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# ②國玄東華大學

# 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	自動控制系統A	A		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_3360AA	系級 Department 學三 ( & Year		開課單位 Course-Offering Department	電機工程學系		
修別 Type	學程 Program	學分數/時 Credit(s)/Hou		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、以及控制相關軟硬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	•
В	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.	•
С	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	0
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.	•
Е	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.	0
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	0
Н	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.	0

## 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	Field Trip					
其他Mi	scellaneous:						
教 學 創 新 自 評 Teaching Self-Evaluation							
創新教學(	創新教學(Innovative Teaching)						
▼ 問題導向學習(PBL) ■ ■體合作學習(TBL) ■ 解決導向學習(SBL)							
翻轉教室 Flipped Classroom							
社會責任(Social Responsibility)							
□ 在地實踐Community Practice □ 產學合作 Industy-Academia Cooperation							
──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	配分比例	多元評量方式 Assessments							
Items	Percentage	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	其他
平時成績(含出缺席) General Performance (Attendance Record)			<b>~</b>						
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)