

## BSc Mechanical Engineering

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration (min.)	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
<b>Semester 1</b>								
1.	Required	Calculus and Analytic Geometry I	AMAT111	3	50	13	39	5
2.	Required	Physics I	PHY111	4	50	13	52	5
3.	Required	Introduction to Mechanical Engineering with Workshop	ME112	6	50	13	78	5
4.	Required	Introduction to Materials	ME107	4	50	13	52	5
5.	Required	Mechanical Engineering Drawing (Computer Aided Drafting)	ME113	3	50	13	39	5
6.	Required	Calculus and Analytic Geometry I	AEEE103	4	50	13	52	5
<b>Semester 2</b>								
7.	Required	Calculus and Analytic Geometry II	AMAT122	3	50	13	39	5
8.	Required	Linear Algebra with MATLAB	AMAT181	3	50	13	39	5
9.	Required	Engineering Materials	ME110	4	50	13	52	5
10.	Required	Rigid Body Mechanics (Dynamics/ Statics)	ME114	4	50	13	52	5
11.	Required	Physics II	PHY112	4	50	13	52	5
12.	Free Elec.	Free Elective	Free Elective	3	50	13	39	5
<b>Semester 3</b>								
13.	Required	Differential Equations	AMAT204	3	50	13	39	5
14.	Required	Computer Aided Design Methodology	ME203	4	50	13	52	5

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration (min.)	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
15.	Required	Thermodynamics I	ME200	4	50	13	52	5
16.	Required	Strength of Materials and Structures with Lab	ME214	5	50	13	65	6
17.	Required	Manufacturing Processes	ME201	3	50	13	39	5
18.	Free Elec.	Free Elective	Free Elective	3	50	13	39	5
<b>Semester 4</b>								
19.	Required	Numerical Methods	AMAT314	3	50	13	39	5
20.	Required	Fluid Mechanics I	ME202	4	50	13	52	5
21.	Required	Introduction to Finite Element Method in Structural Engineering	ME219	3	50	13	39	5
22.	Required	Instrumentation and Software Applications	ME211	4	50	13	52	5
23.	Required	Probability and Statistics	AMAT300	3	50	13	39	5
24.	Required	Technical Writing and Communication	AENG201	3	50	13	39	5
<b>Semester 5</b>								
25.	Required	Machine Elements I	ME316	4	50	13	52	6
26.	Required	Hydraulics and Pneumatics	ME310	4	50	13	52	6
27.	Required	Heat Transfer	ME304	4	50	13	52	6
28.	Required	Mechanical Vibrations and Machine Dynamics	ME323	4	50	13	52	6
29.	Mech Elective	Mechanical Engineering Elective	MECH ELECTIVE	3	50	13	39	6

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration (min.)	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
<b>Semester 6</b>								
30.	Required	Machine Elements II	ME317	4	50	13	52	6
31.	Required	Analysis and Design of Mechanical Control Systems	ME327	4	50	13	52	6
32.	Required	Engineering Economics	ME305	4	50	13	52	6
33.	Required	Manufacturing Processes with the Aid of CAD/CAM Systems	ME405	4	50	13	52	6
34.	Mech Elective	Mechanical Engineering Elective	MECH ELECTIVE	3	50	13	39	6
<b>Semester 7</b>								
35.	Required	Design and Organisation of Production Systems	ME412	4	50	13	52	6
36.	Required	Heating, Cooling and Air Conditioning	ME408	4	50	13	52	6
37.	Required	Internal Combustion Engine Fundamentals	ME431	4	50	13	52	6
38.	Required	Alternative Sources of Energy	ME407	4	50	13	52	6
39.	Required	Research Techniques for Thesis Preparation	ME399	3	50	13	39	6
<b>Semester 8</b>								
40.	Required	Mechatronics	ME413	4	50	13	52	6
41.	Required	Senior Project	ME400	3	50	13	39	6
42.	Required	Analysis of Power Generation Technologies	ME410	3	50	13	39	6
43.	Required	Gas Turbines	ME403	3	50	13	39	6
44.	Required	Mechanical Engineering Design & Optimization	ME414	4	50	13	52	6

## Mechanical Engineering Electives

NUM.	CODE	COURSE TITLE	ECTS
1.	ME303	ENERGY MANAGEMENT AND CONSERVATION	6
2.	ME401	AERODYNAMICS	6
3.	ME402	TURBOMACHINERY	6
4.	ME434	TRANSPORT PHENOMENA	6
5.	ME306	COMPUTER AIDED DESIGN & 3D PRINTING	6
6.	ME415	AIRCRAFT DESIGN	6
7.	ME416	AIRCRAFT PERFORMANCE	6
8.	ME417	PROJECT MANAGEMENT FOR ENGINEERS	6
9.	AU310	COMPUTATIONAL FLUID DYNAMICS METHODOLOGY AND APPLICATIONS	6
10.	ME422	AIRCRAFT AERODYNAMICS	6
11.	AU404	VEHICLE CRASHWORTHINESS	6
12.	OG300	MASS AND ENERGY BALANCES	6
13.	OG302	OIL AND GAS EXPLORATION, PROCESSING AND EXPLOITATION	6
14.	OG400	OIL AND GAS UPSTREAM TECHNOLOGIES	6
15.	OG401	LNG PRODUCTION, STORAGE, TRANSPORT AND USE	6
16.	OG402	FUNDAMENTALS OF PIPELINE DESIGN	6
17.	OG403	INDUSTRIAL PROCESSES	6
18.	ME307	ENERGY ASSESSMENT OF BUILDINGS	6
19.	OG404	INDUSTRIAL MODELLING AND SIMULATION	6

