

Akashi College		Year	2022	Course Title	Scientific Technology and the Environment
Course Information					
Course Code	4506		Course Category	General / Elective	
Class Format	Lecture		Credits	School Credit: 1	
Department	Architecture		Student Grade	5th	
Term	Second Semester		Classes per Week	2	
Textbook and/or Teaching Materials					
Instructor	INOUE Naoyuki				
Course Objectives					
(1) Learn about the history of the technological development from the Meiji to the post-Pacific War period. (2) Learn about how the environmental destruction has occurred due to the technological development. (3) Learn about the relationship between technology and environmental destruction and think about how technologists should work. (4) During class, students will pass around a microphone, read the textbook, and express their opinions.					
Rubric					
	Ideal Level		Standard Level		Unacceptable Level
Achievement 1	Fully understand the history of the technological development from the Meiji to the post-Pacific War period.		Understand the history of the technological development from the Meiji to the post-Pacific War period.		Do not understand the history of the technological development from the Meiji to the post-Pacific War period.
Achievement 2	Fully understand how the environmental destruction has occurred due to the technological development.		Understand how the environmental destruction has occurred due to the technological development.		Do not understand how the environmental destruction has occurred due to the technological development.
Achievement 3	Can accurately think about how technologist should work based on the relationship between technology and environmental destruction.		Can think about how technologist should work based on the relationship between technology and environmental destruction.		Cannot think about how technologist should work based on the relationship between technology and environmental destruction.
Achievement 4	Can accurately express opinions on the content of the textbook discussed in class.		Can express opinions on the content of the textbook discussed in class.		Cannot express opinions on the content of the textbook discussed in class.
Assigned Department Objectives					
Teaching Method					
Outline	For 25 years between the Meiji and post-Pacific War period, Japan's main exporting industry was the textile industry. However, today, Japan's general-purpose chemical fiber production is less than 1% of the world's total. The Japanese textile industry has been transformed into a synthetic chemical company, producing high-value-added carbon fibers and asbestos substitute fibers, as well as chemical products that are necessary for environmental conservation, such as oil water separation filters, water purification systems, and bug filters. Through the rise and fall of the textile industry in Japan, students will learn about the history of technological progress and economy. In addition, we will take a broader look at how industries have tackled environmental issues, and also touch on the engineering ethics.				
Style	Classes will be held in a lecture style, including presentations by students.				
Notice	Evaluations are given with a focus on presentation and attitude during class. The lecturer is an ISO 14001 auditor. He will use his experience to teach the history of technological progress and economy, including the relationship with environmental issues. * Liaison: Ogasawara Students who miss 1/3 or more of classes will not be eligible for a passing grade.				
Characteristics of Class / Division in Learning					
<input type="checkbox"/> Active Learning		<input type="checkbox"/> Aided by ICT		<input checked="" type="checkbox"/> Applicable to Remote Class	<input checked="" type="checkbox"/> Instructor Professionally Experienced
Course Plan					
			Theme	Goals	
2nd Semester	3rd Quarter	1st	Industry in the Meiji period: Raw silk	Learn about the kinds of fibers, behind-the-scenes at Tomioka Silk Mill, the processes of raw silk production, and the development of the silk throwing industry in the post-World War I period.	
		2nd	The heart of the Industrial Revolution in Japan: Cotton spinning industry (1)	Learn about the Matsukata Deflation Policy and the success of Osaka Boseki, the breakthroughs of the textile industry after the First Sino-Japanese War and Russo-Japanese War, the World War I economic boom and the financial crisis, the Showa Depression, economic recovery and the development of the heavy chemical industry, etc.	
		3rd	No class because of a tour trip.	No class because of a tour trip.	
		4th	The heart of the Industrial Revolution in Japan: Cotton spinning industry (2)	Learn about the process of spinning cotton, the pitiful history of female factory workers, what Sakichi Toyoda did, the establishment of a patent system in Japan, etc.	
		5th	The emergence of recycled fiber rayon (1)	Learn about Cuprammonium rayon (Cupra), viscose rayon, who was Itsuzo Hata, etc.	
		6th	The emergence of recycled fiber rayon (2)	Learn about the golden age of rayon and the emergence of staple fibers.	

		7th	It began with the article in the New York times "Artificial Silk Products"	Learn about the news of nylon, the launch of nylon, the relationship between Mitsui & Co. and Toyo Rayon, the life of Carothers, the history of Du Pont, behind-the-scenes of the invention of nylon, etc.
		8th	Midterm exam	
	4th Quarter	9th	Nylon riots: Keikichi Arai starts to move (1)	Nylon riots, establishment of the Japan Synthetic Fibers Research Association, activities of the Japan Synthetic Textile Research Association, vinylon and nylon as Japan's economic drivers in the post-war period, etc.
		10th	Nylon riots: Keikichi Arai starts to move (2)	Learn about the difference between RIKEN and the Japan Synthetic Fiber Research Institute, industrialization of nylon and vinylon, acetate, production of polyvinylidene chloride and polyvinyl chloride, polyester and acrylic, etc.
		11th	Success of Keikichi Arai in the post-Pacific War period (1)	Learn about the establishment of He has established the Japan Radiation Polymer Chemical Research Association, establishment of the Polymer Raw Materials Development Technology Research Association, enactment of the Act on Research and Development Partnership concerning Mining and Manufacturing Technology, etc.
		12th	Success of Keikichi Arai in the post-Pacific War period (2)	Learn about the change from the unincorporated Polymer Raw Materials Development Technology Research Association to the incorporated Polymer Raw Materials Collaborative Innovation Partnership, the change of times from coal to petrol, the process of making synthetic fibers from petrol, and the rise of the Collaborative Innovation Partnerships.
		13th	Environmental problems in the post-Pacific War period and their solutions	Learn about environmental problems arising from the development of Japanese industries, including the four major pollution trials, the enactment of the Basic Act for Environmental Pollution Control and the establishment of the Environment Agency, the Basic Environment Act, the Basic Act on Establishing a Sound Material-Cycle Society, etc.
		14th	Chemical fibers and the environment	Learn about chemical fibers and environmental conservation, recycling of chemical fiber products, recycling of PET bottles into polyester fibers, etc.
		15th	Environmental destruction and engineering ethics	Environmental destruction is a typical example of the progress in technology that should make mankind happy giving mankind misfortune. The lecturer is also an ISO 14001 auditor. Based on these content, considers how engineering ethics should be.
		16th	Final exam	

#### Evaluation Method and Weight (%)

	Behavior	Report	Examination	Total
Subtotal	40	50	10	100
Basic Proficiency	40	50	10	100
Specialized Proficiency	0	0	0	0
Cross Area Proficiency	0	0	0	0