

Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	HISTORY OF MACHINES	Instructor	TASUPALLI CHANDRASHEKHAR
Course Class	TNUZB0A GLOBAL TECHNOLOGY REVOLUTION, 0A	Details	♦ General Course ♦ Required ♦ One Semester ♦ 2 Credits
Relevance to SDGs	SDG9 Industry, Innovation, and Infrastructure SDG11 Sustainable cities and communities		
D e p a r t m e n t a l A i m o f E d u c a t i o n			
Students will understand recent development of modern science and technology and its impact on human society and global environment. Through the design of course students will also be familiar with broadly-based fundamental technical knowledge and improve.			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:20.00) 2. Information literacy. (ratio:10.00) 3. A vision for the future. (ratio:20.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:10.00) 6. A cheerful attitude and healthy lifestyle. (ratio:10.00) 7. A spirit of teamwork and dedication. (ratio:10.00) 8. A sense of aesthetic appreciation. (ratio:10.00)			
Course Introduction	This course will introduce the historical and recent development of modern science, machines, and their impact on humans. This course will provide the students with a broad fundamental technical knowledge and improve.		

The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.

II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.

III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	Students will be familiar with the concept, history, principles, and applications of machines and manufacturing from Industry 1.0 to Industry 4.0.	Cognitive
2	Students will understand the machines or manufacturing work is not a dirty job.	Affective
3	Students will prepare the catapult as a hands-on experience as Students will be familiar with the concept. Psychomotor	Psychomotor

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1		12345678	Lecture, Discussion, Practicum, Experience	Testing, Study Assignments
2		12345678	Lecture, Discussion	Practicum, Report(including oral and written)
3		12345678	Practicum	Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	114/09/15 ~ 114/09/21	Introduction	
2	114/09/22 ~ 114/09/28	Anonymous Developments- Bio-mimicking machines	
3	114/09/29 ~ 114/10/05	Anonymous Developments- Artificial machines	
4	114/10/06 ~ 114/10/12	Chinese Inventions and Machines- Catapults	
5	114/10/13 ~ 114/10/19	Hands-on practice of Catapults and their manufacture	

6	114/10/20 ~ 114/10/26	Chinese Inventions and Machines- South-pointing chariot	
7	114/10/27 ~ 114/11/02	Water-powered machines in the middle age of Europe	
8	114/11/03 ~ 114/11/09	Machinery during the Industrial Revolution- Textile machines	
9	114/11/10 ~ 114/11/16	Midterm Exam Week	
10	114/11/17 ~ 114/11/23	Machinery during the Industrial Revolution- Steam engine	
11	114/11/24 ~ 114/11/30	When can we make our own power plant?	
12	114/12/01 ~ 114/12/07	Information Tech & Computers	
13	114/12/08 ~ 114/12/14	Semiconductor Industry	
14	114/12/15 ~ 114/12/21	MEMS and Nanotech	
15	114/12/22 ~ 114/12/28	Artificial Intelligence, Robotics, and IR 4.0	
16	114/12/29 ~ 115/01/04	Final Week of Diverse Assessments	
17	115/01/05 ~ 115/01/11	Final Week of Diverse Assessments/Flexible Teaching Week for Teachers	
18	115/01/12 ~ 115/01/18	Flexible Teaching Week for Teachers	
Key capabilities	self-directed learning Information Technology Problem solving Interdisciplinary		
Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist) Competency-based education 'competency exploration' sustained competency or global issues STEEP (Society, Technology, Economy, Environment, and Politics) In addition to teaching content of the teacher's professional field, integrate other subjects or invite experts and scholars in other fields to share knowledge or teaching		
Distinctive teaching	Game-based learning courses Project implementation course Translation Teaching Course Collaborative teaching (multiple teachers and business teachers in the school) course Learning technologies (such as AR/VR,etc.) incorporated to physical courses		
Course Content	Intellectual Property (learning intellectual property) Logical Thinking Environmental Safety		

Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Textbooks, Presentations Name of teaching materials: History of Machines, edited by Lung-Jieh Yang Using teaching materials from other writers:Textbooks, Presentations
References	Teaching materials on the Iclass
Grading Policy	<p>◆ Attendance : 10.0 % ◆ Mark of Usual : % ◆ Midterm Exam : 30.0 %</p> <p>◆ Final Exam : 30.0 %</p> <p>◆ Other 〈Final Report〉 : 30.0 %</p>
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at https://web2.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php.</p> <p>※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>