

2017

ANNUAL REPORT



Engineering Research and
Development for Technology



Science Education Institute
Department of Science and Technology

Table of Contents

I. Message from the Program Leader	1
II. The ERDT	2
III. Human Resource Development	
A. Local Graduate Scholarship	3-4
B. Sandwich Program	4-5
C. Faculty Development Program	
i. Foreign PhD Scholarships	6
ii. Post-Doctoral Grant	7
iii. Faculty Research Dissemination Grant	7
iv. Faculty Research Grant	7
D. Visiting Professors and Researchers Program	8
IV. Annual Events and Activities	
A. 14th ERDT Conference	9-11
B. 5th ERDT Congress	12-13
C. 6th ERDT Congress: Nuclear Energy Forum	14-16
D. 6th Engineering Forum Series	16
V. Appendices	
A. List of 2017 Graduates with Titles and their Theses and Dissertations	17-45
B. List of 2017 FRDG Recipients	46-54
C. DOST-funded R&D Projects of Faculty Members	55-57
VI. ERDT Program Steering Committee	58

Message from the Program Leader


Launched in 2007, the Engineering Research and Development for Technology (ERDT) project is taking strides in the advancement of the country's Research and Development (R&D) through human resource and infrastructure development (HRD).

Starting with only 55 MS and 18 doctoral ERDT local scholarships awarded, these numbers have grown to an average of 234 MS and 42 doctoral scholarships between 2012 and 2016 with the highest intakes for the school year 2016-2017 at 256 and 45 for MS and doctoral, respectively. ERDT has sent out 61 of its local scholars on sandwich program to foreign universities for a period of 2 to 12 months, mostly to do research in advanced laboratories. Now on its tenth year, the ERDT has already produced 871 MS and 90 PhD graduates. These ERDT MS and PhD graduates are now part of the growing number of researchers, scientists, and engineers (RSEs) who are capable of delivering high impact research, creating and/or innovating technology, and establishing start-ups, or licensing out new technologies.



Apart from these local scholarships, the ERDT has granted 56 Foreign PhD Scholarships to faculty members of ERDT Consortium Universities have been awarded while there have been 363 recipients of the faculty research and dissemination grant (FRDG). In 2014, ERDT started to award faculty research grants (FRG) to support the thesis/dissertation needs of faculty who have opted to take up part-time graduate studies while teaching in their universities. Through these various initiatives, the ERDT faculty members are equipped to be frontrunners in further developing the country's R&D potentials as well as improve the quantity and quality of research works. In recent years, the number of publications in refereed journals and conference proceedings have increased.

This 2016-17 ERDT Annual Report will be able to give you a preview of how this program continues to strive to accomplish our 2025 targets. May its gains be the driving force to motivate us, consortium members, to persevere in achieving our goals. It is our collective hope that the ERDT be a mechanism to contribute to the country's global competitiveness amidst the challenges.


Rizalinda L. De Leon, Ph.D.
Dean, UP College of Engineering
ERDT Program Leader

The ERDT

The Engineering Research and Development for Technology (ERDT) is a consortium of eight-member universities in the Philippines that offers mature Master's and doctoral degrees in various engineering fields. Ateneo de Manila University (ADMU), Central Luzon State University (CLSU), De La Salle University (DLSU), Mapua University (MU), Mindanao State University – Iligan Institute of Technology (MSU-IIT), University of the Philippines (UPD) Diliman, UP Los Baños (UPLB) and University of San Carlos (USC) constitute the consortium.

OBJECTIVES

The ERDT is created to deliver high impact researches aligned with the country's National Science and Technology Plan (NSTP) and the Medium-Term Development Plan (MTDP), to attain a critical mass of MS and PhD graduates, to upgrade the qualifications of practicing engineers, and to develop a culture of Research and Development (R&D).

BRIEF HISTORY

In April 2007, Dean Dr. Rowena Cristina L. Guevara of the UP Diliman College of Engineering (COE) together with other 6 deans of engineering schools came up with a proposed human resource development (HRD) program to the Department of Science and Technology (DOST). The proposed program generally aims to increase the number of researchers, scientists and engineers (RSEs) in the country.

The ERDT Consortium was then conceptualized, endorsed by former DOST Secretary Estrella F. Alabastro, and approved by former President Gloria Macapagal-Arroyo with a P3.5 Billion funding for three years.

In the last ten years, ERDT has successfully laid the footprint and model for a successful engineering research program in the country. Number shows that through the ERDT R&D program, research activities in engineering have increased significantly. The level and quality of research have also improved leading to a number of funded research works and papers accepted in refereed journals and conferences.

As a program funded by the DOST, the ERDT hopes to build a culture of R&D in the Philippines by increasing our numbers of highly trained RSEs and providing a suitable research environment. At present, ERDT continues to increase the number of RSE graduates and contribute to the realization of S&T plan of the country.

