

a. Transport Engineering

Admission Requirements

The applicant must have a B.Sc. degree in Civil Engineering or equivalent degree (Construction management & technology, surveying Engineering & in other related disciplines) from recognize University or College with CGPA 2.00. He/she must also pass the entrance examination administered by the department. Produce satisfactory undergraduate record suitable for the program. The eligibility of applicants from other related disciplines will be decided by the department Graduate Committee (DGC) and willing to audit the course (s) that deemed appropriate for the program.They shall meet the admission requirements of Dire Dawa University.

List of Courses

Code	Courses	Prerequ- isite	Cr. Hr	ECTS	Le c	Lab/Fie ld/tut	Self S.
CENG 6351	Principle of Optimization	None	3	5	3	2	5
CENG 6311	Urban and Regional Transportation Planning	None	3	5	3	2	5
CENG 6411	Pavement Materials and construction techniques	None	3	5	3	2	5
CENG 6131	Traffic Engineering	None	3	5	3	2	5
CENG 6121	Traffic Safety and Environmental Impact	None	3	5	3	2	5
CENG 6212	Advanced Geometric Design of Highways	CENG 6131	3	5	3	2	5
CENG 6512	Statistics and Probability for Transportation Engineering	None	3	5	3	2	5
CENG 6442	Design of Transportation Infrastructure systems	CENG 6131	3	5	3	2	5
CENG 6422	Pavement Analysis and Design	CENG 6411	3	5	3	2	5
CENG 6132	Transportation Economics and Finance	None	3	5	3	2	5
CENG 6111*	Transportation Systems Management	None	3	5	3	2	5
CENG7432*	Pavement Management System	CENG 6422	3	5	3	2	5
CENG 6312*	Advanced Transportation Modelling	CENG 6311	3	5	3	2	5
CENG 7431*	Advanced Pavement Analysis	CENG 6422	3	5	3	2	5

	and Design						
CENG 7131*	Traffic Engineering and Simulation	CENG 6131 & CENG 6212	3	5	3	2	5
CENG 7621	Research Methods	None	3	5	3	2	5
CENG6002	Pedagogy	None	3	5	3	2	5
CENG 7611	Thesis		6	10			
CENG 7632*	Independent project		4	8			

Note: Courses with * are electives

b. Geotechnical Engineering

Admission Requirements

The applicant must have a B.Sc. degree in Civil Engineering or equivalent degree (Hydraulics and Water Resource Engineering and other related disciplines) from known University or College with CGPA 2.00. He/she must also pass the entrance examination administered by the department. Produce satisfactory undergraduate record suitable for the program. The eligibility of applicants from other related disciplines will be decided by the Department Graduate Committee (DGC) and willing to audit the course (s) that deemed appropriate for the program. They shall meet the admission requirements of Dire Dawa University.

List of Courses

S. No.	Course code	Course Title	Cr. Hr.	EC TS	Lect .	Lab/Field work/ Tut	Home Study
1	CENG 6001	Advanced Mathematics for Engineers	3	5	3	2	5
2	CENG 6282	Rock Mechanics	3	5	3	2	5
3	CENG 6131	Theory of Elasticity in Geotechnical Engineering	3	5	3	2	5
4	CENG 6251	Advanced Soil Mechanics	3	5	3	2	5
5	CENG 6261	Engineering Properties of Tropical Soils	3	5	3	2	5
6	CENG 6212	Advanced Computational Methods in Geotechnical Engineering	3	5	3	2	5

7	CENG 6222	Advanced Foundation Engineering	3	5	3	2	5
8	CENG 6232	Soil Dynamics	3	5	3	2	5
9	CENG 6242	Analysis of Slopes, Earth Retaining Structures and Underground Structures	3	5	3	2	5
10	CENG 6272	Field exploration and Soil Testing	3	5	3	2	5
11	CENG 6271	Design and Analysis of Embankment Dams*	3	5	3	2	5
12	CENG 6121	Engineering Geology*	3	5	3	2	5
13	CENG 6292	Geotechnics of Earthquake Engineering*	3	5	3	2	5
14	CENG 7632	Independent project	3	5	3	2	5
15	CENG 7622	Geotechnical Engineering Seminar	1	2	1	2	2
16	CENG 7611	Thesis	6	10			
17	CENG 7621	Research Method	3	5	3	2	5
18	CENG 6002	Pedagogy	3	5	3	2	5

Note: Courses with * are electives

c. Structural Engineering

Admission Requirements

The applicant must have a B.Sc. degree in Civil Engineering from recognize University or College with CGPA 2.00. He/she must also pass the entrance examination administered by the department. Produce satisfactory undergraduate record suitable for the program. The eligibility of applicants from other related disciplines will be decided by the Department Graduate Committee (DGC) and willing to audit the course (s) that deemed appropriate for the program. They shall meet the admission requirements of Dire Dawa University.