## BSc Mechanical Engineering, Specialization: in Oil & Gas Engineering

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration (min.)	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
<b>Semester 1</b>								
1.	Required	Calculus and Analytic Geometry I	AMAT111	3	50	13	39	5
2.	Required	Physics I	PHY111	4	50	13	52	5
3.	Required	Introduction to Mechanical Engineering with Workshop	ME112	6	50	13	78	5
4.	Required	Introduction to Materials	ME107	4	50	13	52	5
5.	Required	Mechanical Engineering Drawing (Computer Aided Drafting)	ME113	3	50	13	39	5
6.	Required	Calculus and Analytic Geometry I	AEEE103	4	50	13	52	5
<b>Semester 2</b>								
7.	Required	Calculus and Analytic Geometry II	AMAT122	3	50	13	39	5
8.	Required	Linear Algebra with MATLAB	AMAT181	3	50	13	39	5
9.	Required	Engineering Materials	ME110	4	50	13	52	5
10.	Required	Rigid Body Mechanics (Dynamics/ Statics)	ME114	4	50	13	52	5
11.	Required	Chemistry of Hydrocarbons	OG100	3	50	13	39	5
12.	Free Elec.	Free Elective	Free Elective	3	50	13	39	5

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration (min.)	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
<b>Semester 3</b>								
13.	Required	Differential Equations	AMAT204	3	50	13	39	5
14.	Required	Computer Aided Design Methodology	ME203	4	50	13	52	5
15.	Required	Thermodynamics I	ME200	4	50	13	52	5
16.	Required	Strength of Materials and Structures with Lab	ME214	5	50	13	65	6
17.	Required	Manufacturing Processes	ME201	3	50	13	39	5
18.	Free Elec.	Free Elective	Free Elective	3	50	13	39	5
<b>Semester 4</b>								
19.	Required	Numerical Methods	AMAT314	3	50	13	39	5
20.	Required	Fluid Mechanics I	ME202	4	50	13	52	5
21.	Required	Oil and Gas Geology and Reservoir Characterization	OG200	3	50	13	39	5
22.	Required	Instrumentation and Software Applications	ME211	4	50	13	52	5
23.	Required	Probability and Statistics	AMAT300	3	50	13	39	5
24.	Required	Technical Writing and Communication	AENG201	3	50	13	39	5

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration (min.)	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
<b>Semester 5</b>								
25.	Required	Machine Elements I	ME316	4	50	13	52	6
26.	Required	Hydraulics and Pneumatics	ME310	4	50	13	52	6
27.	Required	Heat Transfer	ME304	4	50	13	52	6
28.	Required	Mass and Energy Balances	OG300	3	50	13	39	6
29.	Required	Oil and Gas Exploration, Processing and Exploitation	OG302	3	50	13	39	6
<b>Semester 6</b>								
30.	Required	Machine Elements and Machines in Oil and Gas Industry	OG301	4	50	13	52	6
31.	Required	LNG Production, Storage, Transport and Use	OG401	3	50	13	39	6
32.	Required	Fundamentals of Pipeline Design	OG402	3	50	13	39	6
33.	Required	Manufacturing Processes with the Aid of CAD/CAM Systems	ME405	4	50	13	52	6
34.	Mech Elective	Mechanical Engineering Elective in Oil and Gas	MECH ELECTIVE	3	50	13	39	6
<b>Semester 7</b>								
35.	Required	Oil and Gas Upstream Technologies	OG400	3	50	13	39	6
36.	Required	Heating, Cooling and Air Conditioning	ME408	4	50	13	52	6
37.	Required	Internal Combustion Engine Fundamentals	ME431	4	50	13	52	6
38.	Required	Conventional Fuels and Renewable Energy Resources	OG407	4	50	13	52	6
39.	Required	Research Techniques for Thesis Preparation	OG399	3	50	13	39	6

A/A	Course Type	Course Name	Course Code	Periods per week	Period duration (min.)	Number of weeks/ Academic semester	Total periods/ Academic semester	Number of ECTS
<b>Semester 8</b>								
40.	Required	Industrial Modelling and Simulation	OG404	4	50	13	52	6
41.	Required	Senior Project	OG405	3	50	13	39	6
42.	Required	Analysis of Power Generation Technologies	ME410	3	50	13	39	6
43.	Required	Gas Turbines	ME403	3	50	13	39	6
44.	Required	Industrial Processes	OG403	3	50	13	39	6



## Mechanical Engineering Electives

NUM.	CODE	COURSE TITLE	ECTS
1.	ME402	TURBOMACHINERY	6
2.	ME434	TRANSPORT PHENOMENA	6
3.	ME306	COMPUTER AIDED DESIGN & 3D PRINTING	6
4.	ME417	PROJECT MANAGEMENT FOR ENGINEERS	6
5.	AU310	COMPUTATIONAL FLUID DYNAMICS METHODOLOGY AND APPLICATIONS	6
6.	ME325	PRACTICAL TRAINING INTERNSHIP	6
7.	AU305	TRIBOLOGY FOR AUTOMOTIVE SYSTEMS	6
8.	ME411	ADVANCED MANUFACTURING PROCESSES	6
9.	OG305	OIL AND GAS ECONOMICS	6