I. HUMAN RESOURCE DEVELOPMENT

A. Local Graduate Scholarship

The ERDT Local Graduate Scholarship is the flagship scholarship program of the ERDT that helps engineering graduate students in pursuing and attaining MS and PhD degrees in any ERDT Consortium University.

This Scholarship further aims to improve the quantity and quality of engineering professionals in the country. The adequate number of engineers with advanced degrees is believed to produce compounding effect on the value chain in the industry for economic growth as well as improving the quality of education in engineering departments of both private and public higher academic institutions.

	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		Total Intake	
	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD
ADMU			16	0	16	0	20	2	16	1	11	1	14	2	18	3	8	3	13	4	19	2	151	18
CLSU			15	2	9	3	13	1	8	4	29	1	27	2	23	6	6	5	25	3	23	3	178	30
DLSU			11	2	22	1	34	2	32	5	38	8	18	6	29	3	38	4	39	5	33	2	294	38
MU			8	1	32	2	14	1	16	7	27	4	46	14	37	5	43	5	36	6	41	7	300	52
MSU-IIT			10	2	8	2	15	3	21	3	16	4	29	6	26	9	10	2	18	3	30	4	183	38
USC			13	0	15	0	10	0	11	0	2	0	14	0	16	3	29	7	30	6	15	3	155	19
UPD	38	18	34	15	88	15	85	13	66	6	88	17	89	8	56	11	72	14	85	17	110	17	827	151
UPLB					8	4	13	3	3	0	11	3	12	4	17	0	17	3	11	1	17	3	109	21
Total	55	18	107	22	198	27	204	25	173	26	222	38	249	42	222	40	223	43	257	45	288	41	2198	367
Target	106	23	133	20	171	32	208	44	233	50	260	55	233	50	233	50	252	56	263	59	316	59	2408	498
Hit Rate (%)	52	78	80	110	116	84	98	57	74	52	85	69	107	84	95	80	88	77	98	76	91	69	91	74

Table 1. ERDT Local Graduate Scholarship Actual intakes of MS and PhD scholars from 2007 to 2017

MS Degrees				
Year of Award	Qualifiers	Graduated		Total
		On Time	With Extension	
2007	55	7	31	38
2008	107	29	52	81
2009	198	31	96	127
2010	204	28	88	116
2011	173	34	74	108
2012	222	56	60	116
2013	249	47	80	127
2014	222	53	45	98
2015	223	39	17	56
2016	256	1	3	4
2017	288			
TOTAL	2197	325	546	871

Table 2. ERDT Local Graduate Scholarship MS Graduates from 2007 to 2017

PhD Degrees				
Year of Award	Qualifiers	Graduated		Total
		On Time	With Extension	
2007	18		11	11
2008	22		10	10
2009	27	3	16	19
2010	25	2	11	13
2011	26	1	9	10
2012	38	4	8	12
2013	42	4	3	7
2014	40	7		7
2015	40	1		1
2016	43			0
2017	41			
TOTAL	362	22	68	90

Table 3. ERDT Local Graduate Scholarship PhD Graduates from 2007 to 2017

B. Sandwich Program

The ERDT Sandwich Program is a fellowship offered to ERDT scholars who wish to conduct research in a reputable university abroad for a maximum period of one year. It is designed to enable ERDT Local Graduate Scholars to conduct research abroad in areas that have yet to be developed in the consortium member university or in fields of studies where research facilities are not available or inadequate in the country.

Year	Slot	Actual Intakes	Status of Intakes			
			Graduated	Returned	On Going	Withdrew
2008	7	1	1			
2009	10	3	3			
2010	12	3	3			
2011	8	7	7			
2012	8	5	4	1		
2013	13	12	6	6		
2014	10	9	7	2		
2015	23	10	10			
2016	20	11	7	3		1
2017	17	13	3	3	7	
TOTAL	128	74	54	15	7	1

Table 4. Distribution of ERDT Sandwich Program per Year

Year	University	Slots	Actual Intakes	Status of Intakes			
				Graduated	Returned	On Going	Withdrew
2008		7	1	1			
2009		10	3	3			
2010		12	3	3			
2011		8	7	7			
2012		8	5	4	1		
2013		13	12	6	6		
2014		10	9	7	2		
2015	ADMU	4	3	3			
	CLSU	1					
	DLSU	2	1	1			
	MU	1					
	MSU-IIT	5	1	1			
	USC	1					
	UPD	8	4	4			
	UPLB	1	1	1			
2016	ADMU	4	1	1			
	CLSU	2					
	DLSU	2	2	2			
	MU	1					
	MSU-IIT	4	2	2			
	USC	1					
	UPD	5	5	1	3		1
	UPLB	1	1	1			
2017	ADMU	4	4	2		2	
	CLSU	1	0				
	DLSU	2	2	1		1	
	MU	1	0	3			
	MSU-IIT	1	0				
	USC	2	2			2	
	UPD	4	5		3	2	
	UPLB	2	0				
TOTAL		128	74	54	15	7	1

Table 5. Distribution of ERDT Sandwich Program per University

C. Faculty Development Programs

1. Foreign PhD Scholarship

The ERDT PhD Foreign Scholarship is given to faculty members of ERDT Consortium Universities who wish to pursue PhD studies in any engineering field in a recognized university or institution abroad.

