111-1 Full Curriculum of Da-Yeh University

Information			
Title	Internet of Things	Serial No./ID	2084 /IFI3111
Required/Credit	Optinal /3	Time/Place	(Thu)567 /H708
Language	Chinese	Grade Type	Number
Lecturer /Full- or Part-time	Tsai Huan-Liang /Full-time	Graduate Class	Non-graduating Class
School System /Dept /Class, Grade	Bachelor /Department of Computer Science and Information Engineering /Class 1, Grade 3		
Office Hour / Place	n.a.		
Lecturer	n.a.		

Introduction

隨著科技的進步，網路早已成為人與人重要的溝通管道之一，而在未來的世界，透過物聯網技術，將賦予物件智慧並擁有與其它物件或人溝通的能力，換言之，未來網路不再只是人與人的溝通管道，更是聯繫全球物與物、人與物的橋樑。本課程對應至Platform Layer，內容主要讓修習學生了解終端設備如何將資料透過網路傳至遠端另一設備已共同完成生產製造過程中的工作，內容包括網路運作機制、資料交換機制及相關的協定運作。

Outline

為達成上述目標，本課程將包含講述與實作課程，講述課程包括以下各項：
1.物聯網概念。
2.物聯網感知層技術
3.物聯網網路層技術
4.物聯網應用層技術
5.物聯網在智慧製造之應用實例

Prerequisite

無

The Relationship Between Courses and Departmental Core Competencies and Basic Skills

- 1.2 Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- 2.1 Ability to design and conduct experiments, as well as to analyze and interpret data
- 2.2 Ability to propose, conduct, and write the reports of a research project
- 2.3 Ability to dedign and integrate the systems
- 3.1 Ability to cooperate supportively with others and communicate effectively
- 3.3 Ability to engage in life-long learning

1.1 Knowledge of mathematics and physics for the application of information engineering

3.2 Understanding of engineering ethics and international vision

Teaching Plan						
Core Capability	Weight(%)【A】	Ability index(Performance Indicators)	Teaching Methods	Assessment and Weight	Core Competency Learning Outcomes【B】	Final Exam Grades【C=B*A】
1.2 Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	20	The practical abilities	Practical Operation (Experiment, Machine Operation Lecturing Special Report	Record on Experiment: 30% Peer Assessment: 20% Product Manufacturing: 20% Course Participation: 10% Written Report: 20%	Total: 100	20
2.1 Ability to design and conduct experiments, as well as to analyze and interpret data	20	The professional abilities	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Course Participation: 10% Product Manufacturing: 20% Peer Assessment: 20% Record on Experiment: 30% Written Report: 20%	Total: 100	20
2.2 Ability to propose, conduct, and write the reports of a research project	10	The practical abilities	Practical Operation (Experiment, Machine Operation Lecturing Special Report	Record on Experiment: 30% Peer Assessment: 20% Product Manufacturing: 20% Course Participation: 10% Written Report: 20%	Total: 100	10

2.3 Ability to dedign and integrate the systems	20	The professional abilities	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Product Manufacturing: 20% Course Participation: 10% Peer Assessment: 20% Record on Experiment: 30% Written Report: 20%	Total: 100	20
3.1 Ability to cooperate supportively with others and communicate effectively	10	The basic abilities	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Product Manufacturing: 20% Course Participation: 10% Peer Assessment: 20% Written Report: 20% Record on Experiment: 30%	Total: 100	10
1.1 Knowledge of mathematics and physics for the application of information engineering	20	The professional abilities	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Course Participation: 10% Product Manufacturing: 20% Record on Experiment: 30% Peer Assessment: 20% Written Report: 20%	Total: 100	20

Grade Auditing

Record on Experiment: 30%
Peer Assessment: 20%
Product Manufacturing: 20%
Written Report: 20%
Course Participation: 10%

Book Type (Respect intellectual property rights. Please use official textbooks and do not illegally photocopy others' works.)		
Book Type	Book name	Author
Textbook	超圖解物聯網IoT實作入門	趙英傑
Reference Books	智慧製造感測聯網與數據處理分析技術	鄭志鈞等人
Textbook	超圖解 Python 物聯網實作入門	趙英傑

Lesson Plan		
Weeks	Content	Teaching Methods
1	Introduction & Intellectual Property Protection (use legitimate textbooks only) & Traffic safety Propaganda	Lecturing
2	Technologies of Perception layer	Lecturing
3	Technologies of Perception layer	Lecturing、 Practical Operation (Experiment, Machine Operation
4	Technologies of Network Layer	Lecturing、 Practical Operation (Experiment, Machine Operation
5	Holiday	Holiday、 Lecturing、 Practical Operation (Experiment, Machine Operation
6	Technologies of Network Layer	Lecturing
7	Technologies of Network Layer	Lecturing
8	Technologies of Application Layer	Lecturing
9	Technologies of Application Layer	Lecturing
10	Technologies of Application Layer	Lecturing、 Practical Operation (Experiment, Machine Operation
11	Case Study-IIoT	Lecturing
12	Case Study-IIoT	Lecturing、 Practical Operation (Experiment, Machine Operation
13	Practical Operation-LinkIt 7697	Lecturing、 Practical Operation (Experiment, Machine Operation
14	Practical Operation-LinkIt 7697	Lecturing、 Practical Operation (Experiment, Machine Operation
15	Practical Operation-LinkIt 7697	Lecturing、 Practical Operation (Experiment, Machine Operation

16	OPC/UA	Lecturing、 Practical Operation (Experiment, Machine Operation
17	System Design of IIoT-Implementation Project Presentation	Lecturing、 Practical Operation (Experiment, Machine Operation、 Special Report
18	System Design of IIoT-Implementation Project Presentation	Lecturing、 Practical Operation (Experiment, Machine Operation、 Special Report