111-1 Full Curriculum of Da-Yeh University

Information			
Title	Internet of Things	Serial No./ID	0613 /ENI4002
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 /College of Engineering /Class 2, Grade 3		
Office Hour / Place	n.a.		
Lecturer	n.a.		

Introduction

以物聯網中的資料流程動為主，介紹了物聯網的基本概念和體系結構，包括從物品資訊編碼到自動識別、從感測器到感測器網路、從局部網路到互聯網、從終端設備到資料中心、從嵌入式系統到伺服器集群、從資料融合到雲計算，以及從設計思想到物聯網標準，以廣度為主，闡述了組建物聯網的各種集成技術和所涉及的概念。

Outline

物聯網體系結構，物品資訊編碼，自動識別技術，通信技術，感測器，感測器網路，物聯網的接入和承載，物聯網的資料處理
，物聯網的安全與管理，定位技術，物聯網應用，物聯網標準及發展

Prerequisite

C程式語言，計算機概論

The Relationship Between Courses and Departmental Core Competencies and Basic Skills

- Ability to apply knowledge of mathematics, science, and engineering.
- Knowledge of contemporary issues; an understanding of the impact of engineering solutions in an environmental, societal, and global context; and the ability and habit to engage in life-long learning.
  Ability to design and conduct experiments, as well as to analyze and interpret data.
- Ability to apply techniques, skills, and modern tools necessary for engineering practice.
- Ability to design an engineering system, component, or process.
  Ability to manage project (including budgeting), communicate effectively, work in multi-disciplinary environment, and function on teams.
- Ability to identify, formulate, research literature and analyses complex engineering problems reaching substantial conclusions.
  Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice,

and a sense of respect for diversity.

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】
Ability to apply knowledge of mathematics, science, and engineering.	20	Ability to apply knowledge of mathematics, science, and engineering.	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Final Exam: 40% Course Participation: 20% Oral Report: 20% Written Report: 20%	Total: 100	20
Ability to apply techniques, skills, and modern tools necessary for engineering practice.	20	Ability to apply techniques, skills, and modern tools necessary for engineering practice.	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Final Exam: 40% Course Participation: 20% Oral Report: 20% Written Report: 20%	Total: 100	20
Ability to design an engineering system, component, or process.	20	Ability to design an engineering system, component, or process.	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Final Exam: 40% Course Participation: 20% Written Report: 20% Oral Report: 20%	Total: 100	20
Ability to identify, formulate, research literature and analyses complex engineering problems reaching substantial conclusions.	20	Ability to identify, formulate, research literature and analyses complex engineering problems reaching substantial conclusions.	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Final Exam: 40% Course Participation: 20% Oral Report: 20% Written Report: 20%	Total: 100	20

Knowledge of contemporary issues; an understanding of the impact of engineering solutions in an environmental, societal, and global context; and the ability and habit to engage in life-long learning.	20	Knowledge of contemporary issues; an understanding of the impact of engineering solutions in an environmental, societal, and global context; and the ability and habit to engage in life-long learning.	Lecturing Practical Operation (Experiment, Machine Operation Special Report	Final Exam: 40% Oral Report: 20% Course Participation: 20% Written Report: 20%	Total: 100	20

Grade Auditing

Final Exam: 40%
Written Report: 20%
Course Participation: 20%
Oral Report: 20%

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