Year	Slots	Actual Intakes	Graduated	Returned	Terminated	On-Extension	On-going
2006-2008	10	10	7	1	2		
2009	10	6	4	1	1		
2010	10	5	3		2		
2011	11	5	4	1			
2012	10	5	3		2		
2013	8	6	2	1		3	
2014	10	2	1			1	
2015	8	8	2			1	5
2016	11	9					9
2017	22	12					12
Total	110	68	26	4	7	5	26

Table 6. Faculty Development – Foreign PhD Scholarship Statistics

Year	University	Slots	Awarded	Status				
				Graduated	Returned	Terminated	On Extension	On-going
2006-2008	UPD	10	10	7	1	2		
2009		10	6	4	1	1		
2010		10	5	3		2		
2011		11	5	4	1			
2012		10	5	3		2		
2013		8	6	2	1		3	
2014		10	2	1			1	
2015	CLSU	2	2	2				
	UPD	4	4				1	3
	UPLB	2	2					2
2016	CLSU	2	2					2
	MSU-IIT	2	2					2
	UPD	5	3					3
	UPLB	2	2					2
2017	ADMU	2						
	CLSU	2	2					2
	DLSU	2						
	MU	2						
	MSU-IIT	2	3					3
	USC	2						
	UPD	8	6					6
	UPLB	2	1					1
Total		110	68	26	4	7	5	26

Table 7. Distribution of Faculty Development – Foreign PhD Scholarship per University

2. Post-Doctoral Grant

The ERDT Post-Doctoral Grant allows retooling and retraining of faculty members to ensure that researches conducted and proposed under the ERDT program are current and relevant.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Recipients	0	6	2	0	2	0	1	1	1	1	14

Table 8. Post-Doctoral Grantees from 2008 to 2017

3. Faculty Research Dissemination Grant

The ERDT Faculty Research Dissemination Grant (FRDG) is established to enable faculty members to present their research works in international conferences, fora or scientific meetings or publish their research works in journals.

The grant aims to provide opportunities to expand research networks and promote the ERDT program globally.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Recipients	1	17	51	25	32	43	72	62	60	58	421

Table 9. FRDG Recipients from 2008 to 2017

4. Faculty Research Grant

The ERDT Faculty Research Grant is created to help the faculty members who are currently enrolled in ERDT supported graduate or accelerated programs in an ERDT Consortium University to complete all their requirements leading to a successful thesis/dissertation defense. The grantee shall be considered as an ERDT scholar with lateral entry.

University	2014				2015				2016				2017			
	Slots		Grantees		Slots		Grantees		Slots		Grantees		Slots		Grantees	
	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD	MS	PhD
ADMU	1												3			
CLSU					1				1				3			
DLSU		1		1		2		2		2		1		2		2
MIT	2												3			
MSU-IIT	2												3			
UPD	7	1	2	1	6		4		4		2		6		3	
UPLB	2		2										3			
USC	2				1		1		1				3			
TOTAL	16	2	4	2	8	2	5	2	6	2	2	1	24	2	3	2

Table 10. Faculty Research Grantees from 2014 to 2017

D. Visiting Professors and Researchers Program

The ERDT Visiting Professors and Researchers Program provides for the invitation and hosting of internationally known professors and researchers to visit ERDT Consortium University.

Beneficiaries of this program include ERDT Local Graduate Scholars, faculty members, and the hosting department/institute of the ERDT Consortium University. The ERDT consortium will likewise benefit from this through potential R&D collaboration.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Visiting Professor	10	21	12	3	9	11	9	12	6	15	108
Visiting Researcher	1	2				1					4

Table 11. Visiting Professors and Researchers from 2008 to 2017

II. ANNUAL EVENTS AND ACTIVITIES

14th ERDT Conference

Ensuring access to affordable, reliable and sustainable energy paves way to achieving economic growth and improved living conditions which are essential components of sustainable development. Energy plays a pivotal role in sustaining the operations of our industries, public institutions, households, and communities. Adequate, efficient and steady supply of energy is linked to increased productivity, improved and quality products and services, reduced capital and operation costs, and safer workplaces. Given our limited energy resources and increasing energy demands, different sectors are now looking at various possibilities and options in order to provide the needed energy to achieve and sustain economic and social progress.



The Science and Technology community is challenged to contribute to the attainment of sustainable energy and sustainable development for all. In response, the Department of Science and Technology – Engineering Research and Development for Technology (DOST-ERDT) organized its 14th ERDT Conference last 18-20 October 2017 at the Waterfront Cebu City Hotel and Casino, Salinas Drive Lahug Cebu City, Cebu.

