15th APEC Cross Mentoring Research Activity 2023-2024 Research Syllabus

Ⅰ. Mentor

1. Personal Information

Name	Randy Santocildes Tolentino
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School or Institute	Hanseo University
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Major	Avionics Electronics and Engineering

2. Education

	Year	Name of University	Major	Degree	Nation
Bachelor's degree	1999-2003	Iloilo Science and Technology University	Information Technology	B.S.	Philippines
Thesis	Iloilo Science and Technology University Automated Scheduling Class Scheduling System				
Post Graduate	2003-2005	Iloilo Science and Technology University	Secondary Education	Diploma in Teaching	Philippines
Master's & PhD degree	2007-2011	Hannam University	Multimedia	M.S. & PhD	South Korea
Dissertation	A Design and Analysis of Ubiquitous Healthcare Management System over Wireless Sensor Network.				

3. Experiences

Duration	Position	Institute or University
03/2002 - 06/2002	Computer Technician	Concept Computer
06/2003 - 09/2007	Instructor 1	Iloilo Science and Technology University
09/2010 - 06/2012	Lecturer	Hannam University Linton Global College
03/2012 - 02/2013	Assistant Professor	Hannam University Multimedia Engineering Department
03/2013 – 02/2014	Assistant Professor	Gyeongju University Global Education Center

03/2014 - Present	Assistant Professor	Hanseo University, Avionics Electronics Engineering Department

4. Research Work

https://scholar.google.co.kr/citations?user=e_0eIFUAAAAJ&hl=en

5. Certificates/License

- Certified Computer Technician
- Microsoft Office Specialist and Trainer
- 2D animation Instructor

6. Skills

- Teaching IT, computer science, and engineering courses
- Computer multimedia and animation
- Computer repair and maintenance
- Computer networking and cabling
- Computer Programming
- Photo Editing
- Video Editing
- Audio Editing

7. Honors and Awards

- Hanseo University, Outstanding Foreign Professor (December 30, 2019), Awarded by Dr. Kee Sun Ham, President of Hanseo University, South Korea
- Hanseo University, Outstanding Foreign Professor (December 10, 2015), Awarded by Dr. Kee Sun Ham, President of Hanseo University, South Korea
- Excellent Service Award (Nov. 25, 2012), Awarded by Catholic Daejeon Diocese Migrant Service Center (MOYSE), Daejeon Metropolitan City
- Award of Excellence "Gawad Gilas PIKO!" (September 24, 2011), Awarded by the Filipino Scholars in Korea Organization, Philippine Embassy, Seoul South Korea.
- Award for Excellence (Outstanding Foreigner)- No. 20586 (May 24, 2009),

Awarded by Park Seoung-hyo, Mayor of Daejeon Metropolitan City.

- International Information Technology Advancement Program, Korean Government IT Scholarship Recipient (2007-2011).
- Commission of Higher Education (CHED) Congressional scholarship recipient, Iloilo City, Philippines (1999-2003).

8. Professional Societies

- International Conference on Emerging Technologies 2019 (ICET) reviewer and editorial board member (2019-Present)
- Member of Council of ASEAN Professors in Korea (2017-Present)
- Association of Filipino Educators in Korea (AFEK); Officer (2015-present)

Ⅱ. Syllabus

1. Course Title: The Internet Of Things: How to create value in different settings

2. Course Description

The Internet of Things is transforming our physical world into a complex and dynamic system of connected devices, and it has the potential to impact a variety of industries. This course is designed to give an in-depth understanding of IoT. We will examine the concept of IoT and look at the 'things' that make up the Internet of Things, including how those components are connected together, how they communicate, and how they add value to the data generated. We will also examine cybersecurity and privacy issues and highlight how IoT can optimize processes and improve efficiencies of business.

This course divided into four different parts; we will learn by doing. We will start with understand the history of IoT and how it works, conduct a research studies about the impact of IoT in society and in business.

3. Course Objectives / Learning Outcomes

At the end of the course, students will be able to:

- describe what IoT is and how it works,

- gain a deep appreciation of the IoT,

- understand the application areas of IoT,

- understand what constitutes an IoT design solution,

- recognize the factors that contributed to the emergence of IoT,

- and conduct a research study about IoT.

4. Course Requirements

We will have video lectures covering the technical topics as well as quizzes and research assignments. The class will not be test-based; instead, you will be evaluated on homework and research work. This will give you exposure to IoT technologies, cybersecurity concepts, networking protocols, and cloud computing technologies.

5. Expectations for Participation

This course will require on the order of 3-5 hours per week. Students will need to know or learn how to use Webex Meeting/Zoom as well as google workspace. I expect you'll inform me of any problems you might experience, address technical problems immediately, and observe appropriate netiquette at all times. Student-to-student and student-to-instructor interaction will be online via Webex Meeting/Zoom.

I expect each of you to actively be engaged in discussions and to reply to questions from me or other students. I will be posting question threads in the discussion groups that I would like you to think about and respond to. When you respond, reply to either my question or a reply from another student. I expect you to answer the post at least twice, once to me and once to another student. I encourage you to work together on assignments as well but ensure that you turn in your own work. Sharing ideas and solutions to individual problems is fine!

6. Grading

Grades will be based on homework, participation, and research project.

The course will be weighted more toward the:

1. class research project (50% of the final grade)

2. research study homework (30%) and

3. participation (20%).

7. Required Textbook or papers:

- A Beginner's Guide to The Internet of Things (IoT) 2021
- The Internet of Things: Mapping The Value Beyond Hype
- Research Papers

8. Final Outcome

Mid-term Report: Initial Research Article Proposal	[√] Due date: Week 7
Final Report: Final Research Article Presentation	[√] Due date: Week 15
Submission of Research Article for APEC Youth Scientist Journal	

9. Schedule

Week	Date	Topics and Activities	Assignments & Other Instructions
Week 1	TBA	How to write a research proposal- Part 1	Discussions
Week 2	TBA	How to write a research proposal – Part 2	Discussions
Week 3	TBA	Introduction to Internet of Things (Iot)	Discussions and research study homework
Week 4	TBA	Importance of Sensors in the IoT	Discussions
Week 5	TBA	IoT Application in Education	Discussions and research study homework
Week 6	TBA	IoT Application in Healthcare	Discussions and research study homework
Week 7	TBA	Initial Research Topic Proposal Presentation	Presentation and discussion
Week 8	TBA	IoT Application in Agriculture	Discussions and research study homework
Week 9	TBA	IoT Application in Transportation and Manufacturing Industries	Discussions and research study homework
Week 10	TBA	IoT Applications in Tourism and Travel Industries & Manufacturing Industries	Discussions and research study homework
Week 11	TBA	Internet of Things for Smart Cities	Discussions and research study homework
Week 12	TBA	Final Research Proposal Presentation	Presentation and discussion
* To be announced (TBA)			