15th APEC Cross Mentoring Research Activity
Research Syllabus

Ⅰ. Mentor

1. Personal Information

Name	**Prof. Ashwani K. Gupta**
Mobile Number	301-405-5276
School or Institute	University of Maryland
E-mail	akgupta@umd.edu
Major	Mechanical Engineering and Chemical Engineering

2. Education

	Year	Name of University	Major	Nation
Bachelor's degree	1966	Punjab University	Mechanical Engineering	India
Master's degree	1970	Southampton University, U.K.	Aerospace Engineering	UK
Doctorate	1973	Sheffield University, U.K.	Chemical Engineering	UK
Dissertation				

3. Experiences

- 0ver 35 years of experience in combustion, propulsion, fuels, energy, clean energy conversion, air pollution, swirl flows, Gas turbine combustion, and high Temperature air Combustion

Duration	Position	Institute or University

2008- Present	Distinguished University Professor	University of Maryland
1988 - Present	Professor	Dept. of Mechanical Eng. and Director of Combustion Laboratory
1983 - 1987	Associate Professor	University of Maryland
1977 - 1982	Research Staff	Energy Laboratory and Dept. of Chem. Eng, MIT
1976 - 1976	Consultant	Nippon Furnace Co., Japan
1973 - 1976	Senior Research Associate and Independent Research Worker	Sheffield University, UK, England
1971 - 1973	Graduate Research	Sheffield University, UK, England
1967 - 1971	Research Engineer	International Combustion Ltd., Derby, U.K.

4. Honors and Awards

Year	Title	Remarks
2015	Honorary Doctorate, Univ. of Derby UK	
2014	Honorary Doctorate University of Wisconsin Milwaukee	
2014	Doctorate King Mungkut University of Tech., North Bangkok, Bestowed by the Princess of Thailand	
2013	Higher Doctorate (D.Sc), University of Southampton, UK	
1986	Higher Doctorate (D.Sc), University of Sheffield, UK	
1990	Energy Systems award, AIAA	
1998	ASME George Westinghouse Gold Medal	
1999	Propellants and Combustion Award, AIAA	
2003	ASME James Harry Potter Gold Medal Award	
2004	ASME James N. Landis Medal Award	
2008	ASME Worcester Reed Warner Medal	
2010	ASME Holley Medal	

2011	ASME AIM Percy Nicholls Award	
2014	AIAA Air Breathing Propulsion award	
2016	SSRU Golden Elephant award, Elected Honorary Fellow of ASME, 2016	
2017	AIAA Pendray award	
2018	ASME Soichiro Gold medal Honda award	
2020	Elected to European Academy of Science & Arts (EASA) Elected Honorary Fellow Royal Aeronautical Society, UK	
2021	ASME Dixy Lee Ray award	

5. Professional Societies
   - Honorary Fellow, American Society of Mechanical Engineers (ASME)
   - Honorary Fellow, Royal Aeronautical Society (RAeS), UK
   - Fellow, American Institute of Aeronautics and Astronautics (AIAA)
   - Fellow, American Society of Mechanical Engineers (ASME)
   - Fellow, Society of Automotive Engineers (SAE)
   - Fellow, American Association for the Advancement of Science (AAAS)

Ⅱ. Syllabus

1. Course Title & Criteria

Course Title	**Renewable Green Energy**
Criteria	[ ] Biology & Applied Biology
	[ ] Chemistry
	[X] Green Energy & Environmental Science
	[ ] Integrated Science
	[ ] Medicinal Science
	[ ] Nano Science
	[ ] Physics
	[ ] Others

2. Course Objectives & Description

Course Title: Renewable Green Energy

The goal of this course was to provide students with a foundation of knowledge regarding the problems of energy consumption and demands, air pollution and carbon emission from fossil fuels, various options for green energy, how a diverse range of energy technologies work, energy storage, and what the challenges are associated with them.

The students will prepare and submit a PowerPoint presentation during the 8th week of the course on how to seek Sustainable Green energy.

3. Required Textbooks or papers: Will be recommended.

4. Final Outcome

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

5. Curriculum

Week	Topics and Activities	Assignments & Other Instructions
Week 1	Introduction—Renewable Green Energy	Yes
Week 2	Energy Use and Pollution	Yes
Week 3	Biomass as Fuel for Power Industry	Yes
Week 4	Wind Energy	Yes
Week 5	Wind Energy and Aerodynamics	Yes
Week 6	Geothermal Energy	Yes

Week 7	Solar Energy	Yes
Week 8	Ocean Energy	Yes
Week 9	Guide mentees to write Research articles for the Journal	
Week 10	Guide mentees to write Research articles for the Journal	
Week 11	Guide mentees to write Research articles for the Journal	
Week 12	Guide mentees to write Research articles for the Journal	
Mentees should submit their research article to AMGS admin team and mentor.		