The 14th ERDT Conference was co-located with the 2017 Association for Engineering Education in Southeast and East Asia and the Pacific Workshop (AEESEAP) and 27th Executive Committee Meeting and 2017 International Conference on Sustainable Energy Ecosystems (ICSEE).



USC President Fr. Dionisio Miranda and DOST-ERDT Program Leader Dr. Rizalinda L. de Leon open formally the 3-day joint conference during the ribbon cutting ceremony

With sustainable energy as the main encompassing theme, three other sub-themes were explored at the joint conferences, namely; “Aligning ERDT Researches to the Sustainable Development Goals” (ERDT), “Engineering Education in the Era of the 14th Industrial Revolution” (AEESEAP), and “Access to Sustainable Energy for All” (ICSEE).

The joint conferences were attended by 385 participants composed of faculty members, engineering graduate students and scholars, industry, government, and visiting professors.

University of San Carlos (USC) President Fr. Dionisio Miranda, SVD, SThD and University of the Philippines College of Engineering Dean and ERDT Program Leader Dr. Rizalinda de Leon welcomed the delegates on the first day of the conference by posing a challenge on the roles of engineers and researchers in attaining sustainable development for all. On the second day, AEESEAP President Prof. Moon Kyum Kim delivered a message. The third day was opened by USC School of Engineering Director for Center for Research in Energy Systems and Technologies Dr. Luzvisminda M. Bellotindos.

A total of more than 90 research papers mostly by ERDT scholars were presented during the technical sessions. Eight country reports on the state of engineering education were delivered during the AEESEAP special session. These countries include Indonesia, Japan, Korea, Papua New Guinea, the Philippines, China, Singapore, and Malaysia.

USC College of Engineering Dean Dr. Evelyn B. Taboadoa formally closed the 3-day conference by expressing her gratitude to all partners, co-organizers, participants, and secretariat.

Among the speakers who gave plenary presentations are:

Speaker	Affiliation	Title of Presentation
Prof. Kiyoshi Saito	Department of Applied Mechanics and Aerospace Engineering, School of Fundamental Science and Engineering, Waseda University	Latest R&D of Heat Pump Technologies
Prof. Joey D. Ocon	Department of Chemical Engineering, College of Engineering, University of the Philippines Diliman	Dawn of the Age of Giant Batteries: Energy Storage for Renewable Energy Integration

Prof. Maria Antonia N. Tanchuling	Institute of Civil Engineering, College of Engineering, University of the Philippines Diliman	Sorting Out the Garbage Crisis: Issues and Challenges
Prof. Nobumasa Sekishita	Department of Mechanical Engineering, Toyohashi University of Technology	Importance of Wind Tunnel Testing for Atmospheric Environments in Southeast Asia
Prof. John Richard E. Hizon	Electrical and Electronics Engineering Institute, University of the Philippines Diliman	Taking Advantage of "More than Moore" Technologies: the UP MicroLab Approach
Dr. Shigaru Azuhata	Japanese Society for Engineering Education	Engineers in a Corporate R&D
Dr. Rafaelita M. Aldaba	Department of Trade and Industry	Philippine Government Initiatives to Leapfrog to the 4 th Industrial Revolution
Prof. Hyoungkwan Kim	School of Civil and Environmental Engineering, Yonsei University	Construction Information technology for the Post-Information Age
Prof. Prospero Naval, Jr.	Department of Computer Science, College of Engineering, University of the Philippines Diliman	Opportunities and Initiatives to Develop Philippine Human resources in AI and Data Science
Prof. AbuBakr S. Bahaj	Division of Energy and Climate Change, University of Southampton	Sustainable Energy Systems – Impacts on Emissions and Development
Michael Lochinvar S. Abundo, PhD	Rolls-Royce @ NTU Corporate Laboratory and OceanPixel	Marine Renewable Energy in Southeast Asia: Status, Developments and Direction
Alcrhis Go, PhD	Department of Chemical Engineering, University of San Carlos	Biofuels in the Philippines: Current Scenario
Isabel A. Rabuya, MSc	Department of Electrical and Electronics Engineering, University of San Carlos	Energy Efficiency in Buildings: Opportunities and Challenges
Lorafe F. Lozano, MEng	Department of Industrial Engineering, University of San Carlos	Sustainable Energy Access in Off-Grid Island Communities

5th ERDT Congress

One way by which academe may contribute to the advancement of the global competitiveness of the Philippine economy is to work with industry. More specifically, there is a need to carry out academe-industry collaboration to the level where both sectors may bring research and development to bear upon the needs of society. Academe and Industry may work together in each or all parts of the innovation engine: effective ideation, research, development, and application of technology. Here, application is used to include commercial and non-commercial uses of technology to solve problems of society. By collaborating, the two sectors may also help the evolution of research in academia towards a more needs-based and outcomes-based orientation.