List of Courses

Course Code	Courses	pre-requisite	Cr. Hr	EC TS	Lec	Tutor	Lab/field trip	Home Study
CEng 6001	Advanced Engineering Mathematics	None	3	5	3	4	_	3
CEng 6121	Theory of Elasticity	None	3	5	3	2	1	4
CEng 6131	Matrix Methods of Structural Analysis	None	3	5	3	2	2	3
CEng 6141	Dynamics of Structures	None	3	5	3	3	_	4
CEng 6211	Advanced Steel Structures	None	3	5	3	3	_	4
CEng 6221	Finite Element Methods for Structural Eng.	CEng 6503	3	5	3	2	2	3
CEng 6231	Advanced Concrete Structures	None	3	5	3	3	1	3
CEng 6241	Earthquake Engineering	CEng6505	3	5	3	3	_	4
CEng 6251	Steel and Concrete Composite Structures	CEng 6504	3	5	3	3	_	4
CEng 6261	Analysis and Design of Shell Structures*	None	3	5	3	2	_	5
CEng 7132	Structural Optimization techniques*	None	3	5	3	2	1	4
CEng 7142	Advanced Design of Bridges*	None	3	5	3	2	--	5
CEng 7112	Research Methods	None	3	5	3	2	--	5
CEng 7212	Thesis	None	6	10			--	
CEng 7122	Pedagogy	None	3	5	3	2	--	5
CEng 7222	Independent Project	None	4	7				
Total ECTS			52	87	42	35	7	56

Note: courses with * mark are elective courses.

d. Construction Technology and Management

Admission Requirements

The applicant must have a B.Sc. degree in Construction Technology and Management or Civil Engineering streams and related field (Material, Irrigation, Hydraulic Engineering; surveying and Architecture) from Ethiopian Universities or equivalent will be eligible to apply for admission on the graduate program in Construction Technology and Management upon the notification from Dire Dawa University, Institute of

Technology. Regarding applicants from other related disciplines shall be as per the senate legislation of Dire Dawa University and decided by the admission committee of the Department. Besides they shall submit letter of recommendation from their undergraduate university and employer and hold undergraduate. They shall meet the admission requirements of Dire Dawa University. She/he must also pass the entrance examination or other requirements set by the university legislation administered by the department.

List of Courses

Category	Modules		Related course		Module ECTS
	No.	Description	Description	Code	
I	01	Construction Project management	1. Construction Project management	COTM6011	5
			2. Construction Organization and labor management	COTM6012	5
			3. Management Science and Operation	COTM7011	6
I	02	Construction Project Development	1. Construction Economics and finance	COTM6021	6
			2. Construction Project Formulation and Appraisal	COTM6022	5
2	03	Construction Materials & Methods	1. Construction Materials and laboratory	COTM6031	5
			2. Modern construction Technique	COTM6032	5
			3. Construction Operation and maintenance	COTM7031	5
			4. Construction supervision and communication	COTM7051	5
I	04	Construction law and contract	1. Construction law and contract	COTM6041	6
			2. Construction Procurement and Contract Management	COTM6042	5
2	05	Research Methodology	1. Research Methods in Construction Technology & Management	COTM7031	5
I	06	Independent projects	1. Independent project	COTM7061	6
			2. Thesis	COTM7062	9

e. Processes Engineering

Admission Requirements

- B.Sc. degree in Chemical Engineering
- Students holding overseas degrees are very welcome and their degree qualifications are assessed in accordance with their referees' comments and equivalence will be done through Ministry of Education or as per university legislation

- **Entrance Examination**

The candidates will sit for entrance examination to evaluate that they are equipped with necessary basic communication skills to present themselves and basic chemical engineering skills to take supportive and/or engineering courses in their postgraduate areas. The candidates that pass the examination will be considered for acceptance. The number of students to be accepted for each program shall be decided by the Departmental Graduate Committee (DGC). Participants should at least score 60% of pass mark in the examination.

