

AMGS Cross Mentoring Research Activity 2016-2017

Syllabus

I . Mentor

1. Personal Information

Name	Dr. Yong-Tai Lee
Mobile Number	+82-10-3875-0350
School or Institute	Kyungnam University
E-mail	2ti22@naver.com
Major	Material Science (Titanium Application)

2. Education

Degree	Year	Name of University	Major	Degree	Nation
BS	1974	Seoul National University Engineering Collage	Metallurgy	BS Metallurgy	Korea
MS	1976	Korea Advanced Institute of Science and Technology	Materials Engineering	MS Mat. Eng.	Korea
Ph.D.	1984	Case Western Reserve University	Materials Engineering	Ph.D. Mat.Sci.Eng.	USA
Thesis Title	Deformation Behavior and Oxygen Effect on Ti-6Al-4V Alloy				

3. Experiences

Duration	Position	Institute or University
1976-1980	Senior Researcher	Agency for Defense Development
1984-1985	Researcher	NASA Lewis Research Center
1985-1990	Researcher	DLR (German Aerospace Research Center, Koeln, Germany)
1990- now	Principal Researcher	KIMS (Korea Institute of Materials Science)

4. Honors and Awards

Year	Title	Remarks
2013.04.19	National Medal of the Science and Technology	President Park Kun-Hee
2001.04.21	Honouree Commendation of the National President	President Kim Dae-Jung
2003.10.23	Honouree Commendation of the Governor	Gov.Kim Hyuk-Gu-
2002.04.01	Honouree Commendation of the Mayer	Mayor. Gong Min-Bae

5. Professional Societies

- A. TMS (America Materials Society) (Member)
- B. KIM (Korea Metals and Materials Society) (Member)
- C. ISO/TC79/SC11 (International Light Metals Society) (Representative of Korea)
- D. DGM (Deusches Gesellschaft fuer Metalkunde) (Member)

II. Syllabus

1. Course Title & Criteria

Course Title	PHYSICS IN NATURE
Criteria	<input type="checkbox"/> Biology & Applied Biology
	<input type="checkbox"/> Chemistry
	<input type="checkbox"/> Energy & Environmental Science
	<input type="checkbox"/> Integrated Science
	<input type="checkbox"/> Medicinal Science
	<input checked="" type="checkbox"/> Nano Science
	<input checked="" type="checkbox"/> Physics
	<input type="checkbox"/> Others

2. Course Objectives & Description

This course is designed to encourage high school students to do nano technology on the materials, especially on the titanium materials. It may do application in the field of production industries, aerospace, automobile, medicine, environmental science, nanotechnology, material science. This will also provide avenue to help encourage young mentees to appreciate the importance, the purpose, and the practical applications of materials science in all walks of life.

At the end of the course, the mentees will be able to accomplish the following:

- A. Identify and formulate research topic
- B. Conduct their proposed study;
- C. Write scientific paper/report of their study

3. Required Textbook or papers:

- A. Titanium, Y.T. Lee, 2009, 652page, ISBN 978-89-89069-42-3
- B. Materials for Mechanics, Kie-Ju Kang, et. Al., 422p, ISBN 978-89-5526-865-2
- C. Manufacturing Process for Engineering Materials, S. Kalpakjian, ISBN 978-89-98308-07-0
- D. Materials Science and Engineering an Introduction, W. Callister, ISBN 978-89-5832-333-4
- E. Other current papers will be posted later

6. Final Outcome

Mid-term Report	[] Due date:
Final Report	[] Due date:
Research Article for APEC Youth Scientist Journal	[x] Due date: January 27, 2017

7. Schedule

Week	Date	Topics and Activities	Assignments & Other Instructions
Week 1	Oct 21 - 27	Titanium Application I	Ass 1: Three possible research topics with at least 250 words (descriptions)
Week 2	Oct 28 - Nov3	Nano Technology Application	Online Feed-backing (Topic Selection) Ass 2: Provide a least five major references for the chosen topic (journals, books, and other reliable sources) Deadline: October 11, 2015

Week 3	Nov 4 - 10	How to Write a Materials Project Proposal	Ass 3: Project Proposal Writing (Draft) Deadline: October 18, 2015
Week 4	Nov 11 - 17	Online Final Critiquing (project proposal)	Ass 4: Proposal Revisions for approval October 25, 2015
Week 5	Nov 18 - 24	Laboratory Experiment I	Ass. 4: Results update (Data, Feed backing)
Week 6	Nov 25 - Dec 1	Laboratory Experiment II	Ass. 5. Results Update (Data, Feed backing)
Week 7	Dec 2 – 8	Laboratory Experiment III	Ass. 6. Results Update (Data, Feed backing)
Week 8	Dec 9 – 15	Laboratory Experiment IV	Ass.7 Results Update (Data, Feed backing)
Week 9	Dec 16 - 22	Guide mentees to write Research article for APEC Youth Scientist Journal	Ass. 8 Research Paper Draft I for comments and suggestions
Week 10	Dec 23 - 29	Guide mentees to write Research article for APEC Youth Scientist Journal	Ass. 9 Research Paper Draft I for comments and suggestions
Week 11	Dec 30 – Jan 5	Guide mentees to write Research article for APEC Youth Scientist Journal	Ass. 10 Research Paper Draft I for comments and suggestions
January 27		Mentee should submit their research article to AMGS admin. team	