To articulate the challenges, new directions, and best practices in academe-industry collaboration, the Engineering Research and Development for Technology (ERDT) conducted its 5th ERDT Congress last 17 February 2017 at the SMX Convention Center, Pasay City with the theme of "Intensifying Academe-Industry Collaboration for Research and Development in the Philippines."



DOST Secretary Prof. Fortunato T. de la Peña challenges the participants to contribute to nation building through research and innovation.

The Secretary of the Department of Science and Technology, Prof. Fortunato T. de la Peña, shared to the participants that our lawmakers are now showing concrete support for science and technology. In particular, he mentioned the Science for Change bill filed by Congressman Joey S. Salceda, which aims to allocate trillions of pesos for research and scholarships in the next six years. He likewise challenged the participants to contribute to four items in

the ten-point plan namely increasing competitiveness, promoting rural and value chain development, investing in human capital development, and promoting science and technology as well as the creative arts to strengthen innovative capacity.

USAID Science, Technology, Research, and Innovation for Development (USAID STRIDE) Chief of Party Dr. David Hall enlightened the crowd on the challenges facing academe-industry collaboration. He stressed out the value of building mutual trust and told the participants to set research aside momentarily and take a time to build friendships with industry. He also highlighted, which was also reinforced by Sec. de la Peña during the question and answer, that research must be industry-led and needs-driven.

During the parallel plenary sessions, De La Salle University Associate Professor Dr. Aristotle T. Ubando and Professor Dr. Kathleen B. Avisio shared valuable tips on how to

write proposals and publish research, respectively. University of San Carlos Dean and Professor Dr. Evelyn B. Taboada and UP Associate Professor Dr. Bryan B. Pajarito presented excellent examples of research projects which involved academe-industry collaboration.

Before the day ends, Semiconductor and Electronics Industries in the Philippines, Inc. (SEIPI) President, Dr. Danilo C. Lachica, discussed how to build and sustain R&D driven industry and stressed out the importance of working hand in hand with government and other stakeholders.

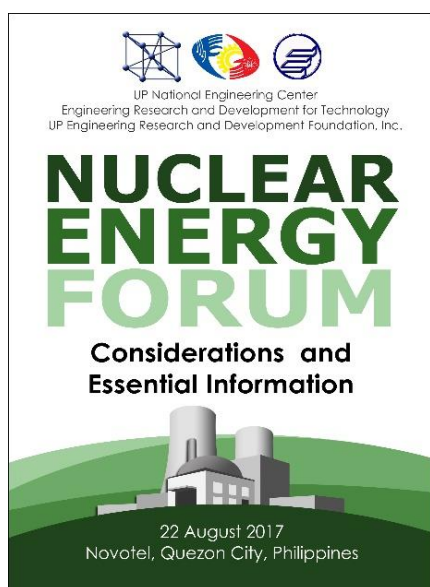


ERDT scholars from Mindanao State University – Iligan Institute of Technology pose for a group shot after the event.

ERDT – Ateneo de Manila University Project Leader Dr. Evangeline P. Bautista closed the Congress by saying that it was indeed a very positive and productive day.

The ERDT Congress is a yearly event where ERDT scholars, faculty members, researchers, visiting professors, industry, government and other experts gather and get inspired by plenary lectures of highly distinguished professors and experts all over the world. It also seeks to provide a venue for ERDT scholars to publish their academic works through poster competition.

6th ERDT Congress: Nuclear Energy Forum



With the objective of informing the public on the important matters to be addressed and considered before pursuing a national nuclear energy policy that will provide the backbone of the Government's nuclear power program, the Department of Science and Technology – Engineering Research and Development for Technology (DOST-ERDT), University of the Philippines National Engineering Center (UP NEC), and the Department of Energy (DOE) successfully conducted the Nuclear Energy Forum (NEF): Considerations and Essential Information last 22 August 2017.

Held at the Novotel Manila, Araneta Center, Cubao, Quezon City, the Forum was attended by more than 500 participants from different international organizations, the academe, government, industry, media, and civil society organizations. The majority of the audience were mostly faculty members, students and alumni practitioners of the DOST-ERDT consortium universities.

The Forum was opened by Dr. Rizalinda L. de Leon, Dean of the UP College of Engineering, Executive Director of the UP NEC and Program Leader of the DOST-ERDT. Dr. de Leon emphasized the goals of the activity and invited all the participants to actively engage in the discussions and to network with the speakers and with other participants.

Department of Science and Technology (DOST) Secretary Fortunato T. de la Peña and Department of Energy (DOE) Secretary Alfonso G. Cusi delivered their respective messages as well.

Senator Sherwin T. Gatchalian, Chairperson of the Senate Committee on Energy, shared the importance of legislation and the key responsibility of the Senate in advancing the pursuit of nuclear energy such as providing policy direction, laying down legislative framework, ensuring policy consistency, securing check and balance, providing appropriations, and following international commitments.

