



**Department of Industrial Engineering**  
**Faculty of Engineering**

**EGMU-ABET FORM #1 (Syllabus)**

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## **EGIE 195 – Basic Engineering Workshops**

**Course description:**

Fundamentals of engineering drawing. Tools for engineering drawing. The use of computer in aiding basic design. Fundamentals of manufacturing processes. Equipment and tools for manufacturing processes. Basic safety for engineering practice.

**Credit hours:** 3 (2-2-5) credits

**Contact hours:** Every Tuesday at 1.00 pm – 5.00 pm

**Pre-requisites:** None

**Co-requisites:** None

**Textbook(s) and/or required materials:**

Bertoline, G.R., Ross, W., Wiebe, E.N., and Hartman, N. (2010), Fundamentals of graphics communication, 6th ed., New York, McGraw-Hill Higher Education.

Black, B.J., 2016, Workshop Processes, Practices and Materials, Fifth edition, Routledge Company, New York.

**References:** EGIE 195 (Basic Engineering Workshops) Handouts

**Computer usage:** Yes

**Course Objectives**

*The objectives of this course are to:*

Develop students' knowledge concerned the fundamental theories, tools, and machines related to basic engineering workshops and basic skills in using, storing, and maintaining tools and machines with safety.



**Course Topics**

<i>No.</i>	<i>Topics/details</i>	<i>Number of hours or weeks</i>	<i>Instructors/Assistants (Classroom)</i>
1	- Introduction to basic engineering practices and workshops with general safety - Basic for drafting equipment	4 (1)	Asst.Prof.Dr.Supphachan/ Mr. Ananchai (IE234)
2	Manual drawing practice - Basic for lettering and symbols - Basic drawing projection and dimensioning - Manual drawing practice (Orthographic projection)	4 (1)	Asst.Prof.Dr.Supphachan/ Mr. Ananchai (IE234)
3	Manual drawing practice - Basic for pictorial sketching (Isometric/Oblique) - Manual drawing practice (Isometric/Oblique sketching)	4 (1)	Asst.Prof.Dr.Supphachan/ Mr. Ananchai (IE234)
4	Manual drawing practice - Basic for sectioning and auxiliary views - Manual drawing practice (sectioning and auxiliary views)	4 (1)	Asst.Prof.Dr.Supphachan/ Mr. Ananchai (IE234)
5	Manual drawing practice - Basic for working drawing: Detail and assembly drawing - Manual drawing practice (Assembly drawing)	4 (1)	Asst.Prof.Dr.Supphachan/ Mr. Ananchai (IE234)
6	Computer-aided design (CAD) drawing I - Basic for 2D and 3D drawing - 2D and 3D CAD drawing practice	4 (1)	Lect.Worawit/ Mr. Ananchai (IE224 + IE225)
7	Computer-aided design (CAD) drawing II - Basic for 2D and 3D drawing (Continued) - 2D and 3D CAD drawing practice (Continued)	4 (1)	Lect.Worawit/ Mr. Ananchai (IE224 + IE225)
8	Prototype making practice - Basic for prototype making	4 (1)	Lect.Worawit/ Mr. Ananchai



<i>No.</i>	<i>Topics/details</i>	<i>Number of hours or weeks</i>	<i>Instructors/Assistants (Classroom)</i>
	- Conversion of drawing for prototype making practice		(IE224 + IE225)
9-10	Machining practice (Turning) - Basic for lathe operation - Workpiece layout practice - Lathe machining practice	8 (2)	Asst.Prof.. Dr.Kiattisak/ Mr. Ananchai (IE224 + IE124)
11-12	Welding practice - Basic for Welding operation (Oxy Acetylene Welding and Shield Metal Gas Welding) - Oxy Acetylene Welding Practice - Shield Metal Gas Welding Practice	8 (2)	Lect.Dr.Nophakorn/ Mr.Chuchai (IE224 + IE320)
13-15	Sheet metalworking practice - Basic of sheet metal drawing - Sheet metalworking practice	12 (3)	Asst.Prof.Thana/ Mr.Singh (IE224 + IE130)

**Course Learning Outcomes (CLOs)**

<i>At the end of the course, students should be able to:</i>
Comply rules and regulations in classroom, workshops and examination.
Explain fundamental of theories, tools, and machines related to basic engineering workshops.
Exhibits basic technical skills in using of tools and machines related to basic engineering workshops with safety.
Explain procedures in using, storing, and maintaining related to basic engineering workshops with safety.

**Class/laboratory schedule:** One 240-minute lecture and laboratory practice per week.

<b>Evaluation methods * (Direct Assessment)</b>	<b>Grading</b>	<b>Final score** (% Range)</b>
1. Work assignment: 90%	A	80-100
2. Class participations: 10 %	B+	75-79
-----	B	70-74
Total 100 %	C+	65-69
	C	60-64
	D+	55-59
	D	50-54
	F	Less than 50



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**Professional component**

Engineering topics: 100%

General education: 0%

Mathematics and basic sciences: 0%

**Person(s) who prepared this description and date of preparation**

Asst. Prof. Dr. Supphachan Rajsiri (Course director), Department of Industrial Engineering

Lect. Worawit Israngkul, Department of Electrical Engineering

Asst. Prof. Dr. Kiattisak Srirakulchai, Department of Industrial Engineering

Lect. Dr. Noppakorn Phuraya, Department of Industrial Engineering

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**Date of last revision**

December 2023