15th APEC Cross Mentoring Research Activity 2022-2023 Research Syllabus

Ⅰ. Mentor

1. Personal Information

Name	NGUYEN Trinh Hoang Anh
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Major	Energy Science and Modelling

2. Education

	Year	University	Major	Degree	Nation
Bachelor's degree	2005	Hanoi University of Technology	Electric Engineering	Bachelor of Science	Vietnam
Master's degree	2010	University of Flensburg	Energy and Environment Management	Master of Engineering	Germany
Doctorate	2015	University of Paris Diderot	Energy Economics	Doctor of Philosophy	France
Dissertation	Sustainable development in Electricity Sector: A transition to low carbon economy in Vietnam				

3. Experiences

Duration	Position	Institute or University
01.2006 - 12.2008	Lecturer / researcher	Electric Power University - Vietnam
03.2009– 07.2009	Teaching assistant	University of Flensburg–Germany
01.2013–	Teaching/research assistant	University of Science and Technology of

12.2015		Hanoi -Vietnam International Center for Environment and Development - France
01.2016 - Present	Lecturer / researcher	University of Science and Technology of Hanoi (USTH) -Vietnam
09.2018 – present	Senior Associate	Vietnam Initiative for Energy Transition (VIET SE)

4. Honors and Awards

Year	Title	Remarks
2017-2018	Fellow in Energy Planning and Policy	Asia-Euro Policy Dialogue Fellowship
2016-2017	Fellow in Sustainable Energy for ASEAN	ASEAN US Science and Technology Fellowship
2005	Certificate of merit for the first-rank study achievements	Hanoi University of Science and Technology
2005	Industrial Grants for Excellent student research	Hanoi University of Science and Technology
1997, 1999, 2000	Second Prize, Fourth Prize, Thirst Prize in the National Olympic of Physics	Vietnam

5. Professional Societies

i. The European Association of Environmental and Resource Economists (EAERE): member
ii. Vietnam Sustainable Energy Alliance (VSEA): sustainable energy advisor
iii. GANES - German Asian Alumni Network for Energy and Sustainability: committee member
iv. Association of Energy Economist of France: member

Ⅱ. Syllabus

1. Course Title & Criteria

Course Title	**Solar PV systems: design and assessment**
Criteria	[ ] Biology & Applied Biology
	[ ] Chemistry
	[X] Energy & Environmental Science
	[ ] Integrated Science
	[ ] Medicinal Science

	[ ] Nano Science
	[ ] Physics
	[ ] Others

2. Course Objectives & Description

At the end of the course, students will be able to
- Describe the various methods of converting solar energy into electricity and heat
- Describe and design solar PV systems for household application
- Implement technical and socio-economic assessment of a solar (and renewable energy) projects
- Present their projects to the public and publish it in the journal

3. Required Textbook or papers:
- Rik DeGunther, Solar Power Your Home For Dummies, Hoboken, N.J., Wiley, 2008
- International Energy Agency, Technology Roadmap Solar Photovoltaic Energy, 2014

4. Final Outcome

Quiz	[V] Due date: TBA
Research plan	[V] Due date: TBA
Final Report	[V] Due date: TBA
Research Article for APEC Youth Scientist Journal	[x] Due date: February 2024

5. Schedule

Week	**Topics and Activities**	**Assignments & Other Instructions**
Week 1	Introduction to Renewable Energies	
Week 2	Solar energy technologies and their application	
Week 3	Introduction to Techno-economic and environmental analysis of solar power projects	
Week 4	Literature review and identification of research problem/topic	
Week 5	Research design and methods	

Week 6	Making detailed research plan	
Week 7	Data collection Designing a simple solar system with battery	
Week 8	Data collection Computer tools for solar power research: HOMER, Analytica	
Week 9	Data analysis Life-cycle analysis for the solar power projects	
Week 10	Sensitivity analysis Result interpretation	
Week 11	Result verification and discussion Report/paper outline and writing methods	
Week 12	Report/paper writing	
Week 13	Report/paper writing	
Week 14	Report/paper review	
Week 15	Complete and submit the research/paper	
Mentees should submit their research article to AMGS admin team		