

Programme Specifications

Academic Year	(2019-2020) Academic Year
Programme Title	Metallurgical Engineering
Award	Bachelor of Engineering (BE)
Programme Code	Met
Degree Awarding Institution	Technological University (Kyaukse)
Associateship, Membership	
Accreditation status and Accreditors	Provisional, Engineering Education Accreditation Committee (EEAC, Myanmar)
Qualification Level (Myanmar National Qualification Framework)	Level 6
Degree Awarding Requirements	Student must pass 214 credits and obtain passing score in every subject
Department	Department of Metallurgical Engineering and Materials Science
Head of Programme	Dr. Khin Khin Tun
Contact	Ph no. 09798684775 and email – metallurgy.tukse@gmail.com
Admission Criteria	As described in admission section
Requirements for sitting exam	see in each course specification
Subject Benchmark	N/A
Mode of Attendance	Full Time
Total Credits	214
Minimum Period of Study	6 years
Maximum period of study	18 years
Teaching/Learning Methods	Combination of lecturers, tutorials, practical, coursework, individual and group work, projects, industrial training.
Assessment	Class work, written examinations, projects, reports, oral presentation.

Programme Overview

Today it is the role of the metallurgical engineer to study, develop, design and operate processes that transform raw materials into useful engineering products intended to improve the quality of lives, Metals are widely used in engineering because they possess unique combination of mechanical properties plus special physical characteristics. Metallurgical engineering is based on the principles of science and engineering, and may be divided into extractive metallurgy, which is concerned with extracting metals from their ores to make refined alloys, and physical metallurgy which involves the shaping, alloying, heat treatment, joining, corrosion protection and testing of metals.

Graduate Competencies

1. Ability to apply Engineering Knowledge
2. Problem Analysis Skill
3. Design/Development Skill
4. Research Skill
5. Ability to apply Modern Tool
6. Ability to apply informed reasoning and Professional Engineering practice in society
7. Ability to understand and evaluate Environment and Sustainability
8. ability to apply ethical principles
9. Ability to function effectively as Individual and a Team member or leader
10. Communication Skill
11. Ability to apply Project Management and Finance
12. Life Long Learning Skill

Programme Educational Objectives

1. Produce qualified engineer who is technical competence for creativity and innovation through application of formulate, solve, analyze and research tools to find solutions of complex metallurgical and science engineering problems.
2. Nurture engineer who communicate effectively and participate as leader or active member not only in the metallurgical engineering and materials science sector but also in multidisciplinary environment.
3. Foster development of engineer who practice professional etc, consider public health and safety, continual development and life-long learning

Graduate Attributes

1. An ability to apply knowledge of mathematics, science and engineering.
2. An ability to identify, formulate and solve metallurgical engineering problems.
3. An ability to design a system, component or process to meet desire needs with realistic constraints that reflect environment and social responsibility.
4. An ability to conduct experiment, project as well as analyze and interpret data and synthesis information to provide valid conclusion.
5. An ability to use the techniques, skills, and modern engineering tools necessary for metallurgical engineering practice.
6. An ability to apply knowledge to assess the professional engineering practice with considerations of public health and safety & cultural issues.
7. An ability to know the impact of engineering on global, economic, environmental, and social issues.
8. An understanding of professional and ethical responsibility.
9. An ability to communicate effectively, oral, written and visual communication through .
10. An ability to function effectively as an individual, as a part of team and in a multidisciplinary environment.
11. A recognition of the need for, and an ability to engage in life-long learning.
12. Ability to demonstrate knowledge and understanding of engineering and management principles to manage projects in multidisciplinary environments.

