasis . Jakarta: PT. Toyota Astra Motor VEDC, 2009. Geometri roda. Malang: VEDC Malang
4. VEDC, 2009. Sistem Pemindah Tenaga. Malang: VEDC MalangJakarta: PT. Toyota Astra Motor
5. Wardhana, Wisnu Arya. 2001.Dampak Pencemaran Lingkungan. Yogyakarta: Penerbit Andi</td></tr>
<tr><td>Note</td><td></td></tr>
</table>

Module Handbook

Module Name	Community Service (KKN)
Module Level	Undergraduate / Bachelor
Code (If Any)	90610303
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	5/3rd year
Name of Coordinator	Drs. I Made Muliatna, M.Kes.
Lecturers	Drs. I Made Muliatna, M.Kes. Dr. Soeryanto, M.Pd.

Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 3 hours in class, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 3 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	3 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 65 hours face-to-face / semester
Number of Credits	3
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). Course Learning Outcomes (CLO) : 1. Providing KKN Students to be able to assist government programs in humanitarian projects 2. Providing KKN students to be able to assist government programs in entrepreneurship projects 3. Providing KKN students to be able to assist government programs in village projects; and 4. Providing KKN students to be able to assist government programs in the development of education in villages 5. The assessment of the student achievement of KKN participants is a combination of the values that can be achieved by students from each stage of the activity, starting from the pre-dropping of KKN. Implementation, reporting and responsiveness / impact of implementation.
Module content	Designing the KKN program, implementing the KKN program, and Reporting the Results of the KKN Learning are carried out using the Pre-Practice and Practice . Pre practice, given two months before practicing the KKN by providing lecture materials
Soft Skill Attribute	Active communication, cooperation, discipline, and responsibility.

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xmid exam)+(3xfinal exam)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>Buku Pedoman Pelaksanaan KKN Unesa Buku Pedoman KKN-PPM Perguruan Tinggi, Direktorat Pendidikan Tinggi, DepartemenPendidikan Nasional</td></tr>
</table>

Module Handbook

Module Name	Mechanical Maintenance Engineering
Module Level	Bachelor
Abbreviation/code (if any)	35324208
Substitle (if any)	
Courses included in the module (If any)	
Semester/year level	5 / 3rd year
Module Coordinator	Iskandar, S.T., M.T
Lecturer	Drs. Budihardjo Achmadi Hasyim, M.Pd Iskandar, S.T., M.T Rachmad Syarifudin Hidayatullah, S.Pd., M.Pd
The Language used	Indonesian
Classification in the curriculum	Compulsory course /~~ elective studies~~
Learning format/number of class hour per week	Per week consists of: 3 hours face to face, 1 hour structured assignments, and 1 hour study independently (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour

<table>
<tr><td></td><td>self study, for 15 weeks, a total of 60 hours face-to-face / semester</td></tr>
<tr><td>Credit Unit</td><td>2</td></tr>
<tr><td>Precondition</td><td>-</td></tr>
<tr><td>Learning objectives</td><td>4. College students have good morals, ethics and personality inside attend lectures.
5. College students have knowledge of maintenance procedures machine tools and industries include: diagnose engine operation errors, diagnose the wear of engine parts, maintain machine parts, and apply steps implementation of machine maintenance.
6. College students have the ability to diagnose engine operation errors, diagnose the wear of engine parts, maintain machine parts, and apply steps implementation of machine maintenance.
7. College students are able to interact and work together in teams, think logically and intelligently in solving problems faced professionally in the field of machine maintenance.</td></tr>
<tr><td>Conntent</td><td>Understanding the concept of reliability and its application in maintenance, maintenance, inspection and management of machines and their equipment
Understanding the concept of reliability and its application in maintenance, maintenance, inspection and management of machines and their equipment</td></tr>
<tr><td>Soft skill attributes</td><td>Communicative andcollaborative</td></tr>
<tr><td>Learning/Examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xAssgmt)+(2xmid term)+(3x final exam)
10
Convert the 0-100 scale value to a 0-4 scale and letters are arranged as follows :

