

AGE-1320

Section 1, CRN: 1463/64/65

Section 2, CRN: 1466/67/68

Section 2, CRN: 1469/70/71

Second Semester 1447 H (Spring 2026) – 2(1,1,2)

“Introduction to Manufacturing”

Course Description

Course-in-brief

Introduction to manufacturing; A morphological process model: basic structure and classification of manufacturing processes; Material, energy and information flow systems; Examples of manufacturing processes: mass conserving (forming), mass reducing (machining) and mass addition (joining and assembly) processes; Workshop requirements, basic industrial and workshop safety, principles of basic bench work operations and workshop metrology; Manufacturing materials; Classification and fundamentals of manufacturing systems; Workshops visits; Some practical experiments, measurements, assignments and manufacturing operations.

**Level:** 4 (for more details: <https://appliedengineering.ksu.edu.sa/en/node/2973>)

**Estimated Category Content:**

Engineering science: 1 credit hour

Engineering design: 1 credit hour

**Prerequisite:**

None

**Time and Place**

Section 1	Section 2	Section 3
Lecture (1463): <b>Thu: 10:00 – 10:50 AM</b> (1-E-121) Dr. El-Sherbeeney	Lecture (1466): <b>Thu: 08:00 – 08:50 AM</b> (1-C-169) Dr. El-Sherbeeney	Lecture (1469): <b>Tue: 10:00 – 10:50 AM</b> (1-D-145) Dr. El-Sherbeeney
Exercises (1464): <b>Thu: 11:00 – 11:50 AM</b> (1-E-121) Dr. El-Sherbeeney	Exercises (1466): <b>Thu: 09:00 – 09:50 AM</b> (1-C-169) Dr. El-Sherbeeney	Exercises (1470): <b>Wed: 01:00 – 01:50 PM</b> (1-D-145) Dr. El-Sherbeeney
Lab (1465): <b>Mon: 10:00 – 11:50 AM</b> (1-D-139) Engr. Abdulaziz Alqahtani	Lab (1468): <b>Sun: 01:00 – 02:50 PM</b> (1-D-139) Engr. Abdulaziz Alqahtani	Lab (1471): <b>Wed: 10:00 – 11:50 AM</b> (1-D-139) Engr. Abdulaziz Alqahtani

## Course Resources

Resources for the course include the instructor; assigned textbook and references; class notes and handouts; the library; the World Wide Web.

### Instructor

Dr. Ahmed M. El-Sherbeeney

Office: Room S053; email: [aelsherbeeney@ksu.edu.sa](mailto:aelsherbeeney@ksu.edu.sa)

Web Site: <https://faculty.ksu.edu.sa/en/aelsherbeeney>

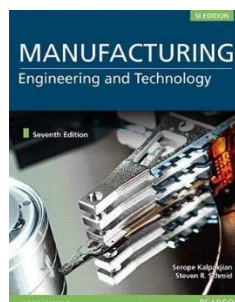
### Teaching Assistants

Engr. Abdulaziz Alqahtani

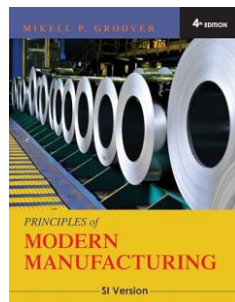
### Office Hours

Office hours can be conducted physically, or via Zoom or email. Best times to find me in the office this semester are **Mon: 01:00 – 02:00 PM; Tue: 09:00 – 10:00 AM, Wed: 03:00 – 04:00 PM**; or by appointment.

**Textbook:** *Manufacturing Engineering and Technology*. Serop Kalpakjian, Steven R. Schmid. Seventh Edition (SI). Pearson, 2013. ISBN-10: 9810694067; ISBN-13: 978-9810694067



**Reference:** *Principles of Modern Manufacturing*. Mikell P. Groover. Fourth Edition. Wiley: Asia, 2011. ISBN: 978-0-470-50592-2.



### Project Work

You will be asked to locate and summarize recent literature related to one of the topics discussed in this course. Details are discussed in the project sheet.

## Course Objectives

This course aims to provide engineering students with a solid foundation in manufacturing processes, materials, and workshop practices. It introduces key concepts of machining, casting, and welding, along with industrial safety and basic metrology, to prepare students for more advanced courses and real-world applications. Students will gain an appreciation for the role of manufacturing in engineering, industry, and society.

## Intended Learning Outcomes

By the end of this course, students will be able to:

1. Explain the fundamental principles, classifications, and applications of major manufacturing processes including machining, casting, welding, and basic workshop practices, with emphasis on safety concepts, measurement fundamentals, and process capabilities.
2. Analyze manufacturing operations by identifying process requirements, interpreting equipment functions, understanding measurement considerations, and comparing the capabilities and limitations of machining, casting, and welding processes.
3. Perform basic machining and measurement-related calculations - such as cutting speed, feed rate, machining time, MRR, and dimensional requirements - and select suitable manufacturing processes, tools, and parameters for given engineering scenarios.

## Course Policies

### Attendance

Attendance is a must! Attendance will be taken at the **first minute** of each class period (lecture, tutorial, and lab). The policy for considering attendance is as follows (please take serious note of this):

- If you are present at the time of taking attendance (in your **official section**) you are considered **present**.
- If you arrive late for your official section, then you are counted as **half-present**, so long as you arrive before mid-session (i.e. within the first 25 minutes); if you arrive later than that, then you are counted as absent.
- If you arrive at the time of taking attendance in a section other than yours, then you are counted as **half-present**; if you arrive later than that, then you are counted as absent.
- If you are absent with a valid excuse, you must bring the original excuse within one week for it to be counted.

### Make-up Tests and Late Homework Policy

No makeup test will be given and late homework will not be accepted unless the reason is beyond the student's control. A valid, official excuse must be presented.

### Class Discussion

Communication is very important in achieving collective goals and objectives. Feel free to voice your opinions and ask questions anytime during a class period. Practice your right and freedom to learn.

### Help Sessions

Help sessions will be organized at convenient times as needed upon request from students.

### Assessment and Evaluation

Assessment in the following areas will be converted to points, to compute your final grade in the course:

Assessment Item	Comment	Points*
Attendance	Used only to assess denial status	0%
Quizzes	Assigned once every 2-4 weeks	10%
Project	One semester project; Due end of 12 <sup>th</sup> Acad. Week: <b>Saturday, May 02, 2026 (15/11/1447H)*</b>	20%
Lab activities	Participation; Reports; Quizzes	10%
Midterm	One midterm (~7 <sup>th</sup> Acad. Week): <b>Midterm: TBA by the College</b>	20%
Final Exam	Exams period (Exams Week 1): <b>Tuesday, Jun. 02, 2026 (16/12/1447H): 10:30 AM – 12:30 PM</b>	40%

\* Tentative

## **Course Curriculum:**

### **Course topics\*:**

- |                                   |             |
|-----------------------------------|-------------|
| 1. Introduction to Manufacturing  | (1 Week)    |
| 2. Machining Measurement          | (1 Week)    |
| 3. Fundamentals of Machining      | (1.5 Weeks) |
| 4. Turning                        | (1.5 Weeks) |
| 5. Drilling                       | (1.5 Week)  |
| 6. Milling                        | (1.5 Week)  |
| 7. Casting                        | (1.5 Weeks) |
| 8. Welding                        | (1.5 Weeks) |
| 9. Industrial and workshop safety | (1 Week)    |

\* Subject to change

### **Laboratory topics\*:**

Basic machining, measurement, and safety-related laboratory activities

\* Subject to change