Akashi College	Year	2023	Course Title	Manufacturing Engineering Practice Ⅱ A

Course Information

Course Code	5229	Course Category	Specialized / Compulsory
Class Format	Practical training	Credits	School Credit: 1
Department	Mechanical Engineering	Student Grade	2nd
Term	First 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) In welding work, understand the methods of flat butt welding and the gas welding and can manufacture a product.
(b) In milling work, understand the machining procedures of a hexahedral object and can manufacture a product.
(c) In lathe machining, understand the types and applications of screws, machining of male threads using oblique threading, and grooving, and can manufacture a product.

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 methods of flat butt welding and the gas welding and can manufacture a good product.	Understand the methods of flat butt welding and the gas welding and can manufacture a product.	Do not understand the methods of flat butt welding, and cannot manufacture a product.
	Understand the machining procedures of hexahedral object, and can manufacture a good product.	Understand the machining procedures of hexahedral object, and can manufacture a product.	Do not understand the machining procedures of hexahedral object, and cannot manufacture a product.
	Understand the types and applications of screws, machining of male threads using oblique threading, and grooving, and can manufacture a good product.	Understand the types and applications of screws, machining of male threads using oblique threading, and grooving, and can manufacture a product.	Do not understand the types and applications of screws, machining of male threads using oblique threading, and grooving, and cannot manufacture a product.

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 safety education in a lecture style in the first class. From the second class and on, we will do basic exercises in 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
1st Semester	1st Quarter	1st	Safety education (Omori and Kato)	Understand latent dangers of the work during the exercises and learn to work safely.
		2nd	Welding exercise I-1: Flat butt welding method (Making of bend test piece) (Omori and Kato)	Understand the flat butt weld method (Making a bend test piece) and learn how to work.
		3rd	Welding exercise I-2: Flat butt welding method (Making of bend test pieces) (Omori and Kato)	Understand the flat butt weld method (Making a bend test piece) and learn how to work.
		4th	Welding exercise II-1: Explanation of work procedures and handling of automatic gas cutter (Omori and Kato)	Learn how to work with gas welding and how to handle automatic gas cutters.
		5th	Welding exercise II-2: Explanation of for work procedures and handling of automatic gas cutters.(Omori and Kato)	Learn how to work with gas welding and how to handle automatic gas cutters.

		6th	Milling exercise I-1: Machining of a hexahedron object (Omori, and Kato)	Learn the basics of working procedures for machining through work on a hexahedron object with milling machines.
		7th	Milling exercise I-2: Machining of a hexahedron object (Omori and Kato)	Learn the basics of working procedures for machining through work on a hexahedron object with milling machines.
		8th	Factory tour (Omori and Kato)	By visiting a production plant, students will gain knowledge and insight that cannot be obtained at the training factory.
	2nd Quarter	9th	Milling exercise I-3: Machining of a hexahedron object (Omori and Kato)	Learn the basics of working procedures for machining through work on a hexahedron object with milling machines.
		10th	Milling exercise I-4: Machining of a hexahedron object (Omori and Kato)	Learn the basics of working procedures for machining through work on a hexahedron object with milling machines
		11th	Lathing exercise I-1: Types and applications of screws, machining of male threads using oblique threading, and grooving (Omori and Kato)	Learn about the types and applications of screws, machining of male threads using oblique threading, and grooving through lathe machining.
		12th	Lathing exercise I-2: Types and applications of screws, machining of male threads using oblique threading, and grooving (Omori and Kato)	Learn about the types and applications of screws, machining of male threads using oblique threading, and grooving through lathe machining.
		13th	Lathing exercise II-1: Making screw rods for a small vise (Omori and Kato)	Learn how to make a screw rod for a small vise through lathe machining.
		14th	Lathing exercise II-2: Making of screw rods for a small vise (Omori, Kato)	Learn how to make a screw rod for a small vise through lathe machining.
		15th	Factory tour (Omori and Kato)	By visiting a production plant, students will gain knowledge and insight that cannot be obtained at the training factory.
		16th	No final exam	

Evaluation Method and Weight (%)

	Report	the work	Behavior	Total
Subtotal	60	20	20	100
Basic Proficiency	0	0	0	0
Specialized Proficiency	60	20	20	100
Cross Area Proficiency	0	0	0	0