# STUDY PROGRAM AUTOMOTIVE ENGINEERING

International University Liaison Indonesia



## **COURSE OUTLINE**

Automotive engineers are involved in the design, manufacture, assembly, testing, and, most of all, in the operation of vehicles; namely, motorcycles, automobiles, trucks, buses and any similar ground-based vehicles, including their system components.

Automotive engineers are involved in production upstream until downstream, from the early concept to the delivery of the vehicle. The main working areas are design, production, assembly, maintenance, research and development. To become an automotive engineer, one needs to have a blend of engineering and managerial skills in delivering products within a financial budget. Automotive systems consist of many components, such as exhaust system, combustion engine, chassis and frame, and body Usually, automotive engineers will specialize in a particular area.

#### **FIELDS OF ACTIVITIES**

- Designing and producing visual models of automobiles and their components using pencil and paper, clay model, wood-model, and/or computer aided design software
- Designing, selecting, optimizing appropriate materials for automotive components, applying mechanical, thermodynamic, and mechatronics principles to resolve problems and find appropriate solutions
- Designing, investigating, testing maintenance activities of automotive systems
- Quality control and management of vehicles from designing and manufacturing, to assembly



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#### **CURRICULUM 2017-2018**

Date/ Rev: 05 JANUARY 2017/ Rev. 07Program: BachelorValid: Batch 2017-2018

#### **STUDY PROGRAM : MECHANICAL ENGINEERING (AUTOMOTIVE)**

SUBJECT	1	2	3	4	5	6	7	8	Total
University Compulsory Subjects									
English	2	2	2	2	1	1			10
Computer Network & IT Security	2		2	2					2
E-Commerce	2					2			2
Environment Sciences			2			2			2
Innovation & Product Development			2		2				2
•		2			2				
Applied Statistics		2							2
Research Methodology		2					-		2
Research Semester							6		6
Ethics and Religious Philosophy					2				2
Civics				2					2
Indonesian Language & Culture						2			2
Pancasila						2			2
Oral Final Study Examination (OFSE)						0			0
Elective : Internship / Project								3	3
Thesis / Thesis Defense								6	6
Total	4	6	4	4	5	7	6	9	45
Faculty Compulsory Subjects									
Applied Chemistry & Material Science	3								3
Engineering Mathematics 1, 2	3	3							6
Physics & Laboratory 1, 2	4	4							8
Algorithm, Programming 1, 2	3	3							6
Engineering Drawing Manufacturing Process	3		2						3 2
Applied Mathematics			3						3
Engineering Economy			5		2				2
Engineering Management					2	2			2
Electrical Engineering & Laboratory 1, 2	3	3							6
		4							4
Statics and Mechanics of Materials	3	4	2						4 2
	19	4 17	2 <b>7</b>	0	2	2	0	0	
Statics and Mechanics of Materials Metrology and Quality Control Total				0	2	2	0	0	2
Statics and Mechanics of Materials Metrology and Quality Control Total Department Compulsory Subjects	19			0	2	2	0	0	2 <b>47</b>
Statics and Mechanics of Materials Metrology and Quality Control Total Department Compulsory Subjects Introduction to Mechanical Engin.			7	0	2	2	0	0	2 <b>47</b> 1
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD	19		<b>7</b>	0	2	2	0	0	2 47
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements	19		7 3 3	0	2	2	0	0	2 47 1 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory	19		<b>7</b> 3 3 2		2	2	0	0	2 47 1 3 3 2
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science	19		7 3 3	2	2	2	0	0	2 47 1 3 3 2 4
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming	19		<b>7</b> 3 3 2		2		0	0	2 47 1 3 3 2 4 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> <b>Department Compulsory Subjects</b> Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech	19		<b>7</b> 3 3 2	23	2	2	0	0	2 47 1 3 3 2 4 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer	19		<b>7</b> 3 3 2	2 3 3	2		0	0	2 47 1 3 3 2 4 3 3 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM	19		<b>7</b> 3 3 2	2 3 3 3	2		0	0	2 47 1 3 3 2 4 3 3 3 3 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines	19		<b>7</b> 3 3 2	2 3 3	2		0	0	2 47 1 3 3 2 4 3 3 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques	19		<b>7</b> 3 3 2	2 3 3 3 3 3	2		0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines	19		<b>7</b> 3 3 2	2 3 3 3 3 3			0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics	19		<b>7</b> 3 3 2	2 3 3 3 3 3	23		0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 2 2 3 2
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo –Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine	19		<b>7</b> 3 3 2 2	2 3 3 3 3 3	2 3 3	3	0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 2 2 3 2 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo – Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design	19		<b>7</b> 3 3 2 2	2 3 3 3 3 3	23	3	0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design Pneumatics and Hydraulics	19		<b>7</b> 3 3 2 2	2 3 3 3 3 3	2 3 3 3	3	0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 2 3 3 2 3 3 6 3 3 6 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> <b>Department Compulsory Subjects</b> Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design Pneumatics and Hydraulics Elective Subjects	19	17	7 3 2 2 2	2 3 3 3 3 3 3	2 3 3 3 4	3 3 3 4			2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 3 2 3 3 2 3 3 6 6 3 8
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> <b>Department Compulsory Subjects</b> Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design Pneumatics and Hydraulics Elective Subjects <b>Total</b>	19		<b>7</b> 3 3 2 2	2 3 3 3 3 3	2 3 3 3	3	0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 2 3 3 2 3 3 6 3 3 6 3 3
Statics and Mechanics of Materials Metrology and Quality Control <b>Total</b> <b>Department Compulsory Subjects</b> Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design Pneumatics and Hydraulics Elective Subjects	19	17	7 3 2 2 2	2 3 3 3 3 3 3	2 3 3 3 4	3 3 3 4			2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 3 2 3 3 2 3 3 6 6 3 8
Statics and Mechanics of Materials Metrology and Quality Control Total Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design Pneumatics and Hydraulics Elective Subjects Total Total 1, 2, 3	19	0	7 3 2 2 2 2	2 3 3 3 3 3 3 3 7	2 3 3 3 4 <b>15</b>	3 3 3 4 <b>13</b>	0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Statics and Mechanics of Materials Metrology and Quality Control Total Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design Pneumatics and Hydraulics Elective Subjects Total Total 1, 2, 3 Extra Curricular	19 1 	17 0 23	7 3 2 2 2 2 12 23	2 3 3 3 3 3 3 3 1 7 17 23	2 3 3 3 4 15 22	3 3 3 4 13 22	0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 2 2 3 3 2 2 3 6 3 3 8 58 58 152
Statics and Mechanics of Materials Metrology and Quality Control Total Department Compulsory Subjects Introduction to Mechanical Engin. Computer Aided Design – CAD Machine Elements Manufacturing Process Laboratory Thermo -Fluid Science Material- and Metal Forming Automotive Power Train Tech Heat Transfer Computer Aided Manufacturing-CAM Kinematics and Dynamics of Machines Control Techniques Assembly and Manufacturing Support Mechanical Vibrations Introduction in Mechatronics Internal Combustion Engine Automotive Engineering System Design Pneumatics and Hydraulics Elective Subjects Total Total 1, 2, 3	19	0	7 3 2 2 2 2	2 3 3 3 3 3 3 3 7	2 3 3 3 4 <b>15</b>	3 3 3 4 <b>13</b>	0	0	2 47 1 3 3 2 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3

\* subject to change

^ the actual implementation follows the internal arrangements & policy of the Department & Faculty







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