Akashi College	Year	2023	Course Title	Manufacturing Engineering Practice Ⅱ B

Course Information

Course Code	5230	Course Category	Specialized / Compulsory
Class Format	Practical training	Credits	School Credit: 1
Department	Mechanical Engineering	Student Grade	2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	KATOH Takahiro,OHMORI Shigetoshi		

Course Objectives

(1) Can carry out exercises based on procedures and instructions.
(2) Can use the equipment and devices correctly.
(3) Can report in writing, orally, etc.
(4) Can carry out exercises by working together as a group.
(5) Can acquire basic knowledge and skills in mechanical engineering.
(a) Understand and work with basic knowledge of gas welding, principles, characteristics and handling of CO2 and TIG welding in welding operations.
(b) Understand the end mill machining method and tolerance precision by milling machine operations, and perform basic machining.
(c) In lathe machining, can manufacture a product using applied techniques such as the mating method, the use of limit gauges, the basic techniques of rolling knurled machining, drilling, bored roughing, and boring finishing.

Rubric

	Ideal Level	Standard Level	Unacceptable Level
Achievement 1	Can fully carry out exercises based on the instructions and procedures provided.	Can carry out exercises based on the instructions and instructions provided.	Cannot carry out exercises based on the instructions and instructions provided.
Achievement 2	Can use equipment and devices sufficiently and correctly.	Can use equipment and devices correctly.	Cannot use equipment and devices correctly.
Achievement 3	Can report sufficiently in writing, orally, etc.	Can report in writing, orally, etc.	Cannot report in writing, orally, etc.
	Can carry out exercises by working together as a group while encouraging other members.	Can carry out exercises by working together as a group.	Cannot carry out exercises by working together as a group.
	Understand the basic knowledge of gas welding, the principles, characteristics, and handling of CO2 and TIG welding, and can work well.	Understand basic knowledge of gas welding, the principles, characteristics, and handling of CO2 and TIG welding, and can perform basic tasks.	Do not understand the basic knowledge of gas welding, the principles, characteristics, and handling of CO2 and TIG welding, and cannot perform tasks.
	Understand end mill machining techniques and tolerance accuracy to manufacture good products.	Understand the end mill machining method and tolerance accuracy, and can perform basic machining.	Do not understanding end mill machining methods and tolerance precision, and cannot perform basic machining.
	Understand the mating method and the use of the limit gauge, and can manufacture a good product using the rolling knurled machining method, drilling, boring roughing, and boring finishing.	Understand the mating method and the use of the limit gauge, and can manufacture a product using rolling knurled machining method, drilling, bored roughing, and boring finishing.	Do not understand the mating method and the use of the limit gauge, and can manufacture a product using rolling knurled machining method, drilling, bored roughing, and boring finishing.

Assigned Department Objectives

Teaching Method

Outline	In this course, we will further pursue basic exercises and do applied exercises. The goals is to understand basic technology through the organic relationship between processing theory and practice, develop work processes for rational work, and develop creative abilities.
Style	We will do basic exercises at the training factory. For basic exercises, students will split into six groups and carry out different assignments in turn. In addition, we will go on a factory tour to deepen knowledge of production methods.
Notice	In exercises, students may be concerned with the shape of the product, its appearance, and the progress of other groups. Always keep the purpose in mind, try to work correctly, and try to grasp the essential things. Students who miss 1/3 or more of classes will not be eligible for evaluation.

Characteristics of Class / Division in Learning

☐ Active Learning	☐ Aided by ICT	☑ Applicable to Remote Class	☐ Instructor Professionally Experienced

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Welding exercise III-1: Basic knowledge of gas welding, how to place beads, and precautions (Omori and Kato)	Understand basic knowledge of gas welding, how to place beads, precautions, etc., and learn how to work.
		2nd	Welding exercise III-2: Basic knowledge of gas welding, how to place beads, and precautions (Omori and Kato)	Understand basic knowledge of gas welding, how to place beads, precautions, etc., and learn how to work.
		3rd	Welding exercise IV-1: Principles, characteristics and handling of CO2, and TIG welding (Omori and Kato)	Understand the principles, characteristics, and handling of CO2 and TIG welding, and learn how to work.

		4th	Welding exercise IV-2: Principles, characteristics and handling of CO2, and TIG welding (Omori and Kato)	Understand the principles, characteristics, and handling of CO2 and TIG welding, and learn how to work.
		5th	Milling exercise II-1: Basic processing techniques such as end mill machining and tolerance accuracy (Omori and Kato)	Understand the end mill machining method and tolerance precision by milling and learn basic machining techniques.
		6th	Milling exercise II-2: Basic processing techniques such as end mill machining method and tolerance accuracy (Omori and Kato)	Understand the end mill machining method and tolerance precision by milling and learn basic machining techniques.
		7th	Milling exercise II-3: Basic processing techniques such as end mill machining method and tolerance accuracy (Omori and Kato)	Understand the end mill machining method and tolerance precision by milling and learn basic machining techniques.
		8th	Factory tour (Omori and Kato)	Broaden knowledge and insights that cannot be obtained at the training factory.
	4th Quarter	9th	Milling exercise II-4: Basic processing techniques such as end mill machining method, and tolerance accuracy (Omori and Kato)	Understand the end mill machining method and tolerance precision by milling and learn basic machining techniques.
		10th	Lathing exercise III-1: Mating method, explanation of limit gauge, and turning knurled processing method (Omori and Kato)	Understand the installation method, limit gauge handling method, and rolling knurled machining method through lathing exercises, and learn how to do the work.
		11th	Lathing exercise III-2: Mating method, explanation of the limit gauge, and roll-making method (Omori and Kato)	Understand the installation method, limit gauge handling method, and rolling knurled machining method through lathing exercises, and learn how to do the work.
		12th	Lathing exercise IV-1: Drilling, bore roughing, and bore finishing (Omori and Kato)	Acquire applied techniques such as drilling, bored roughing, and boring finishing through lathing exercises.
		13th	Lathing exercise IV-2: Drilling, bore roughing, and bore finishing (Omori and Kato)	Acquire applied techniques such as drilling, bored roughing, and boring finishing through lathing exercises.
		14th	Factory tour (Omori and Kato)	Broaden knowledge and insights that cannot be obtained at the training factory.
		15th	Report writing	Accurately summarize the knowledge and techniques acquired in the exercises.
		16th	No final exam	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	0	0	0	0	0	0	0
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	0	0	0	0	0	0	0
Cross Area Proficiency	0	0	0	0	0	0	0