



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	自動控制系統AB			學年/學期 Academic Year/Semester	114/1				
課程名稱(英文) Course Name in English	Automatic Control Systems								
科目代碼 Course Code	EE_3360AB	系級 Department & Year	學三	開課單位 Course-Offering Department	電機工程學系				
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)		3.0/3.0					
授課教師 Instructor	/謝欣然								
先修課程 Prerequisite									

課程描述 Course Description

Studies on analysis and design of control systems. It contains modeling of dynamic systems, stability, and controllers development based on transfer functions and state-space equations.

課程目標 Course Objectives

學習控制系統之穩定度分析、控制器設計方式、以及控制相關軟體設備之認識與應用

系專業能力 Basic Learning Outcomes		課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	培育具備工程、應用數學與物理科學等數理知識之基本能力。To cultivate the basic knowledge of engineering, applied mathematics and physics	●
B	培育系統分析、模擬驗證、實作實現之能力。To cultivate the basic ability of analysis, verification and implementation of systems.	●
C	訓練軟體工具使用與硬體實務驗證相互輔助之能力。To train the auxiliary ability between the utilization of software tool and the verification of the hardware practice	○
D	訓練電機本知學能技術與工程實務相互結合運用之能力。To train the integrate ability between professional instinct in learning technique and engineering practice.	●
E	落實專題製作之群體合作與團隊競爭之能力。To fulfill the ability of group cooperation and teamwork competition.	○
F	落實發掘問題、邏輯分析、克服瓶頸與持續學習之能力。To fulfill the ability of question finding, logical analyzing, bottleneck overcoming and continuous learning	●
G	了解學術倫理與智慧財產觀念，掌握產業更迭需求與具備多元專長之能力。To obtain the ability of multi-specialization and to meet the industry demand as well as to have the ability of academic ethics and concept of intellectual property	○
H	了解國內外市場變化，具備基本科技英文閱讀溝通之能力。To understand the change of global market and the have the basic ability of reading and conversation in English.	○

圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content

週次 Week	內容 Subject/Topics	備註 Remarks
1	Introduction to the grading rules for the semester's score Introduction to control systems	9/10
2	Modeling of dynamic systems Differential equations of dynamic systems -part 1	9/17

3	Class suspending due to day-off	9/24
4	Differential equations of dynamic systems -part 2	10/01
5	Differential equations of dynamic systems -part 3 Block diagrams and signal-flow graphs -part 1	10/08
6	Block diagrams and signal-flow graphs -part 2 Stability of linear control systems -part 1	10/15
7	Stability of linear control systems -part 2 Time-domain performance of control systems -part 1	10/22
8	Time-domain performance of control systems -part 2	10/29
9	1st Exam	11/05
10	Suspended (全校運動會)	11/12
11	State-space analysis and controller design -part1	11/19
12	State-space analysis and controller design -part 2	11/26
13	2nd Exam	12/03
14	Root-locus analysis -part 1	12/10
15	Root-locus analysis -part 2 Frequency-domain analysis -part 1	12/17
16	Frequency-domain analysis -part 2 Design of control systems	12/24
17	3rd Exam (Final Exam)	12/31
18	Supplementary study	1/07

教學策略 Teaching Strategies

課堂講授 Lecture 分組討論 Group Discussion 參觀實習 Field Trip

其他Miscellaneous:

教學創新自評 Teaching Self-Evaluation

創新教學 (Innovative Teaching)

問題導向學習 (PBL) 團體合作學習 (TBL) 解決導向學習 (SBL)

翻轉教室 Flipped Classroom 磨課師 Moocs

社會責任 (Social Responsibility)

在地實踐 Community Practice 產學合作 Industy-Academia Cooperation

跨域合作 (Transdisciplinary Projects)

跨界教學 Transdisciplinary Teaching 跨院系教學 Inter-collegiate Teaching

業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments						
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定
平時成績(含出缺席) General Performance (Attendance Record)			✓					
期中考成績 Midterm Exam		✓						
期末考成績 Final Exam		✓						
作業成績 Homework and/or Assignments								
其他 Miscellaneous (_____)								

評量方式補充說明
Grading & Assessments Supplemental instructions

Roll call: 10% by Zuvio

Semester-grade percentage: 45%, 30%, 15%

教科書與參考書目 (書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Automatic Control Systems, McGraw-Hill Education, B.K. Bose, 2017. 東華/新月圖書公司代理

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website (Including online teaching information.

Personal website can be listed here.)

其他補充說明 (Supplemental instructions)