



**Course Title:** Manufacturing Processes- I; ME- 312

**Semester:** First- 1442 H- 2020/ 2021 G

**Lecturer:** Dr. Magdy El Rayes [Room 2C- 44]

**Lab Instructor:** Eng. Haytham Alshehry

**Textbook:** Manufacturing: Materials, Processing, and Systems, K. P . Groover, Fundamentals of Modern, Second Edition, John Wiley, New York.

**Reference:**

- Materials and Processes in Manufacturing, De Garmo, Black, Kohser, Tenth Edition, Wiley.
- Manufacturing Processes for Engineering Materials, Fourth Edition, Serope Kalpakjian, AdisonWesely

**Credit Hours:** 3; [2] Lecture, [1] Tutorial and [2] Laboratory

**Pre-requisite:** Materials Engineering; ME- 254

**Co-requisite:** Mechanics of Materials; ME- 352

**Course Outline:**

<b>Week#</b>	<b>Topic</b>
<b>1</b>	Introduction to manufacturing processes.
<b>2</b>	Relationships among activities in manufacturing and process planning.
<b>3</b>	Introduction to Metal casting processes
<b>4</b>	Metal casting processes [expendable and pemanent molds]
<b>5</b>	Metal casting processes [expendable and pemanent molds]
<b>6</b>	Fundamentals of Metal Forming
<b>7</b>	Materials behaviour and temperature in metal forming
<b>8</b>	Sheet metal working
<b>9</b>	Sheet metal working
<b>10</b>	Bulk deformation processes, Rolling
<b>11</b>	Extrusion
<b>12</b>	Wire and bar drawing
<b>13</b>	Forging
<b>14</b>	Fundamentals of Joining; Weldability; Fusion welding processes
<b>15</b>	Fusion welding processes

**Laboratory**

**Experiments:**

1. Precision measurements
2. Sand and die casting.
3. Sheet metal work.
4. Rolling and Extrusion
5. process.
6. Fusion welding processes; SMAW, GMAW, GTAW.

**Grade Distribution:**

- Quizzes and Assignments	10%	At any time
- Lab Reports	10%	within the whole semester
- Lab Exam.	10%	at mid and end of term
- Course Project	10%	within the first 7 weeks
- First Mid-Term Examination	10%	to be announced later
- Second Mid-Term Examination	10%	to be announced later
- Final Term Examination	<u>40%</u>	
- TOTAL	100%	

**Minimum Attendance is 75 % in BOTH Lectures and Laboratory sessions.**

**ATTENDANCE**

Attendance is very important. If happens, and the student is absent for whatever the reason is, he is responsible for obtaining class notes and any other materials that he may have missed.

**ASSIGNMENTS**

Late assignments are NOT normally accepted. Any student who has any difficulty with anything that would affect his academic performance should talk to the instructor as early as possible.

**Activities:**

One industrial trip is organized to a typical local industry within the semester.

**Computer Usage:**

Students are encouraged to make their laboratory and homework calculations and type their reports using software available on PCs.

**Assessment Tools:**

1. Quizzes
2. Lab. reports and lab exams
3. Mid-Term exams
4. Final Term exam
5. Course Project

**Revised 10.01.2021**