

## Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	DATA CENTER TECHNICIAN	Instructor	SHENGZHI HUANG
Course Class	TEIBM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM),	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 3 Credits
Relevance to SDGs	1A SDG9 Industry, Innovation, and Infrastructure		
D e p a r t m e n t a l   A i m   o f   E d u c a t i o n			
I . Cultivate the ability to conduct independent research and problem solving. II . Strengthen creativity and research capacity. III . Build profound professional knowledge in computer science and information engineering. IV . Engage in self-directed lifelong learning.			
Subject Departmental core competences			
A. Independent problem solving ability.(ratio:20.00) B. Independent innovative thinking ability.(ratio:10.00) C. Research paper writing and presentation ability.(ratio:15.00) D. Research & development (R&D) ability in information engineering.(ratio:20.00) E. Project execution and control ability.(ratio:20.00) F. Lifelong self-directed learning ability.(ratio:15.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:10.00) 4. Moral integrity. (ratio:10.00) 5. Independent thinking. (ratio:20.00) 6. A cheerful attitude and healthy lifestyle. (ratio:10.00) 7. A spirit of teamwork and dedication. (ratio:10.00) 8. A sense of aesthetic appreciation. (ratio:10.00)			

Course Introduction	This course aims to equip students with a solid understanding of modern data center infrastructure and operations. Students will develop a personal project to build a simulated "Data Center Monitoring Platform," cultivating their ability to independently solve problems and integrate technologies.			
<p><b>The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.</b></p> <p>Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.</p> <p>I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.</p> <p>II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.</p> <p>III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.</p>				
No.	Teaching Objectives			objective methods
1	Equip students with foundational knowledge and practical skills related to data center infrastructure, including hardware, operating systems, networking, and automation tools.			Cognitive
2	Guide students in independently designing and implementing a personal data center monitoring platform by applying open-source tools, scripting, and AI-assisted problem solving.			Psychomotor
The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment				
No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEF	12345678	Lecture, Discussion	Study Assignments, Discussion(including classroom and online)
2	ABCDEF	12345678	Discussion, Practicum	Testing, Discussion(including classroom and online), Practicum
Course Schedule				
Week	Date	Course Contents		Note

1	114/09/15 ~ 114/09/21	Modules 1–2: Hardware & Tools / Intro to project, set up GitHub repo	
2	114/09/22 ~ 114/09/28	Modules 3–5: Motherboard, CPU, Memory / Display CPU, RAM, Disk usage in terminal	
3	114/09/29 ~ 114/10/05	Modules 6–7: Storage Devices & Power / Log system metrics to file (daily update)	
4	114/10/06 ~ 114/10/12	Modules 8–9: Graphics & Peripherals / Script to auto-log system metrics	
5	114/10/13 ~ 114/10/19	Modules 10–11: OS Installation / Add network monitoring and logging	
6	114/10/20 ~ 114/10/26	Modules 12–13: OS Config & Browsers/ Build initial dashboard UI	
7	114/10/27 ~ 114/11/02	Modules 14–15: File System & CLI / Store logs in SQLite or searchable format	
8	114/11/03 ~ 114/11/09	Modules 16–17: Process & Memory Mgmt/ Implement alerts when thresholds are exceeded	
9	114/11/10 ~ 114/11/16	Module 18: Microsoft Office / Improve based on mid-term feedback	
10	114/11/17 ~ 114/11/23	Modules 19–20: Networking & Protocols / Add refresh, filtering, and navigation UI	
11	114/11/24 ~ 114/11/30	Modules 21–22: Cabling & Physical Setup/ Optional login feature for advanced students	
12	114/12/01 ~ 114/12/07	Modules 23–24: Transmission & IP Setup/ Write README with deployment instructions	
13	114/12/08 ~ 114/12/14	Modules 25–26: Programming & Strings/ Implement optional bonus features	
14	114/12/15 ~ 114/12/21	Modules 27–28: Loops & Arrays / Complete testing of all features	
15	114/12/22 ~ 114/12/28	Modules 29–31: Math, DB & Logic / Prepare final presentation & showcase	
16	114/12/29 ~ 115/01/04	Final Presentations	
17	115/01/05 ~ 115/01/11	Final Presentations	
18	115/01/12 ~ 115/01/18	Final Presentations	
Key capabilities		self-directed learning Information Technology	

Interdisciplinary	STEAM course (S:Science, T:Technology, E:Engineering, M:Math, A field:Integration of Art and Humanist)
Distinctive teaching	Special/Problem-Based(PBL) Courses
Course Content	Computer programming or Computer language (students have hands-on experience in related projects) AI application
Requirement	- Encourage students to use GPT, Bing, GitHub Copilot, and StackOverflow to self-learn - Instructor' s role: Deliver core content via slides (Modules 1–31) and support students during hands-on project work weekly
Textbooks and Teaching Materials	Using teaching materials from other writers:AWS Academy
References	
Grading Policy	<p>◆ Attendance : 20.0 %    ◆ Mark of Usual :       %    ◆ Midterm Exam :       %</p> <p>◆ Final Exam : 40.0 %</p> <p>◆ Other 〈AWS system〉 : 40.0 %</p>
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="https://web2.ais.tku.edu.tw/csp">https://web2.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a>.</p> <p>※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>