School of Engineering Technology

Department of Mechanical Engineering

Bachelor Degree – Mechanical Engineering: 166 Credit Hours

Specialization Pathways:

- General Mechanical Engineering
- Manufacturing Engineering
- Operation Engineering

Summary:

Classification	**Credit Hours**		
	Compulsory	**Elective**	**Total**
University Requirements	24	3	27
School Requirements	16	0	16
HTU Department Requirements	21	20	41
HNC Department Requirements	16-24*	8-16*	32
HND Department Requirements	24-28*	4-8*	32
Placement in Industry Requirements	18	0	18
Total	**127-135***	**31-39***	**166**

* Depends on the specialization pathway

0. English Language Prerequisites:

Depends on the results of English language placement test

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
10301099	Foundation English Pre-Intermediate Intensive + Lab	4	8	1	Placement Test <30

1. University Requirements: 27 Credit Hours (Mandatory: 24, Elective: 3)

1.1. Mandatory: 24 Credit hours

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
10301100	Foundation English Intermediate Intensive + Lab	4	8	1	Placement Test 30-42 or 10301099
OR 10301110	Foundation English Intermediate Intensive + Lab				Placement Test 43-58
10301120	English Intermediate + Lab	3	4	1	Placement Test 10301100
10301130	English Upper-Intermediate + Lab	3	4	1	Placement Test 59-66 or 10301110 /10301120
10301140	English Advanced	3	4	1	Placement Test 67-75 or 10301130
10303101	Soft Skills I	2	0	2	-
10303102	Soft Skills II	2	0	2	10303101
10303202	Entrepreneurship Boot Camp	6	3	3	-
	Leadership Camp*	1	0	1	10301101
	Total	**24**			

* This course includes 10-days intensive training bootcamp held off-campus.

1.2. Electives: 3 Credit hours

Students should choose 3 courses (3 credit hours) from the following list:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
10302191	Science & Society Seminar I: Arab Contributions to Science and Arts	1	1	0	-
10303199	Science & Society Seminar II: Philosophy of Science	1	1	0	-
10303196	Art Appreciation and Techniques	1	1	0	-
	Strategies for Industry Competitiveness: Tools & Techniques	1	1	0	10301101
	Rights and responsibilities	1	1	0	
	Civil & Professional Culture	1	1	0	
	Total Taken	**3**			

2. School Requirements: 16 Credit Hours

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010303100	Functional Math	3	3	0	-
010303110	Functional Physics	3	3	0	-
010201100	Fundamentals of Computing	4	3	1	-
010303130	STEM Lab I	1	0	1	-
010101100	Workshop I	2	0	2	-
020101102	Workshop II	1	0	1	010101100
010303131	STEM Lab II	1	0	1	010303130
010401199	Introduction to Engineering Drawing	1	0	1	-
	Total	**16**			

3. Al-Hussein Technical University (HTU) Department Requirements: 41 Credit Hours:

3.1. HTU Mandatory Requirements: 21 Credit Hours

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101470	Mechanical Engineering Design	2	0	2	010101270
010101101	Advanced Workshop	1	0	1	020101102
010101451	Modelling and Simulation for Engineers	3	2	1	010101221
010101440	Control Engineering Design	3	2	1	010101221
010101130	Electrical and Electronic Principles	4	3	1	010101123
	Data analysis and Signal Processing	4	3	1	010101221
010101497	Major Project	4	1	3	010101470
	Total	**21**			

3.2. HTU Elective Requirements: 20 Credit Hours

Students should choose to study 5 courses from the following list depending on the specialization pathway*:

1) General Mechanical Engineering - 20 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101284	Heating, Ventilation and Air Conditioning (HVAC)	4	3	1	010101183
010101183	Electro, Pneumatics and Hydraulic Systems	4	3	1	010101123
010101181	Production Engineering for Manufacture	4	3	1	010101123
010101422	Advanced Materials	4	3	1	010101123
010101131	Mechatronics	4	3	1	010101123
010101135	Maintenance Engineering	4	3	1	010101123
010101182	Computer Aided Design and Manufacture (CAD/CAM)	4	3	1	010101130
010101231	Industrial Systems	4	3	1	010101230
	Total	**20**			

2) Manufacturing - 20 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101181	Production Engineering for Manufacture	4	3	1	010101123
010101422	Advanced Materials	4	3	1	010101123
010101142	Machining and Processing of Engineering Materials	4	3	1	010101130
010101182	Computer Aided Design and Manufacture (CAD/CAM)	4	3	1	010101130
010101125	Materials, Properties and Testing	4	3	1	010101123
010101185	CAD for Maintenance Engineers	4	3	1	010101123
010101172	Mechanical Workshop Practices	4	3	1	010101100
010101135	Maintenance Engineering	4	3	1	010101123
	Total	**20**			

3) Operation - 20 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101127	Engineering Management	4	3	1	010101194
010101222	Sustainability	4	3	1	010101127
010101128	Quality Process and Improvement	4	3	1	010101120
010101184	Operations and Plant Management	4	3	1	010101120
010101185	CAD for Maintenance Engineers	4	3	1	010101123
010101283	Industrial Services	4	3	1	010101230
010101135	Maintenance Engineering	4	3	1	010101123
010101422	Advanced Materials	4	3	1	010101123
	Total	**20**			

* School council could add and drop courses from these list.

