

[回上一頁](#) [列印](#)

國立高雄科技大學
NATIONAL KAOHSIUNG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

授課大綱 Syllabus

部別：日間部博士

112學年度第2學期

列印日期：2024/03/01

中文課程名稱：分散式系統	英文課程名稱：Distributed Systems	授課教師：Elsisi
開課班級：博電一甲	學分：3.0	授課時數：3.0
合班班級：碩電一甲, 碩電二甲		實習時數：0.0

1. 中文教學目標(Chinese Teaching objectives)

The course focuses on the decentralization and decomposition of large-scale systems. These methods are utilized as effective tools to overcome specific difficulties arising in large-scale complex systems such as high dimensionality, information structure constraints, uncertainty, and delays. Several recent and prospective topics are introduced in these contents and it can be used for future research. In this course, students learn mathematics modeling of large-scale system and the design of decentralized controllers. The course is delivered with examples such as an application of decentralized model predictive control based on the genetic algorithm on large-scale systems.

2. 英文教學目標(English Teaching objectives)

The course focuses on the decentralization and decomposition of large-scale systems. These methods are utilized as effective tools to overcome specific difficulties arising in large-scale complex systems such as high dimensionality, information structure constraints, uncertainty, and delays. Several recent and prospective topics are introduced in these contents and it can be used for future research. In this course, students learn mathematics modeling of large-scale system and the design of decentralized controllers. The course is delivered with examples such as an application of decentralized model predictive control based on the genetic algorithm on large-scale systems.

3. 中文教學綱要(Chinese CourseDescription)

1. Introduction 2. Models of large-scale systems 3. Decomposition approaches 4. Decentralized networked control 5. Decentralized control for non-constrained systems 6. Decentralized control for constrained systems 7. Conclusions

4. 英文教學綱要(English CourseDescription)

1. Introduction 2. Models of large-scale systems 3. Decomposition approaches 4. Decentralized networked control 5. Decentralized control for non-constrained systems 6. Decentralized control for constrained systems 7. Conclusions

5. 中文核心能力

核心能力名稱	核心能力百分比
1 具備基本的電機工程專業知識	20%
2 具備工程實務歸納、分析、整合之能力	20%
3 具備有效溝通表達自我, 團隊合作之能力	15%
4 培養畢業生繼續深造的能力, 落實終身學習理念	15%
5 具備專業倫理及社會責任認知, 並遵守智慧財產權及職業道德	15%
6 對相關產業之國際發展趨勢有深入了解, 並具備接受全球化競爭挑戰的能力	15%

6. 英文核心能力

	核心能力名稱	核心能力百分比
1	Professional knowledge in basic electrical engineering	20%
2	Competence in induction, analysis and integration of engineering practices	20%
3	Competence in effective communication and team cooperation	15%
4	Competence of graduates in further study and lifelong learning	15%
5	Professional ethics and social responsibility awareness and compliance with intellectual property rights and ethics	15%
6	Profound knowledge in international development trend of related industries and ability of taking challenges in global competition	15%

7. 教科書

	中文書名：	英文書名：Decentralized control of complex systems
	中文作者：	英文作者：SILJAK, Dragoslav D.
1	中文出版社：	英文出版社：Courier Corporation
	出版日期：	年 月 備註：

8. 參考書

	中文書名：	英文書名：Decentralized control of large-scale systems
	中文作者：	英文作者：Davison, E. J., Aghdam, A. G., & Miller, D. E.
1	中文出版社：	英文出版社：Springer
	出版日期：	年 月 備註：

9. 教學進度表

週次或項目 Week or Items	中文授課內容 Chinese Course Content	英文授課內容 English Course Content	分配節次 Assigned Classes	備註 Note
1	導論	Introduction		
2	Matlab 和控制系統的基礎知識	Basics of Matlab and control systems		
3	Matlab 和控制系統的基礎知識(續)	Continue Basics of Matlab and control systems		
4	大型系統模型	Models of large-scale systems		
5	大型系統模型(續)	Continue models of large-scale systems		

6	大型系統模型(續)	Continue models of large-scale systems
7	分解方法	Decomposition approaches
8	分解方法(續)	Continue decomposition approaches
9	期中報告	Midterm report
10	分散式網路控制	Decentralized networked control
11	分散式網路控制(續)	Continue decentralized networked control
12	非受限系統的分散控制	Decentralized control for non-constrained systems
13	非受限系統的分散控制(續)	Continue Decentralized control for non-constrained systems
14	受限系統的分散控制	Decentralized control for constrained systems
15	受限系統的分散控制(續)	Continue decentralized control for constrained systems
16	人工智慧應用	Application of artificial intelligence
17	人工智慧應用(續)	Continue application of artificial intelligence
18	期末報告	Final Report

10. 中文成績評定(Chinese Evaluation method)

Midterm report _30_% Final report _30_% Report (homework) _30_% Other (Attendance)_10_____ %

11. 英文成績評定(English Evaluation method)

Midterm report _30_% Final report _30_% Report (homework) _30_% Other (Attendance)_10_____ %

12. 中文課堂要求(Chinese Classroom requirements)

無要求

13. 英文課堂要求(English Classroom requirements)

No requirement

14. 本課程與SDGs相關項目(This course is relevant to these of SDGs as following)

「遵守智慧財產權」；「不得非法影印」！