In his presentation titled "Philippine Power Development Plan and Status of Renewable and Fossil-Based Power Sources", DOE Undersecretary Felix William B. Fuentebella showed the recently formulated Philippine Power Development Plan 2016-2040. The Plan is in line with National Economic and Development Authority's Ambisyon Nation 2040 and envisages the shaping and redefining of the country's electric power industry. It contains the Philippines' electricity profile, performance assessment for 2011-2015, demand and supply outlook for 2016-2040, and the power sector's roadmap.

The Forum's technical sessions were led by international speakers, invited for the purpose through the funding of DOST-ERDT and the efforts of DOST-PNRI and UP NEC.

The International Atomic Energy Agency (IAEA) representative Dr. José Bastos highlighted that launching a nuclear energy program involves 10-15 years of preparatory work and a commitment for around 100 years. Given this, he emphasized the crucial roles of strong institutions especially regulatory institutions, and the importance of having a legal framework for nuclear resource use in the country.

Dr. Ahmed Y. Abdulla, Assistant Professor at Carnegie Mellon University in the USA talked about the current global nuclear enterprise landscape with focus on South Korea, Japan, France, Russia, China, and United States of America. He started his talk with the urgent global challenge of deep decarbonization and the role that nuclear energy might play. He, however, warned the participants against the wishful notions regarding the benefits of nuclear. He gave a grounding picture of the opportunities and challenges of the different countries as he talked about the available technologies, emphasizing that this is still a light water reactor world.



IAEA Representative Dr. José Bastos presenting support on infrastructure development for new nuclear policy programs.

Mr. Teofilo V. Leonin, Jr., Chief of PNRI Nuclear Regulatory Division enlightened the participants on the Philippine Legislative and Regulatory Infrastructure for Nuclear and Radiation Safety. He discussed that the Philippines has two regulatory bodies that control and regulate all sources of ionizing radiation to ensure safety and protection of people and the environment from the danger of ionizing radiation. These regulatory bodies are the DOST-PNRI for radioactive materials and atomic energy facilities and the Department of Health, Food and Drug Administration and Center for Device Regulation, Radiation Healthy, and Research) for devices and facilities that electrically generate ionizing radiation.

The afternoon session catered to country-specific knowledge, expertise and experiences. DOE Undersecretary. Marcos discussed the creation of the Nuclear Energy Program Implementing Organization or NEPIO with the main task of conducting research and studies to inform and formulate a recommendation on a national position on nuclear power. Mr. Jeong Kwang-Hee, General Manager at Korea Hydro and Nuclear Power Co., Ltd. (KHNP) talked about the technologies they have and their experience in constructing nuclear power plants. Mr. Anton V. Moskvina, Vice President for Marketing and Business Department of Rosatom Overseas, talked about the different technologies available in Russia and their experiences on dealing with contracting nuclear power plant projects. Dr. Miranda A. Schreurs, Professor at the Technical University of Munich, narrated by live broadcast the progression of policy on nuclear power and renewable energy in Germany through her presentation titled "Imagining the Future while Dealing with the Past: Germany 's Efforts to Deal with its High Level Radioactive Waste". Lastly, Mr. Akio Toba, Executive Director of JAIF (Japan Atomic Industrial Forum, Inc.) International Cooperation Center, shared the enhancements and other developments on Nuclear Safety and Emergency Planning in Japan based on the lessons learned from the Fukushima Daiichi nuclear accident in 2011. Dr. Mili-Ann M. Tamayao, UP NEC Deputy Executive Director gave a summary of all the presentations.

A number of questions were raised by the participants during the open fora ranging from the rehabilitation of BNPP or the creation of a new plant and its strategic location; the readiness of the Philippines for a nuclear energy program; environmental impact of nuclear plants; waste management; concrete plans for stakeholders' awareness, appreciation, understanding and involvement; competencies for manpower who will run the plant; to sustaining nuclear energy policies given the changing political landscape in the Philippines. Dr. Allan C. Nerves of UP Diliman, Dr. Rinlee Butch M. Cervera of UP Diliman, and Dr. Alvin B. Culaba of De La Salle University served as moderators during these segments.

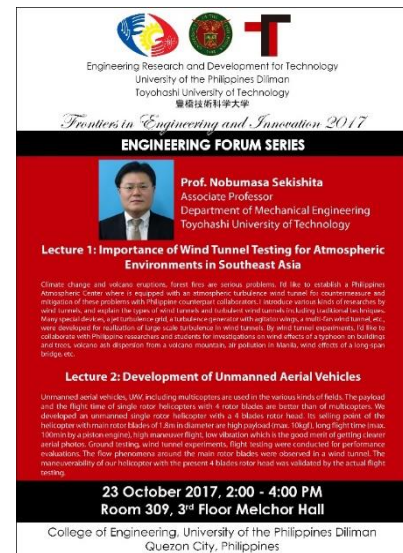
Dr. Joseph Gerard T. Reyes and Dr. Leslie Joy L. Diaz, faculty members from UP Diliman hosted the event.