<table>
<tr><th>Alphabet</th><th>Numbers</th><th>Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>Reference</td><td>1. Campbell,John .D dan Jardine, Andrew K.S.,(2001), Maintenance Excellence, 1stedition, Marcel Dekker, Inc, New York-USA.Tobias, Paul.A dan Trindade, David .C,</td></tr>
</table>

	(1995), Applied Reliability, 2ndedition, Kluwer Academic Publisher, Norwell, Massachsetts 02061 USA. 2. Suharto.1989. Manajemen perawatan mesin .Jakarta : Rineka Cipta. Maintenance Engineering Hand BookBahan-bahandari Internet dan kepustakaan lain
Note	

Module Handbook

Module Name	Teaching and Learning Program (PLP)
Module Level	Undergraduate / Bachelor
Code (If Any)	90210210
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	4/2nd year
Name of Coordinator	Dr.Djoko Suwito, M.Pd.
Lecturers	Dr. Djoko Suwito, M.Pd. Dr. T. Wiyanto, M.Pd.
Language	Imdonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours in class, 1 hour structured assignments, and 1 hour independent study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in class, 1 hour structured assignments, 1 hour of independent study, for 10 weeks, Total 40 hours face to face and 5 weeks or 20 hours of observation to school / semester
Number of Credits	2
Prerequisite Module	Basic Education and has a minimum of 40 credits.
Learning Objectives	Program Learning Outcomes (PLO): 1. Able to align the curriculum of scientific knowledge in vocational education that is relevant to the demands of global industrial development (PL0 1). 2. Able to plan, implement, and evaluate innovative and effective learning programs in vocational engineering education that are relevant to the development of the global

	industry (PLO 2). 3. Able to apply applied research for innovation in vocational learning methods, optimization of production process technology and mechanical engineering services that are relevant to the needs of industrial development (PLO 3). 4. Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4) . 5. Have a positive, honest, disciplined, diligent, aesthetic, efficient-effective, and responsible personality (PLO 5). Course Learning Outcomes (CLO) : 1. Describe the general characteristics of students who will become responsible for educational praxis 2. Describe the organizational structure and work procedures of the school; 3. Describe school rules and regulations; 4. Identifying formal ceremonial activities at school; 5. Identifying routine activities in the form of curricular, co-curricular and extracurricular activities, and 6. Describe the practices of positive refraction and habits in schools.
Module content	An understanding of the concept of general characteristics of students who will later become responsible for educational praxis, school organizational structure and work procedures, school rules and regulations, formal ceremonial activities in schools, routine activities in the form of curricular, co-curricular and extracurricular activities, and the practices of positive refraction and habits in schools.
Soft Skill Attribute	Active communication, cooperation, discipline, and responsibility.

<table>
<tr><td>Learning / examination achievement</td><td>
PLP Assessment System I
1. The components and weight of the PLP I assessment consist of:
2. Assessment format using the format provided (attached);
3. The assessment is carried out by the PLP I supervisor according to the components and the weighted rating specified.
4. The passing grade of PLP I is the lowest C.
5. Reports are compiled in groups and uploaded to SIMPLP at the latest one week after PLP I has finished. 2 printed reports (two) copies: 1 for the student group concerned, and 1 for partner school (if needed), or it can also be a soft file (in pdf form). Submission of reports to partner schools (if required) is carried out collectively per wave for all study program groups, represented by a student.
6. Supervisor uploads grades in Siakad Unesa at the latest 14 days after PLP I has finished.
7. The assessment uses the format provided (attached);
8. The PLP value consists of the online Attendance Value (NHOL) component, The Value of the PLP I Implementation Report (NLP), and the Individual Activity Value (NKI), with the Final Value formula as follows: Final Grade (NA)
$$NA = \frac{(10 \times NOHL) + (50 \times NLP) + (40 \times NKI)}{100}$$
Information:
NA = Final Score of PLP I
NHOL = Online Attendance Value
NLP = Value of the PLP Implementation Report
I NKI = Individual Activity Value
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A <100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table>
</td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>