List of Courses

MODULES	Course Title	Course Number	Interactive(hr)		Self Study (Hr)	Tutorial	Laboratory	Collaborative	Credit Hours	ECTS
			Lecture	Consultation						
Research Methods	Research methods and Experimental Design	ChEg6002	36	18	72		18	36	3	6
General Subject area	Advanced Computational Method	ChEg6001	36	18	72		18	36	3	6
	Advanced Chemical Engineering Thermodynamics	ChEg6103	36	18	72		18	36	3	6
	Industrial Management	ChEg7071	36	18	72		18	36	3	6
Specialization Area	Polymer Science and Engineering	ChEg7133	36	18	72		18	36	3	6
	Advanced Separation Processes	ChEg6111	36	18	72		18	36	3	6
	Advanced Reaction Engineering	ChEg6112	36	18	72		18	36	3	6
	Advanced Transport Phenomena	ChEg6114	36	18	72		18	36	3	6
	Advanced Process Control	ChEg6132	36	18	72		18	36	3	6
	Process Systems Engineering	ChEg7131	36	18	72		18	36	3	6
	Elective I		36	18	72		18	36	3	6

ELECTIVES COURSES	Quality Control and Assurance	ChEg6171	36	18	72		18	36	3	6
	Biochemical Engineering	ChEg7135	36	18	72		18	36	3	6
	Petrochemical Process Technology	ChEg7139	36	18	72		18	36	3	6
	Industrial Management	ChEg7071	36	18	72		18	36	3	6
	Industrial Ecosystems Engineering	ChEg6131	36	18	72		18	36	3	6
	Membrane Technology	ChEg7137	36	18	72		18	36	3	6
	Pedagogy		36	18	72		18	36	3	6
M.Sc.	M.Sc. Thesis	ChEg7199								15

f. Thermal Engineering

Admission Requirements

Without prejudice the general Admission provision of the university legislation, the admission requirement for Thermal Engineering Master's program is based on the academic and provisional requirements as stated in Article 116. sub article 1.1 to 1.6 and article 117 of Dire Dawa University legislation. As age and work experience has no limit for this program the non-academic requirement of Article 116.2 doesn't applied.

Academic requirements: Students with undergraduate preparation in engineering, technology or related fields are encouraged to apply for this Master Program. Although a bachelor's degree in Mechanical engineering is advantageous, students with other engineering disciplines (Listed Below) are also eligible to enroll the program.

Applicants must have at least a bachelor's degree in Engineering from an accredited institution with a minimum of 2.00 Cumulative Grade Point Average (CGPA). The applicant's admission requirement is given below.

Non-Academic requirements

There is no age limit and work experience limit.

Educational Qualification: Students of the following background are eligible to join the program:

1. Mechanical Engineering
2. Chemical Engineering

3. Automobile Engineering
4. Aeronautical Engineering

Students holding overseas degrees: They are welcome and their degree qualifications are assessed in accordance with their referees' comments and will be treated based on article 116 sub article 1.2 of new 2017 DDU Senate legislation.

Provisional Admission-Those with backgrounds other than Mechanical engineering, Aeronautical and Chemical Engineering shall be required to take bridging courses. For this to an effect all sub articles in article 117 has to be applied.

Sponsorship: A proof of financial statement

- **Recommendation:** A letter of recommendation from the organization where the candidate is working and/or institution studied is required. Candidates with more industries experience and other related areas have got better chance of being selected.

Admission will be on competitive basis. Entrance examinations may be provided as necessary. Thus, the final selection of candidates will be done with considering higher CGPA of the candidtaes under graduate program, entrance examination score and work experience under the decision of the department.

- **Language requirement:** The medium of instruction is in English. English proficiency tests are waived for the following applicants:
 1. Applicants with a bachelor's degree from a reputed university where English is the only medium of instruction.
 2. Applicants with a bachelor's degree from nationally and internationally recognized universities where all courses of the study program were taught in English.
 3. Applicants with a bachelor's degrees at which medium of instruction is other than English language are expected to have score card of English Proficiency Test (TOEFL, IELTS etc.) not later than 2 years at time of admission

List of Courses

S No.	Module Number and Module Title	Course code	CH r	E C TS
1	Advanced Engineering Mathematics	MEng 6411	3	5
2	Instrumentation and Process Control	MEng 6412	3	5
3	Cogeneration and Waste Heat Recovery Systems	MEng 6421	3	5
4	Renewable Energy Conversion	MEng 6422	3	5
5	Thermal Equipment and Systems Design	MEng 6423	3	5
6	Finite Element Methods in Thermal Engineering	MEng 6424	3	5
7	Advanced Thermodynamics	MEng 6413	3	5
8	Advanced Fluid Mechanics	MEng 6414	3	5