Curriculum

Year I

Semester I			Semester II		
Code	Title	Credits	Code	Title	Credits
M 11011	Myanmar	2	M 12011	Myanmar	2
E 11011	English	2.5	E 12011	English	2.5
EM 11001	Engineering Mathematics I	4.5	EM 12002	Engineering Mathematics II	4.5
E.Ch 11011	Engineering Chemistry	4.5	E.Ch 12011	Engineering Chemistry	4.5
E.Ph 11011	Engineering Physics	3.5	E.Ph 12011	Engineering Physics	3.5
ME 11011	Basic Engineering Drawing	2	ME 12011	Basic Engineering Drawing	2
	Introduction to Metallurgical			Introduction to Metallurgical	
Met 11011	Engineering and Materials Science	2.5	Met 12011	Engineering and Materials Science	2.5

Year II

Semester I			Semester II		
Code	Title	Credits	Code	Title	Credits
E 21011	English	2.5	E 22011	English	2.5
EM 21003	Engineering Mathematics III	4.5	EM 22004	Engineering Mathematics IV	4.5
ME 21012	Workshop Technology	2	ME 22012	Workshop Technology	2
ME 21015	Engineering Mechanics	2.5	ME 22015	Engineering Mechanics	2.5
EP 21013	Applied Electrical Engineering	3	EP 22013	Applied Electrical Engineering	3
Min 21011	Principles of Mining Engineering	2.5	Min 22011	Principles of Mining Engineering	2.5
Met 21023	Introduction to physical Metallurgy I	3	Met 22023	Introduction to Physical Metallurgy II	3

Year III

Semester I			Semester II		
Code	Title	Credits	Code	Title	Credits
E 31011	English	2.5	E 32011	English	2.5
EM 31014	Engineering Mathematics V	4.5	EM 32015	Engineering Mathematics VI	4.5
Geol 31003	Mineralogy and Petrology for Metallurgical Engineering	3.5	Geol 32003	Mineralogy and Petrology for Metallurgical Engineering	3.5
ME 31014	Strength of Materials	3	ME 32014	Strength of Materials	3.5
Met 31015	Metallurgical Unit Operation I	2.5	Met 32015	Metallurgical Unit Operation II	2.5
Met 31012	Mineral Processing I	2.5	Met 32012	Mineral Processing	2.5
Met 31025	Fuels, Refractories and Furnaces	3	Met 32021	Physical Chemistry of Metals	2.5

Year IV

Semester I			Semester II		
Code	Title	Credits	Code	Title	Credits
E 41011	English	2.5	E 42011	English	2.5

EM	41007	Engineering Mathematics VII	4.5	EM	42008	Engineering Mathematics VIII	4.5
Met	41016	Extractive Metallurgy I	3.5	Met	42016	Extractive Metallurgy II	3.5
Met	41031	Metallurgical Thermodynamic I	2.5	Met	42031	Metallurgical Thermodynamic II	2.5
Met	41023	Materials Science I	3.5	Met	42023	Materials Science II	3.5
Met	41033	Principle of Physical Metallurgy I	2.5	Met	42033	Principle of Physical Metallurgy II	2.5
Met	41014	Foundry Technology I	2.5	Met	42014	Foundry Technology II	2.5

Year V

Semester I			Semester II				
Code	Title	Credits	Code	Title	Credits		
Met	51022	Industrial Management I	2.5	Met	52022	Industrial Management II	2.5
Met	51016	Non Ferrous & Ferrous Metallurgy I	2.5	Met	52016	Non Ferrous & Ferrous Metallurgy II	2.5
Met	51024	Materials Process Engineering I	2.5	Met	52024	Materials Process Engineering II	2.5
Met	51061	Corrosion Engineering I	2	Met	52061	Corrosion Engineering II	2
Met	51051	Characterization of Materials	2.5	Met	52041	Fracture Mechanics & Failure Analysis	3.5
HSS	51011	Humanities and Social Science	2.5	Met	52018	Metallurgical Engineering Project	2.5

Year VI

Semester I			Semester II		
Code	Title	Credits	Code	Title	Credits
Met	61013	Computer Application in for Met. Engineering			
		2		Graduation Thesis	9
		4			