Engr. Pedro H. Maniego, Jr., UPERDFI Chairman and former chairman of the National Renewable Energy Board, officially closed the event and thanked all the participants, organizers, and partners. He cited the organizing committee led by Engr. Rosario S. Calderon, UPERDFI Vice President and Principal at Green Global Ideas, and the support from DOST Undersecretary Rowena Guevara, DOST-PNRI Nydia Medina and Vangelina Parami, and DOE Assistant Secretary Gerardo D. Erquiza Jr for all their efforts, starting from the time the forum was conceived in November 2016.

Engineering Forum Series

The DOST-ERDT, in partnership with Waseda University and Toyashi University of Technology, hosted a series of lectures with the theme, "*Frontiers in Engineering and Innovation*", that were held on the 16th and the 23rd of October 2017 at UP Diliman's Melchor Hall.

In the first leg of the forum series, Prof. Kiyoshi Saito, Vice Dean of the School of Fundamental Science and Engineering of Waseda University, discussed the topic, "*Fundamentals and applications of heat pump and air-conditioning techniques*" while Associate Professor Yamaguchi talked about the "Fundamentals and applications of desiccant air-conditioning technologies".



The poster is for the "Engineering Forum Series" titled "Frontiers in Engineering and Innovation 2017". It features a portrait of Prof. Nobumasa Sekishita, an Associate Professor in the Department of Mechanical Engineering at Toyohashi University of Technology. The poster lists two lectures: "Lecture 1: Importance of Wind Tunnel Testing for Atmospheric Environments in Southeast Asia" and "Lecture 2: Development of Unmanned Aerial Vehicles". It also includes the date and time (23 October 2017, 2:00 - 4:00 PM) and the location (Room 309, 3rd Floor Melchor Hall, College of Engineering, University of the Philippines Diliman, Quezon City, Philippines).

Engineering Research and Development for Technology
University of the Philippines Diliman
Toyohashi University of Technology
豊橋技術科学大学

Frontiers in Engineering and Innovation 2017

ENGINEERING FORUM SERIES

Prof. Nobumasa Sekishita
Associate Professor
Department of Mechanical Engineering
Toyohashi University of Technology

Lecture 1: Importance of Wind Tunnel Testing for Atmospheric Environments in Southeast Asia

Climate change and volcanic eruptions, forest fires are serious problems. To deal with these problems, it is necessary to establish a Philippine Atmospheric Center where is equipped with an atmospheric turbulence wind tunnel for measurement and mitigation of these problems with Philippine counterpart collaborators. I introduce various kinds of researches by wind tunnels, and explain the types of wind tunnels and related wind tunnel technology based on the history. Many special devices, particularly a grid, a turbulence generator with agitator wings, a multi-fan wind tunnel etc., were developed for realization of large scale turbulence in wind tunnels. By wind tunnel experiments, I'd like to collaborate with Philippine researchers and students for investigations on wind effects of a typhoon on buildings and trees, volcanic ash dispersion from a volcano mountain, air pollution in Manila, wind effects of a long-span bridge, etc.

Lecture 2: Development of Unmanned Aerial Vehicles

Unmanned aerial vehicles (UAV) including multirotors are used in the various kinds of fields. The payload and the flight time of single rotor helicopters with 4 rotor blades are better than of multirotors. We developed an unmanned single rotor helicopter with a 4 blades rotor head. Its selling point of the helicopter with main rotor blades of 1.8m in diameter are high payload (max. 10kg), long flight time (max. 10min) by a pusher-propeller, high maneuver flight, low vibration which is the good point of getting clearer aerial photos. Ground testing, wind tunnel experiments, flight testing were conducted for performance evaluations. The flow phenomena around the main rotor blades were observed in a wind tunnel. The maneuverability of our helicopter with the present 4 blades rotor head was validated by the actual flight testing.

23 October 2017, 2:00 - 4:00 PM
Room 309, 3rd Floor Melchor Hall
College of Engineering, University of the Philippines Diliman
Quezon City, Philippines

Dr. Nobumasa Sekishita, Associate Professor at Waseda University, led discussions on the topics--- "*Importance of Wind Tunnel Testing for Atmospheric Environments in Southeast Asia*" and "*Development of Unmanned Aerial Vehicles*" during the second leg of the forum series.

The audience, majority of which were ERDT scholars, were given opportunities to ask questions and explore the topics further during the open fora.