1. Arend, R.I., 2012. Learning to Teach. New York: Mc Grow-Hill International Edition
2. Hyland, Ken., & Wong, Lilian L. C. 2016. Innovation and Cange in English Language Education. London: Ruthledge
3. Muliawan, Jasa Ungguh. 2017. 45 Model Pembelajaran Spektakuler. Jogjakarta: AR-Ruzz Media
4. Mulyasa, E., 2004. Manajemen Berbasis Sekolah: Konsep, Strategi,

</td></tr>
</table>

	dan Implementasi. Bandung: Remaja Rosdakarya 5. Sani, Ridwan Abdullah. 2016. Inovasi Pembelajaran. Jakarta: Bumi Aksara 6. Taniredja, Tukiran dkk. 2015. Model-Model Pembelajaran Inovatif dan Efektif. Bandung: Alfabeta 7. Wena, Made. 2016. Strategi Pembelajaran Inovatif Kontemporer: Suatu Tinjauan Konseptual Operasional. Jakarta: Bumi Aksara.
Date of last amandement made	-
Notes	-

Module Handbook

Module Name	Internship
Module Level	Undergraduate / Bachelor
Code (If Any)	90520204
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	7/4th year
Name of Coordinator	Dr, Soeryanto, M.Pd.
Lecturers	Dosen pembimbing
Language	Indonesian
Classification in the Curriculum	Compulsory course

Learning Format/Number of Hour Per Week	Per week consists of: 2 hours in class, 1 hour structured assignments, and 1 hour independent study. (1 hour face to face = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 30 hours face-to-face / semester
Number of Credits	2
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): 1. Able to think critically, creatively, analytically, synthesis-solutive, have a high work ethic, work together, build networks, and communicate oral-written in vocational engineering field accordance with the development of global industry (PLO 4). 2. Have a positive, honest, disciplined, diligent, aesthetic, efficient-effective, and responsible personality (PLO 5). 3. Able to operate mechanical and digital-based production machines to produce workpieces and maintain and repair motorized vehicles according to standard procedures relevant to the development of the global industry (PLO 6). 4. Able to apply technopreneurship, service advisor, supervisor of the mechanical engineering industry relevant to the development of the global industry (PLO 7). Course Learning Outcomes (CLO) 1. Students can hone their knowledge and engineering skills in the world of work 2. Students increase their knowledge of engineering in accordance with the development of industry 3. Shaping student character in accordance with the industry
Module content	Discussion on (1) Preparation of Internship proposals (2) Providing of Internship (3) Implementation of Internship, (4) Preparation of Internship Reports (5) Presentation
Soft Skill Attribute	Active communication, cooperation, discipline, and responsibility.

<table>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = (2xP)+(3xT)+(2xUTS)+(3xUS)
10
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>TIM. 2014. Buku Panduan Praktik Industri (Pi)/ Praktik Kerja Lapangan (Pkl) Fakultas Teknik UNESA. Surabaya: UNIPRESS</td></tr>
<tr><td>Date of last amendment made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module Name	Thesis
Module Level	Undergraduate / Bachelor
Code (If Any)	52424501
Subtitles (If Any)	-
Courses included in the module (If Any)	-
Semester/ Year Levels	8/4th year
Name of Coordinator	Dr, Soeryanto, M.Pd.
Lecturers	Supervisor
Language	Indonesian
Classification in the Curriculum	Compulsory course
Learning Format/Number of Hour Per Week	Per week consists of: 2 hours fin class, 1 hour structured assignments, and 1 hour independent study. (1 hour in class = 2 x 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Learning Activities	2 hours in class, 1 hour structured assignments, 1 hour of independent study, for 15 weeks, a total of 30 hours face-to-face / semester
Number of Credits	5
Prerequisite Module	-
Learning Objectives	Program Learning Outcomes (PLO): Able to apply applied research for innovation in vocational learning methods, optimization of production process

