Tamkang University Academic Year 113, 2nd Semester Course Syllabus

Course Title	ASSISTIVE TECHNOLOGY AND DESIGN	Instructor	CHENG-EN, WU
Course Class	TZIBM1R MASTER'S PROGRAM, DIVISION OF GERONTECHNOLOGY, GRADUATE INSTITUTE OF INTELLIGENT HEALTHCARE INDUSTRY, 1R	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG11 Sustainable cities and communities SDG17 Partnerships for the goals		

Departmental Aim of Education

Ⅰ. Development of problem solving capacity.

Ⅱ. Development of reserch and innovation capacity.

Ⅲ. Enhancement of cross-disciplinary capactiy.

Ⅳ. Development of lifelong self learning capacity.

Subject Departmental core competences

A. Capacity of problem solving.(ratio:15.00)

B. Capacity of senior health managemnt.(ratio:15.00)

C. Capacity of Healthcare Industry Management.(ratio:15.00)

D. Analytical capacity of health informatics.(ratio:10.00)

E. Capacity of research and innovation.(ratio:15.00)

F. Capacity of Scientific Paper Writing.(ratio:10.00)

G. Capacity of lifelong self learning.(ratio:10.00)

H. Creative Capacity.(ratio:10.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:10.00)

2. Information literacy. (ratio:15.00)

3. A vision for the future. (ratio:15.00)

4. Moral integrity. (ratio:5.00)

5. Independent thinking. (ratio:15.00)

6. A cheerful attitude and healthy lifestyle. (ratio:20.00)

7. A spirit of teamwork and dedication. (ratio:10.00)

8. A sense of aesthetic appreciation. (ratio:10.00)

Course Introduction	This course is designed for students interested in assistive device design and application. It integrates knowledge of human anatomy and exercise physiology, providing a comprehensive exploration of the theories and practices of assistive technology. Students will learn to analyze user needs, select appropriate materials and technologies, design, and test functional assistive devices, fostering innovation and application.

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	Understand the development history, classification, and application scope of assistive devices, and grasp the course objectives and framework.	Cognitive
2	Familiarize with human skeletal and muscular structures and their roles in motion.	Cognitive
3	Explore joint structures and biomechanics, analyzing their connection to assistive device design.	Psychomotor
4	Learn about the properties and applications of commonly used assistive materials, and basic structural design.	Psychomotor
5	Learn about biomechanics in device design, focusing on improving comfort and safety.	Affective

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEFGH	12345678	Lecture, Discussion	Discussion(including classroom and online)

2	ABCDEFGH	12345678	Lecture	Discussion(including classroom and online), Report(including oral and written)
3	ACDFGH	12345678	Lecture, Discussion	Discussion(including classroom and online)
4	ABCDEGH	12345678	Lecture, Discussion	Discussion(including classroom and online)
5	ABCDEFGH	12345678	Lecture, Discussion	Discussion(including classroom and online)

Course Schedule

Week	Date	Course Contents	Note
1	114/02/17～114/02/23	課程簡介與輔具技術概論 Introduction to the Course and Overview of Assistive Technology	
2	114/02/24～114/03/02	人體解剖學基礎（一）：骨骼與肌肉系統 Human Anatomy Basics I: Skeletal and Muscular Systems	
3	114/03/03～114/03/09	人體解剖學基礎（二）：關節與運動學 Human Anatomy Basics II: Joints and Kinematics	
4	114/03/10～114/03/16	運動生理學基礎：力量與靈活性 Exercise Physiology Basics: Strength and Flexibility	
5	114/03/17～114/03/23	銀髮族功能性需求分析 Functional Needs of the Elderly	
6	114/03/24～114/03/30	輔具設計材料與結構分析（一） Materials and Structural Analysis for Assistive Design I	
7	114/03/31～114/04/06	教學行政觀摩日 Teaching Administration Observation Day	
8	114/04/07～114/04/13	輔具設計材料與結構分析（二）Materials and Structural Analysis for Assistive Design II	
9	114/04/14～114/04/20	期中專題報告 ：輔具設計構想 Midterm Project Proposal: Assistive Design Ideas	
10	114/04/21～114/04/27	生物力學在輔具設計中的應用 Biomechanics in Assistive Device Design	
11	114/04/28～114/05/04	智能輔具與科技應用Smart Assistive Devices and Technological Applications	
12	114/05/05～114/05/11	使用者測試與回饋方法 User Testing and Feedback Methods	
13	114/05/12～114/05/18	輔具設計的倫理與社會影響Ethics and Social Impacts of Assistive Design	

14	114/05/19～ 114/05/25	市場導入與商業化分析Market Introduction and Commercialization Analysis	
15	114/05/26～ 114/06/01	專題設計工作坊（一）：設計細化與模型製作Project Workshop I: Design Refinement and Model Fabrication	
16	114/06/02～ 114/06/08	專題設計工作坊（二）：功能測試與改良Project Workshop II: Functional Testing and Improvement	
17	114/06/09～ 114/06/15	專題成果展示與評估 Final Project Presentation and Evaluation	
18	114/06/16～ 114/06/22	課程總結與未來展望Course Conclusion and Future Directions	

Key capabilities	self-directed learning Information Technology Problem solving Interdisciplinary
Interdisciplinary	
Distinctive teaching	Special/Problem-Based(PBL) Courses
Course Content	Gender Equality Education Logical Thinking Sustainability issue
Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Handouts
References	
Grading Policy	◆ Attendance： 55.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 15.0 % ◆ 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.**