

Engineering Program

Specialization Production and Computer Aided Manufacturing Technology
Course Number 0202261
Course Title **Mold Technology**
Credit Hours (2)
Theoretical Hours (2)
Practical Hours (0)

Brief Course Description:

Introduction to mold design, metal forming process. Classification of iron alloys used for molds. Working characteristic at a given mass and shape of parts. detailed design. Molding process and materials, allowances and tolerance. Design of shearing and bending dies. Design of cores, complex shape.

Course Objectives:

At the end of this course student will be able to:

1. Understand the basic concepts of mold design.
2. Understand the molding process and materials.
3. Study and learn core design and manufacturing process

Detailed Course Description:

Number	Title	Content	Time
	Introduction to mold design	Functional design Metallurgical design: selection and optimum use of molds Economic considerations Metal forming process Classification of iron alloys used for molds	
	Working characteristics at a given mass and shape of parts	Minimum section thickness Cord-hole size Dimensional tolerances Surface finish Dies classification Machines, materials and tools used in dies manufacturing	
	Molding processes	Sand molding Investment molding Ceramic molding Plaster molding. Graphite molding	
	Molds for thin sheet metals (shearing and bending)	Design of cutting and forming parts Points of considerations (when design a mold) Design steps for cutting molds Shearing and bending force calculations Tolerances for sheet folding process Shearing by dies	
	Design of cores, complex shapes, projecting details	Core making Core baking Core setting Core applications and design	

Evaluation Strategies:

Evaluation	Percentage	Date
------------	------------	------

Exams	Midterm	40%	
	Final Exam	50%	
Projects and Assignments		10%	

Teaching Methodology:

- Lecturing
- Technical videos watching

Text Books & References:

Text Books:

- Dies manufacturing Manuals, Prince Al-Hussain Bin Abdallah II Military and Technical college, 1996
- Principles of metal casting, Richard W. Heine, Mc Graw Hill.

References:

- Manufacturing Processes and systems; Philip F. Ostwald; Jairp Munoz, John Wiley, 9th Ed., NY, 1997.
- Plastic Injection Mould construction; Ahmed A. Rahman; The Royal scientific society, Amman-Jordan, 1997.