<table>
<tr><td></td><td>technology and mechanical engineering services that are relevant to the needs of industrial development (PLO 3).
Course Learning Outcomes (CLO) :
1. Students can carry out the stages of research in accordance with the applicable rules, and can present them in front of the examiner
2. Students can produce scientific papers independently that reflect production by combining vocational technical knowledge and educational knowledge published on scientific pages.</td></tr>
<tr><td>Module content</td><td>Discussion on (1) field studies (2) reference studies. (3) preparation and testing of instruments, (4) data collection techniques (5) data analysis techniques (6) Reporting (7) testing</td></tr>
<tr><td>Soft Skill Attribute</td><td>Active communication, cooperation, discipline, and responsibility.</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if they get at least a final score of at least 55 which consists of midterm exam cumulative grades, final exam, structured activities (assignments/T) and presence / participation (P).
The final grade (NA) is calculated according to the formula:
NA = $\frac{(2xP)+(3xT)+(2xmid\ exam)+(3xfinal\ exam)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.
<table>
<tr><th>Alphabet</th><th>Number</th><th>Interval</th></tr>
<tr><td>A</td><td>4.00</td><td>85 ≤ A < 100</td></tr>
<tr><td>A-</td><td>3.75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3.50</td><td>75 ≤ B+ <80</td></tr>
<tr><td>B</td><td>3,.00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2.75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2.50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2.00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1.00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0.00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Media</td><td>Slide power point</td></tr>
<tr><td>References</td><td>3. TIM. 2014. Pedoman Penulisan Skripsi: Program Sarjana Strata Satu (S-1) Universitas Negeri Surabaya. Surabaya: UNIPRESS</td></tr>
<tr><td>Date of last amandement made</td><td>-</td></tr>
<tr><td>Notes</td><td>-</td></tr>
</table>

Module Handbook

Module name	Entrepreneurship
Module level	Bachelor(S-1)
Abbreviation / code (if any)	90520203
Subtitles (if any)	
Courses included in the module(If there is)	
Semester / year level	7/ first year
Module coordinator	Dr. Drs. Dewanto, M.Pd
Observers	Bellina Yunitasari, S.Si, M.Si Dyah Riandadari, ST., MT. Muamar Zainul Arif, S.Pd.,M.Pd. Dr. Drs. Dewanto,M.Pd
The language used	Indonesia language
Classification in the curriculum	Compulsory course /elective studies
Learning format / number of class hours per week	Per week consists of: 2 hours face to face, 1 hour structured assignments, and 1 hour self study. (1 hour face to face = 50 minutes / hour) (1 hour of structured work = 50 minutes / hour) (1 hour of independent study = 60 minutes / hour)
Load	2 hours face to face, 1 hour structured assignments, 1 hour independent study, during15 weeks, a total of 60 hours face-to-face / semester
SKS	2/1
Precondition	-
Learning objectives	Order Students: 1. Understand the concept of entrepreneurship 2. Mastering the concepts of entrepreneurship and technopreneurship 3. Understand the meaning of business opportunities, sources ofbusiness opportunities, and how to take advantage of business opportunities 4. Understand the production process and how to guarantee product quality 5. understand the meaning of packaging, packaging function, types of packaging, and packaging selection strategies 6. Understand the meaning of marketing, types of marketing, and marketing selection strategies 7. Mastering the concept of business partnerships, types of business partnerships, how to establish business partnerships, and indicators of the success of business partnerships 8. Understand the business plan, the benefits of a business plan and how to make a business plan 9. Run entrepreneurship, evaluate, and follow up on the results of business evaluation

<table>
<tr><td>Content</td><td>This course equips students with the concepts and skills of entrepreneurial practice (entrepreneurship, techopreneurship) so that they can develop an entrepreneurial spirit, which includes the ability to motivate themselves to be able to read and capture business opportunities, create services, production, marketing, partneships and management.and able to improve problem solving skills ineffort. Lectures are carried out with a discussion system, project assignments,and reflection.</td></tr>
<tr><td>Attribut soft skill</td><td>Active and collaborative, communication</td></tr>
<tr><td>Learning / examination achievement</td><td>Students are considered competent and pass if at least get a minimum score of 55 consisting of UTS, US, structured activities (assignments / T) and participatory activities (P). The final score (NA) is calculated by following the formula:
$NA = \frac{(2xP)+(3xT)+(2xUTS)+(3xUS)}{10}$
Convert the 0-100 scale value to a 0-4 scale and the letters are arranged as follows.

<table><tr><th>Huruf</th><th>Angka</th><th>Interval</th></tr><tr><td>A</td><td>4,00</td><td>85 ≤ A<100</td></tr><tr><td>A-</td><td>3,75</td><td>80 ≤ A- <85</td></tr><tr><td>B+</td><td>3,50</td><td>75 ≤ B+<80</td></tr><tr><td>B</td><td>3,00</td><td>70 ≤ B <75</td></tr><tr><td>B-</td><td>2,75</td><td>65 ≤ B- <70</td></tr><tr><td>C+</td><td>2,50</td><td>60 ≤ C+ <65</td></tr><tr><td>C</td><td>2,00</td><td>55 ≤ C <60</td></tr><tr><td>D</td><td>1,00</td><td>40 ≤ D <55</td></tr><tr><td>E</td><td>0,00</td><td>0 ≤ E <40</td></tr></table></td></tr>
<tr><td>Media form</td><td>Slidepower point, vidio</td></tr>
<tr><td></td><td>1. Anoraga, P., dan Soegiastuti, J. (1996), Pengantar Bisnis Modern; Kajian Dasar Manajemen Perusahaan, Jakarta: Pustaka Jaya
2. Baird, L.S., Post, J.E. dan Mahon, J.F, (1990), Management; Functions and Responsibilities, New York: Harper & Row, Publishers.
3. Bygrave, William D, (1997), The portable MBA in entrepreneurship, New York: John Willey & Sons, Inc. @nd. Ed.
4. Drucker, P.F. (1985), Innovation and Entrepreneurship; Practice and Principles, New York Harper & Ro
5. Griffin, R.E dan Ebert, R.J. (1989), Busniess, New Jersey
6. Prentice Hall Harper, S.C. (1991), Starting Your Own Busniess, New York: McGraw-Hill Hisrich, Robert D, Peters
7. Michael P, dan Sheperd, Dean A (2008), Kewirausahaan, New York: McGraw-Hill, Penerbit Salemba Empat.
8. Luthans, F. dan Hodgetts, R.M. (1989), Busniess, Chicago: The Dryden Press.</td></tr>
</table>

	9. Lynn, G.S. dan Lynn, N.M. (1992), Innopreneurship, Probus Publishing Co. Mutis, T. (1995), Kewirausahaan yang Berproses, Jakarta: Grasindo Naisbitt, J. (1982), Megatrends, Warner Books, Inc. 10. Naisbitt, J.dan Aburdene, P (1985), Re-inventing the Corporation, New York: Warner Books Inc. 11. Naisbitt, J.dan Aburdene, P (1990), Megatrends, Warner Books, Inc. Naisbitt, J. (1994), Global Paradox, New York: William Morrow and Co. 12. Nickels, W.G., Mchugh, J.M. dan Mchugh, S.M. (1996), Understanding Busniess, Chicago: Irwin 13. Pinchot III, G. (1985), Intrapreneuring, New York: Harper and Row Publishers. 14. Porter, M.E. (1990), The Competitive Advantage of Nations, NewYork: Doubleday.
Date of last amandement made	-
Notes	-