4. Higher National Certificate (HNC) Department Requirements (32 Credit Hours)

4.1. HNC Mandatory Requirements (16-24 Credit Hours) *:

* Depends on the specialization pathway:

4.1.1. Mandatory Core Units (16 Credit Hours):

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101121	Engineering Math	4	3	1	010303100
010101120	Engineering Design	4	3	1	010303110
010101123	Engineering Science	4	3	1	010303110
010101194	Managing A Professional Engineering Project (Pearson - set)	4	3	1	010101120
	Total	**16**			

4.1.2. Mandatory Specialist Units (8 Credit Hours):

Students should choose to study one of the following lists depending on the specialization pathway:

1) General Mechanical Specialist Units - 8 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101171	Mechanical Principles	4	3	1	010101121
010101173	Fundamentals of Thermodynamics and Heat Engines	4	3	1	010101123
	Total	**8**			

2) Manufacturing Specialist Units - 8 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101181	Production Engineering for Manufacture	4	3	1	010101123
010101128	Quality Process and Improvement	4	3	1	010101120
	Total	**8**			

4.2. HNC Elective Requirements (8 -16 Credit Hours) *:

* Students should choose 8 to 16 Credit Hours from the following list depending on the specialization pathway:

1) General Mechanical Engineering - 8 Credit Hours:

2) Manufacturing - 8 Credit Hours

3) Operation - 16 Credit Hours

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101142	Machining and Processing of Engineering Materials	4	3	1	010101130
010101131	Mechatronics	4	3	1	010101123
010101124	Renewable Energy	4	3	1	010101123
010101125	Materials, Properties and Testing	4	3	1	010101123
010101126	Fluid Mechanics	4	3	1	010101123
010101127	Engineering Management	4	3	1	010101194
010101173	Fundamentals of Thermodynamics and Heat Engines	4	3	1	010101123
010101181	Production Engineering for Manufacture	4	3	1	010101123
010101132	Automation, Robotics and Programmable Logic Controllers	4	3	1	010101130
010101128	Quality and Process Improvement	4	3	1	010101120
010101135	Maintenance Engineering	4	3	1	010101123
010101143	Electrical Machines	4	3	1	010101130
010101134	Electronic Circuits and Devices	4	3	1	010101130

010101182	Computer Aided Design and Manufacture (CAD/CAM)	4	3	1	010101130
010101185	CAD for Maintenance Engineers	4	3	1	010101123
010101184	Operations and Plant Management	4	3	1	010101120
010101183	Electro, Pneumatics and Hydraulic Systems	4	3	1	010101123
010101172	Mechanical Workshop Practices	4	3	1	010101100
	Total Taken	**8 – 16 ***			

* Students should choose 8-16 Credit Hours from the following list depending on the specialization pathway:

5. Higher National Diploma (HND) Requirements (32 Credit Hours):

5.1. HND Mandatory Requirement (24-28 Credit Hours):

5.1.1 Mandatory Core Units (12 Credit Hours):

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101297	Research Project – Pearson Set	8	6	2	010101291
010101291	Professional Engineering Management (Pearson-set)	4	3	1	010301194
	Total	**12**			

5.1.2 Mandatory Specialist Units (12-16 Credit Hours) *:

Students should choose 12-16 credit hours of the following lists depending on the specialization pathway:

1) General Mechanical Engineering - 12 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101270	Advanced Mechanical Principles	4	3	1	010101171
010101220	Virtual Engineering	4	3	1	010101142
010101211	Further Mathematics	4	3	1	010101121
	Total	**12**			

2) Manufacturing - 12 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101280	Manufacturing Systems Engineering	4	3	1	010101182
010101281	Lean Manufacturing	4	3	1	010101182
010101282	Advanced Manufacturing Technology	4	3	1	010101182
	Total	**12**			

3) Operation - 16 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101221	Further Mathematics	4	3	1	010101121

010101284	Heating, Ventilation and Air Conditioning (HVAC)	4	3	1	010101183
010101283	Industrial Services	4	3	1	010101230
010101271	Thermofluids	4	3	1	010101173
	Total	**16**			

5.2. HND Elective Requirements (4-8 Credit Hours) *:

* Students should choose 4-8 credit hours from the following list depending on the specialization pathway:

1) General Mechanical - 8 Credit Hours:

2) Manufacturing - 8 Credit Hours:

3) Operation- 4 Credit Hours:

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101270	Advanced Mechanical Principles	4	3	1	010101171
010101220	Virtual Engineering	4	3	1	010101142
010101221	Further Mathematics	4	3	1	010101121
010101221	Further Thermodynamics	4	3	1	010101173
010101231	Industrial Systems	4	3	1	010101230
010101280	Manufacturing Systems Engineering	4	3	1	010101182
010101281	Lean manufacturing	4	3	1	010101182
010101282	Advanced Manufacturing Technology	4	3	1	010101182
010101271	Thermofluids	4	3	1	010101173
010101283	Industrial Services	4	3	1	010101230
010101240	Fundamentals of control systems	4	3	1	010101128
010101222	Sustainability	4	3	1	010101127
	Total Taken	**4-8**			

6. Placement in Industry Requirements (18 Credit hours)

Course No.	Course Title	Cr. Hr.	Lecture	Lab.	Prerequisite
010101397	Practical Training	18	0	40	Department Approval
	Total	**18**			