

Tamkang University Academic Year 112, 2nd Semester Course Syllabus

Course Title	BIONANOTECHNOLOGY	Instructor	LIAO, SHU-CHUAN
Course Class	TGEXB0A ELECTIVES COURSES BY COLLEGE OF ENGINEERING, 0A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG3 Good health and well-being for people SDG8 Decent work and economic growth SDG9 Industry, Innovation, and Infrastructure		
Departmental Aim of Education			
Educate our undergraduate students to be successful engineers who have interdisciplinary knowledge, techniques and literacy.			
Subject Departmental core competences			
A. The ability to solve engineering problems using basic information techniques and computer software.(ratio:40.00) B. The ability to recognize and treasure professional ethics.(ratio:30.00) C. The ability to learn and integrate basic knowledge of mathematics, science and engineering.(ratio:30.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:10.00) 3. A vision for the future. (ratio:15.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:30.00) 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:5.00)			

Course Introduction	<p>Bio-nanotechnology mainly explores the application of nanoscale in the medical field, combining biological and engineering-related knowledge to explore innovative applications of nanomaterials in diagnosis, treatment, and bioimaging. Students will gain an in-depth understanding of the properties of nanomaterials, and courses include topics such as nanomedicine, biomedical imaging, and drug delivery.</p>
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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	1.Introduction to biomedical nanomaterials and their biomedical applications 2.Biomedical imaging and diagnostic technology 3.Drug delivery and therapeutic applications	Cognitive

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

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

Course Schedule

Week	Date	Course Contents	Note
1	113/02/19 ~ 113/02/25	生物奈米科技簡介	
2	113/02/26 ~ 113/03/03	生物奈米材料介紹	
3	113/03/04 ~ 113/03/10	奈米材料在生物醫學的應用-生物相容性與毒性評估	
4	113/03/11 ~ 113/03/17	奈米材料在生物醫學的應用-生物感測器與診斷技術	

5	113/03/18 ~ 113/03/24	奈米材料在生物醫學的應用-奈米藥物與免疫療法	
6	113/03/25 ~ 113/03/31	奈米醫學影像-奈米粒子在影像學的應用	
7	113/04/01 ~ 113/04/07	教學觀摩日	
8	113/04/08 ~ 113/04/14	基因療法與奈米載體-奈米載體在基因療法中的應用	
9	113/04/15 ~ 113/04/21	期中考試週	
10	113/04/22 ~ 113/04/28	藥物傳遞與治療應用-奈米技術在藥物傳遞中的應用	
11	113/04/29 ~ 113/05/05	生物奈米科技之發展及專利技術應用	
12	113/05/06 ~ 113/05/12	臨床應用與案例研究-奈米技術在臨床治療的應用	
13	113/05/13 ~ 113/05/19	生物奈米科技的未來發展趨勢&小組討論	
14	113/05/20 ~ 113/05/26	期末報告與討論(I)	
15	113/05/27 ~ 113/06/02	期末報告與討論(II)	
16	113/06/03 ~ 113/06/09	期末報告與討論(III)	
17	113/06/10 ~ 113/06/16	期末考試週(本學期期末考試日期為:113/6/11-113/6/17)	
18	113/06/17 ~ 113/06/23	教師彈性教學週(應安排學習活動如補救教學、專題學習或者其他教學內容，不得放假)	
Key capabilities			
Interdisciplinary			
Distinctive teaching			
Course Content		Logical Thinking Environmental Safety	
Requirement		1.將主要以期中(讀書心得報告)及分組期末報告進行評量。 2.課堂的分組討論及個人回饋等表現可用來做學期分數加乘。	

Textbooks and Teaching Materials	Self-made teaching materials:Handouts
References	
Grading Policy	<p>◆ Attendance : 10.0 % ◆ Mark of Usual : % ◆ Midterm Exam : 30.0 %</p> <p>◆ Final Exam : 40.0 %</p> <p>◆ Other 〈 課堂討論 〉 : 20.0 %</p>
Note	<p>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 .</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>