9	Advanced Heat Transfer	MEng 6415	3	5
10	Energy Systems Modeling and Analysis	MEng 7431	3	5
11	Computational Fluid Dynamics & Heat Transfer	MEng 7432	4	7
12	Advanced Air-Conditioning and Refrigeration Technologies	MEng 7433	3	5
13	Elective courses	MEng 7434	3	5
14	Research Methodology & Seminar	MEng 6425	2	3
15	Thesis	MEng 7441	6	10
	Grand Total		48	80

g. Product Design and Development Engineering

Admission Requirements

Admission is based on selection

In order to be admitted to the MSc program the applicant must

1. Have a BSc degree in Mechanical Engineering or Industrial Engineering from a recognized University / College.
2. A Grade Point Average (GPA) for the Bachelor study of at least 2 out of 4 scale maximums or 50% of the scale maximum.
3. Pass the entrance examination set by the department. The entrance exam should be in written form.
4. Clear the Personal Interview conducted by the Department
5. Produce satisfactory undergraduate record suitable for the program.
6. Meet the general admission requirements set by the University.

List of Courses

	Name of Courses	Course Code
1	Product Design and Development	MEng 6311
3	Integrated Product Design and Process Development	MEng 6321
4	Computer Aided Design and Manufacturing Laboratory	MEng 6325
5	Mechanisms Design and Simulation	MEng 7342
6	Design for Manufacturing, Assembly and Environment	MEng 6312
7	Advanced Finite Element Method	MEng 6314
8	Optimization Techniques in Product Design	MEng 6322
9	Fatigue and Fracture Analysis	MEng 6313

10	Product Development and Quality Management	MEng 6324
11	Advanced Materials	MEng 7341
12	Experimental Measurement and Analysis	MEng 6323
Elective Courses		
1	Reverse Engineering	MEng X
2	Creativity in Design	MEng X
3	Model Analysis in Mechanical System	MEng X
4	Product Design for Energy and Environment	MEng X
5	Mechatronics in Manufacturing	MengX
6	Reliability and Maintainability of Product	MengX
7	Product Design Management Techniques and Entrepreneurship	MEng X
8	Advanced Tool Design	MEng X
Seminar and Thesis		
1	Seminar	MEng7335
2	Master Thesis	MEng 7341
X= course code for Elective course		

h. Manufacturing Engineering

Admission Requirements

The admission requirements are as follows:

- i. B.Sc. degree from an accredited or recognized university in one of the following subjects: Mechanical Engineering, Production Engineering, Industrial Engineering, Agricultural Engineering and Aeronautical Engineering from Ethiopian universities.
- ii. A Grade Point Average (GPA) for the Bachelor study of at least 2.0 out of 4.0 scale maximum.
- iii. Admission will be based on entrance exam and their B.Sc. degree GPA.
- iv. Students holding overseas degrees are very welcome and their degree qualifications are assessed in accordance with their referees' comments and equivalence will be done through Ministry of Education or on par university legislation.

- v. Students other than mechanical engineering streams are required to take bridge courses like Material Science, Manufacturing Engineering I & II, Metal Technology Processes, Materials Handling, Welding & Casting, Computer Integrated Manufacturing, etc

List of Courses

No.	Course Title	Code
1	Advanced Finite Element Methods	MEng 6211
2	Metal Forming Theory and Practice	MEng 6212
3	Advanced Material Joining Process	MEng 6213
4	Human Factors in Engineering	MEng 6214
5	Advances in Manufacturing Process	MEng 6221
6	Advanced Foundry Technology	MEng 6222
7	Metrology & Computer Aided Inspection	MEng 6223
8	Computer Integrated Manufacturing	MEng 7231
9	Advanced Materials Technology	MEng 7232
10	Tool and Die Design	MEng 7233
11	Graduate Seminar/Project	MEng 7234
Elective courses		
11	Production Planning and Control	MEng.6224
12	Industrial Robotics and Expert System	MEng.6225
13	Material Handling Systems and Automation	MEng.6226
14	Plastics and Composites Products Technology	MEng.6227
15	Total Quality Management	MEng.7235
16	Supply chain Management	MEng.7236
17	Production and Operations Management	MEng.7337
18	Reliability and Maintainability of Product	MEng.7338

i. Product Engineering

Admission Requirements

List of Courses

