Tamkang University Academic Year 113, 2nd Semester Course Syllabus

Course Title	FUNDAMENTALS OF PRECISION MACHINE ELEMENTS	Instructor	YEN-TING LI
Course Class	TEBXB3A DEPARTMENT OF MECHANICAL AND ELECTRO-MECHANICAL ENGINEERING, 3A	Details	◆ General Course ◆ Required ◆ 2nd Semester ◆ 2 Credits
Relevance to SDGs	SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Ⅰ. To prepare students with a solid background in applied sciences and engineering to enter the field of mechanical and electromechanical engineering.

Ⅱ. To train emerging engineers who possess the professional expertise and superior engineering ethics to meet the needs and expectations of the local community and global society.

Ⅲ. To instill in students a lifelong love of learning that extends beyond basic skills to acquire attributes of flexibility and adaptability in a diverse and competitive global marketplace.

Subject Departmental core competences

A. Head: Knowledge of mechanical and electromechanical engineering.(ratio:30.00)

B. Hand: Hands-on skills and practical realization.(ratio:30.00)

C. Heart: Love of learning and innovation.(ratio:20.00)

D. Eye: Vision of progress and improvements.(ratio:20.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:10.00)
2. Information literacy. (ratio:30.00)
3. A vision for the future. (ratio:10.00)
4. Moral integrity. (ratio:5.00)
5. Independent thinking. (ratio:30.00)
6. A cheerful attitude and healthy lifestyle. (ratio:5.00)
7. A spirit of teamwork and dedication. (ratio:5.00)
8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	The primary goals cover the knowledge, analysis, design and application of standard precision machine members. The particular interests emphasize the correctness, accuracy and safety of the resultant design. In addition to satisfy such successful training, creative and reliable design are included in whole learning process. It provide a fundamental basis for modern mechanical system design.

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 can appreciate various fundamental machine members	Cognitive
2	Students can compute and analyze fundamental machine members	Affective
3	Students can design fundamental machine members	Cognitive
4	Students can apply fundamental machine members	Affective
5	Students can improve and develop machine members	Affective
6	Students can integrate manufacturing technique to enhance machine design	Cognitive
7	Students can integrate mechanical material knowledge to enhance machine design	Cognitive
8	Students can build up basic concept of optimum design to enhance machine design	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation

2	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation
3	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation
4	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation
5	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation
6	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation
7	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation
8	ABCD	12345678	Lecture	Testing, Study Assignments, Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	114/02/17 ~ 114/02/23	Introduction	
2	114/02/24 ~ 114/03/02	Shafts and Shaft Components	
3	114/03/03 ~ 114/03/09	Off-campus visit	
4	114/03/10 ~ 114/03/16	Shafts and Shaft Components	
5	114/03/17 ~ 114/03/23	Shafts and Shaft Components	
6	114/03/24 ~ 114/03/30	Mechanical Springs	
7	114/03/31 ~ 114/04/06	Mechanical Springs	
8	114/04/07 ~ 114/04/13	Mechanical Springs	
9	114/04/14 ~ 114/04/20	Midterm Exam/Midterm Assessment Week (teachers can adjust the week as needed)	
10	114/04/21 ~ 114/04/27	Off-campus visit	
11	114/04/28 ~ 114/05/04	Rolling-Contact Bearing	
12	114/05/05 ~ 114/05/11	Rolling-Contact Bearing	
13	114/05/12 ~ 114/05/18	Rolling-Contact Bearing	

14	114/05/19～ 114/05/25	Gears-General	
15	114/05/26～ 114/06/01	Gears-General	
16	114/06/02～ 114/06/08	Gears-General	
17	114/06/09～ 114/06/15	Final Exam/Final Assessment Week (teachers can adjust the week as needed)	
18	114/06/16～ 114/06/22	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	

Key capabilities	self-directed learning Information Technology
Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)
Distinctive teaching	Industry-university collaboration courses
Course Content	Logical Thinking
Requirement	
Textbooks and Teaching Materials	Using teaching materials from other writers:Textbooks Name of teaching materials: Richard G. Budynas and J Keith Nisbett, "Shigley's Mechanical Engineering Design", 11th, Mc Graw Hill, 2020.
References	精密機械精度基礎，李碩仁，費業泰主編，2003年，高立圖書公司。 精密機械設計，蔡錫錚等著，2014年，五南圖書公司。 機械要件設計實務，井澤實著，復漢出版社。
Grading Policy	◆ Attendance： %　◆ Mark of Usual：30.0 %　◆ Midterm Exam： 30.0 % ◆ Final Exam： 40.0 % ◆ Other〈 〉： %

Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.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 . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**