



Arab Academy for Science, Technology & Maritime Transport
 College of Engineering & Technology
 Mechanical Engineering Department

University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc. Mechanical Engineering

Form no. (12): **Course Specification**

1- Course Data

Course Code: ME 555	Course Title: Materials Handling Equipment	Academic Year/Level: 5th year / 10th semester	
Specialization: Mechanical	No. of Instructional Units 3 credits	Lecture 2 hrs.	Practical 2 hrs.

2- Course Aim

- The aim is to give the student information on material handling equipment, its role in production and application in engineering practice.

3- Intended Learning Outcomes

a- Knowledge and Understanding	<p>Through knowledge and understanding, students will be able to:</p> <p>a.1) Concepts and theories of mathematics and sciences, appropriate to the discipline</p> <p>a.3) Characteristics of engineering materials related to the discipline</p> <p>a.4) Principles of design including elements design, process and/or a system related to specific disciplines.</p> <p>a.5) Methodologies of solving engineering problems, data collection and interpretation</p> <p>a.8) Current engineering technologies as related to disciplines</p> <p>a.12) Contemporary Engineering Topics</p> <p>a.p.4) The constraints which mechanical power and energy engineers have to judge to reach at an optimum solution</p> <p>a.p.7) Basic theories and principles of some other engineering and mechanical engineering disciplines providing support to mechanical power and energy disciplines.</p>
b- Intellectual Skills	<p>Through intellectual skills, students will be able to:</p> <p>b.1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.</p> <p>b.2) Select appropriate solutions for engineering problems based on analytical thinking.</p> <p>b.3) Think in a creative and innovative way in problem solving and design</p> <p>b.5) Assess and evaluate the characteristics and performance of components, systems and processes</p>

	<p>b.6) Investigate the failure of components, systems, and processes.</p> <p>b.9) Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact</p> <p>b.10) Incorporate economic, societal, environmental dimensions and risk management in design</p> <p>b.12) Create systematic and methodic approaches when dealing with new and advancing technology.</p>
c- Professional Skills	<p>Through professional and practical skills, students will be able to:</p> <p>c.2) Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services</p> <p>c.3) Create and/or re-design a process, component or system, and carry out specialized engineering designs</p> <p>c.5) Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results</p> <p>c.7) Apply numerical modeling methods to engineering problems</p> <p>c.12) Prepare and present technical reports</p> <p>c.p.2) Prepare engineering drawings, computer graphics and specialized technical reports</p> <p>c.p.3) Write computer programs pertaining to mechanical power and energy engineering</p> <p>c.p.4) Describe the basic Thermal and fluid processes mathematically and use the computer software For their simulation and analysis</p> <p>c.p.5) Design, operate, repair and maintain fluid hydraulic power systems for diverse applications</p> <p>c.p.6) Carry out preliminary designs of fluid transmission networks, internal combustion and steam engines and solve their operational problems</p> <p>c.p.7) Work in mechanical power and energy operations, maintenance and overhaul</p>
d- General Skills	<p>Through general and transferable skills, students will be able to:</p> <p>d.6) Effectively manage tasks, time, and resources</p> <p>d.8) Acquire entrepreneurial skills</p> <p>d.9) Refer to relevant literature</p>

4- Course Content

Week No.1	Introduction to Hoisting Machinery
Week No.2	Cranes (Types, Drives, and Design Considerations)
Week No.3	Elevators (Drive, Design Considerations)
Week No.4	Miscellaneous Types of Hoisting Machinery

Week No.5	Introduction to Conveying Machinery
Week No.6	Belt Conveyors
Week No.7	Screw Conveyors / 7th week evaluation
Week No.8	Bucket and Cradle Conveyors
Week No.9	Introduction to Land Reclamation Machinery
Week No.10	Loaders Theory and Practice
Week No.11	Bulldozers Theory and Practice
Week No.12	Shovels and Graders / 12th week evaluation
Week No.13	Operation of the Various Types of Material Handling Machinery.
Week No.14	Maintenance of Material Handling Machinery
Week No.15	Safety Measures for Different Types of Machinery
Week No.16	Final examination

5- Teaching and Learning Methods

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

6-Teaching and Learning Methods for Students with Special Needs

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

Engineering Requirements and Design Considerations in college Buildings and its Leading Passages

- The design of college buildings and pedestrian passages leading to it are sloppy to allow the transportation of the handicapped;
- Doors are wide enough to let wheel chairs pass through easily and conveniently.
- Lifts are provided for movement between floors.
- Doors are made from light weight materials to make it easy for the handicapped suffering from weakness in

limb muscles or those handicapped using prosthetic limbs to deal with them with the least muscular effort.

- Class floors are made from non-slippery materials to prevent falls on the part of the handicapped.
- Sudden changes in the floor level are prevented.

Design Considerations of the Classes

- Class boards are placed at 60 cm high to allow wheeled chair users or those suffering from limited arm mobility use them.
- Enough spaces are left between seats and benches to prevent hindering the movement of wheeled chairs between them.
- Handicapped students sit among normal people in class to be able to interact with them. Nevertheless, in urgent cases according to the nature of the disability, the handicapped students sit in fixed suitable places whether at the front or the back of the class.
- Handicapped students sit close to the main exits of the class to be able to evacuate in case of emergencies.

Academic Support:

- The general academic advisor appoints an academic supervisor for handicapped students.
- Continuous follow ups are made for handicapped students after each assessment to evaluate their academic level of achievement

7- Student Assessment

a-Procedures used	1-Written Examinations to assess The Intended Learning Outcomes.	
	2-Class Activities (Reports, Discussions, -----) to assess The Intellectual and general Skills.	
b- Schedule:	Assessment 1	7 th Week Assessment
	Assessment 2	12 th Week Assessment
	Assessment 3	Continuous Assessments
	Assessment 4	16 th Week Final Written Exam
c- Weighing of Assessment	7 th Week Evaluation	30 %
	12 th Week Evaluation	20 %
	Final-term Examination	40 %
	Oral Examination	00 %
	Practical Examination	00 %
	Semester Work	10 %
	Total	100%

8- List of References:

a- Course Notes	N/A
b- Required Books (Textbooks)	• Lecture notes
c- Recommended Books	• J. Rodenko, " Material Handling Equipment ", Mir publication, 1966, 1st edition.
d- Periodicals, Web Sites, etc.	N/A

Course Instructor: Prof. El-Sayed Saber

Head of Department: Prof. El-Sayed Saber

Program Manager: Prof. El-Sayed Saber

**Dean of College of Engineering and
Technology of AASTMT**

Name: **Prof. Moustafa Hussein Aly**

Signature:

**Executive Manager of Quality Assurance
Center of AASTMT**

Name: **Prof. Aziz Ezzat**

Signature: