

## Bachelor of Engineering Program in Mechanical Engineering

Total Number of Credits Required for Graduation is at least 148 credits

<b>1. General Education</b>	<b>at least</b>	<b>30</b>	<b>Credits</b>
– Wellness	at least	6	Credits
– Entrepreneurship	at least	3	Credits
– Language and Communication		13	Credits
– Thai Citizen and Global Citizen	at least	5	Credits
– Aesthetics	at least	3	Credits
<b>2. Specific Course</b>	<b>at least</b>	<b>112</b>	<b>Credits</b>
– Basic Course		49	Credits
Basic Mathematics and Science		21	Credits
Basic Engineering		28	Credits
– Major Course	at least	63	Credits
Required Course		45	Credits
Engineering Elective	at least	18	Credits
<b>3. Free Elective</b>	<b>at least</b>	<b>6</b>	<b>Credits</b>

## Course List

<b>1. General Education</b>	<b>at least</b>	<b>30 Credits</b>
<b>1.1 Wellness</b>	<b>at least</b>	<b>6 Credits</b>
01175XXX	Physical Education Activity	1(0-2-1)
	and choose at least 5 credits from this category	
<b>1.2 Entrepreneurship</b>	<b>at least</b>	<b>3 Credits</b>
	Choose at least 3 credits from this category	
<b>1.3 Language and Communication</b>		<b>13 Credits</b>
01355XXX	English	9( - - )
	Thai language	3( - - )
	Information/Computer	1( - - )
<b>1.4 Thai Citizen and Global Citizen</b>	<b>at least</b>	<b>5 Credits</b>
01999111	Knowledge of the Land	2(2-0-4)
	and choose at least 3 credits from this category	
<b>1.5 Aesthetics</b>	<b>at least</b>	<b>3 Credits</b>
	Choose at least 3 credits from this category	
<b>2. Specific Courses</b>	<b>at least</b>	<b>112 Credits</b>
<b>2.1 Basic Courses</b>		<b>49 Credits</b>
– <u>Basic Mathematics and Science</u>		<b>21 Credits</b>
01403114	Laboratory in Fundamentals of General Chemistry	1(0-3-2)
01403117	Fundamentals of General Chemistry	3(3-0-6)
01417167	Engineering Mathematics I	3(3-0-6)
01417168	Engineering Mathematics II	3(3-0-6)
01417267	Engineering Mathematics III	3(3-0-6)
01420111	General Physics I	3(3-0-6)
01420112	General Physics II	3(3-0-6)
01420113	Laboratory in Physics I	1(0-3-2)

01420114	Laboratory in Physics II		1(0-3-2)
- <u>Basic Engineering</u>		28	Credits
01204111	Computers and Programming		3(2-3-6)
01205201	Introduction to Electrical Engineering		3(3-0-6)
01205202	Electrical Engineering Laboratory I		1(0-3-2)
01206311	Manufacturing Process I		3(3-0-6)
01208111	Engineering Drawing		3(2-3-6)
01208221	Engineering Mechanics I		3(3-0-6)
01208223	Mechanics of Materials		3(3-0-6)
01208241	Thermodynamics I		3(3-0-6)
01208242	Fluid Mechanics		3(3-0-6)
01213211	Materials Science for Engineers		3(3-0-6)
<b>2.2 Major Courses</b>		<b>63</b>	<b>Credits</b>
- <u>Required Course</u>		45	Credits
01208211	Engineering Design and Modeling		3(2-3-6)
01208222	Engineering Mechanics II		3(3-0-6)
01208271	Computer Methods for Mechanical Engineering		3(2-3-6)
01208281	Workshop Practice		1(0-3-2)
01208311	Machine Design		3(3-0-6)
01208321	Mechanics of Machinery		3(3-0-6)
01208322	Mechanical Vibrations		3(3-0-6)
01208331	Automotive Technology		3(3-0-6)
01208341	Thermodynamics II		3(3-0-6)
01208342	Power Plant Engineering		3(3-0-6)
01208351	Heat Transfer		3(3-0-6)
01208352	Refrigeration and Air Conditioning		3(3-0-6)
01208371	Automatic Control		3(3-0-6)
01208381	Mechanical Engineering Laboratory I		1(0-3-2)

01208382	Mechanical Workshop Practice	1(0-3-2)
01208399	Internship	1
01208481	Mechanical Engineering Laboratory II	1(0-3-2)
01208495	Mechanical Engineering Project Preparation	1(0-3-2)
01208497	Seminar	1
01208499	Mechanical Engineering Project	2(0-6-3)

- Engineering Elective at least 18 Credits

Choose at least 18 credits of which at least 12 credits from the same major group and/or choose the following courses.

01208490	Co-operative Education	6
01208496	Selected Topics in Mechanical Engineering	1-3
01208498	Special Problems	1-3

#### Automotive Engineering

01208421	Introduction to Finite Element Methods	3(3-0-6)
01208431	Computer-aided Automotive Design	3(2-3-6)
01208432	Automotive Vehicle Dynamics	3(3-0-6)
01208433	Alternative Energy for Vehicles	3(3-0-6)
01208434	Internal Combustion Engines	3(3-0-6)
01208435	Control of Air Pollution from Automobile	3(3-0-6)
01208436	Automotive Battery System and Energy Storage Technologies	3(3-0-6)
01208437	Lubrication	3(3-0-6)
01208438	Vehicle System Integration	3(3-0-6)
01208439	Automotive Manufacturing Technology	3(1-4-4)
01208471	Engineering Measurements	3(3-0-6)

#### Building System Engineering

01208422	Introduction to Computational Fluid Dynamics	3(3-0-6)
01208426	Fluid Machinery	3(3-0-6)

01208451	Applications in Refrigeration System	3(3-0-6)
01208452	Control Elements and Applications in Air Conditioning System	3(3-0-6)
01208453	Plumbing System Design	3(3-0-6)
01208454	Industrial Ventilation	3(3-0-6)
01208455	Clean Room and Applications in Air conditioning system	3(3-0-6)
01208461	Principles of Fire Protection	3(3-0-6)
01208462	Building Codes and Fire Codes	3(3-0-6)
01208463	Theory and Design of Automatic Fire Suppression Systems	3(3-0-6)
01208464	Fire Alarm and Smoke Control Systems	3(3-0-6)
01208465	Risk Analysis in Fire Protection Engineering	3(3-0-6)
01208466	Introduction to Fire Phenomena	3(3-0-6)

#### Energy Engineering

01206221	Applied Probability and Statistics for Engineers	3(3-0-6)
01206251	Engineering Economics	3(3-0-6)
01208441	Combustion	3(3-0-6)
01208442	Energy Management and Economics	3(2-3-6)
01208443	Gas Engineering	3(3-0-6)
01208444	Introduction to Solar Engineering	3(3-0-6)
01208445	Gas Turbine	3(3-0-6)
01208446	Thermal System Design	3(3-0-6)
01208447	Gas Dynamics	3(3-0-6)
01208448	Introduction to Renewable Energy	3(3-0-6)
01208449	Energy Audits	3(2-3-6)

#### Machinery, Manufacturing and Mechatronics Engineering

01208411	Mechanical Design Processes	3(3-0-6)
01208412	Product Development	3(3-0-6)

01208413	Entrepreneurship for Mechanical Engineering	3(3-0-6)
01208414	CAD/CAM for Mechanical Engineering	3(3-0-6)
01208415	CNC Machine and Programming	3(3-0-6)
01208416	Design and Manufacturing Processes for Polymer Products	3(3-0-6)
01208417	Design and Manufacturing Processes for Metal Products	3(3-0-6)
01208418	Mould Design for Rubber Products	3(3-0-6)
01208419	Tire Manufacturing System	3(3-0-6)
01208421	Introduction to Finite Element Methods	3(3-0-6)
01208422	Introduction to Computational Fluid Dynamics	3(3-0-6)
01208423	Biomechanics Engineering	3(3-0-6)
01208424	Introduction to Engineering Composite Materials	3(3-0-6)
01208425	Tire Mechanics	3(3-0-6)
01208426	Fluid Machinery	3(3-0-6)
01208427	Construction Machinery	3(3-0-6)
01208428	Equipment Management	3(3-0-6)
01208471	Engineering Measurements	3(3-0-6)
01208472	Design of Mechanical System Control	3(3-0-6)
01208473	Electronic Application in Mechanical Engineering	3(3-0-6)
01208474	Fluid Power	3(3-0-6)
01208475	System Dynamics Simulation	3(3-0-6)
01208476	Modern Control Systems	3(3-0-6)
01208477	Introduction to Industrial Robots	3(3-0-6)
01208478	Vibration Monitoring and Analysis	3(3-0-6)
01208479	Engineering Acoustics	3(3-0-6)

#### Rail Engineering

01200431	Principles of Rail Engineering	3(3-0-6)
01200432	Rolling Stock Technology	3(3-0-6)

01200433	Signalling and Telecommunication Systems	3(3-0-6)
01200434	Rail Infrastructure	3(3-0-6)
01200435	Rail System Operation and Maintenance	3(3-0-6)
01208421	Introduction to Finite Element Methods	3(3-0-6)
01208471	Engineering Measurements	3(3-0-6)

**3. Free Elective**

**at least**

**6 Credits**