Appendix A

List of 2017 Graduates with Titles and their Theses and Dissertations

	Name of Scholar	Degree Completed	Field of Study	Month and Year of Graduation	Title of Thesis/ Dissertation
1	Chua, Jedd Emile	MS	Electronics Engineering	May 2017	Revision and Testing of a Framework for the Development of Embodied Cognition Learning Games
2	Creayla, Christine May	MS	Electronics Engineering	May 2017	Energy Production Forecast from Solar Photovoltaic Systems using Meteorological Data
3	Lazaro, Adrienne Jasper B.	MS	Electronics Engineering	May 2017	Real-time Recognition of Handwritten Numbers using Histogram of Oriented Gradients and Support Vector Machine
4	Lim, Jeric C.	MS	Electronics Engineering	May 2017	Light Beam Induced Current (LBIC) System for Solar Cell Characterization
5	Obispo, Jun Rangie C.	MS	Electronics Engineering	May 2017	An Investigation of the Einstellung Effect Among Novice and Intermediate Programmers
6	Prudente, Luke O.	MS	Computer Science	May 2017	Automated Counter-Melody

					Generation for Monophonic Melodies
7	Rosales, John Clifford S.	MS	Computer Science	May 2017	Approximations to Geolocation of Disaster Related Tweets
8	Samson, Aran V.	MS	Computer Science	May 2017	Composing Hybrid Genre Music using Targets derived from Melodic Analysis and Statistical Data
9	Villanueva, Marcel Lowelle G.	MS	Electronics Engineering	May 2017	Appliance Recognition using AGILASX Dataset for Intrusive Load Monitoring and Machine Learning Approaches Improved Techniques in Vector Auto Regression for Time-Series Link Prediction
10	Co, Jan Miles A.	PhD	Computer Science	May 2017	Improved Techniques in Vector Auto Regression for Time-Series Link Prediction
11	Malit, Mikaela T.	MS	Computer Science	December 2017	Leveraging an Existing Learning Management System for Alternative Learning
12	Zambales, Joshua S.	MS	Computer Science	December 2017	Feature Set Reduction and Analysis for Skin Disease Classification

					Modelling Using Svm-Knn and Neural Network
13	Roa, Mary Anne S.	PhD	Computer Science	December 2017	Development of a Robust Electronic Nose for Olfactory System Modelling using Artificial Neural Network
14	Matias, Roberto Q.	MS	Agricultural Engineering	February 2017	Development of Parcellary Information System as a Management Tool for the National Irrigation System
15	Domingo, Miranda D.	MS	Agricultural Engineering	February 2017	Assessment of Existing Storage Systems for Bulb Onion (<i>Allium cepa</i> L)
16	Morales, Jason G.	MS	Agricultural Engineering	February 2017	Development of Adsorbent Convection Dryer
17	Cinense, Marvin M.	PhD	Agricultural Engineering	June 2017	Modified Environment for Grow-Out Production of Nile Tilapia (<i>O. niloticus</i>) Under Tank Culture System
18	Jallorina, Baldwin G.	PhD	Agricultural Engineering	June 2017	Harnessing the Potential of Irrigation Water Flows for Microhydro Power Generation

19	Nadiahhan, May Ann Grace B.	MS	Agricultural Engineering	June 2017	Optimization of Drying Process Conditions of Moringa (<i>Moringa oleifera</i> L.) Leaves Using Response Surface Methodology (RSM)
20	Quipo, Rhealyn A.	MS	Agricultural Engineering	June 2017	Design, Fabrication and Performance Evaluation of a Brsuh & Spraying Type Mandarin (<i>Citrus reticulata</i> Blanco) Mechanical Washer
21	Felix, Charles B.	MS	Mechanical Engineering	February 2017	Optimization of In Situ Transesterificati on of Wet Algae Microalgae Chlorella Vulgaris under Subcritical Conditions
22	Astillero, Erik Lance D.	MS	Chemical Engineering	February 2017	Optimization of Copper, Lead and Nickel form Aqueous Solution Using Chitosan- coated Bentonite Beads in a Fixed-bed Adsorption Column
23	Gildo, Peniel Jean A.	MS	Chemical Engineering	February 2017	Ultrasound and High Shear Mixing Assisted Oxidative

					Desulfurization of Fuel Oils over Activated Carbon Supported Phosphotungstic Acid
24	Carrillo, Edgar II C.	MS	Mechanical Engineering	February 2017	Development of Gas Leak Detection System Using Fuzzy Logic, Optical Flow and Neural Networks
25	Go, Matthew Phillip V.	MS	Computer Science	February 2017	A Corpus Based Filipino Grammar Checker using Hybrid N-gram Rules from Grammatically-Correct Texts
26	Medrano, Bryan Josef T.	MS	Computer Science	February 2017	Damage Quantification of Beams Using Frequency Signature
27	Escolano, Cyril O.	MS	Electronics & Communications Engineering	February 2017	
28	Pangayao, Denver C.	PhD	Chemical Engineering	June 2017	Bioleaching of Trace Metals from Coal Ash Using <i>Acidithiobacillus albertensis</i> , <i>Acidithiobacillus thiooxidans</i> and Local Isolate from Coal Ash Pond
29	Manguerra, Michael V.	MS	Electronics & Communications Engineering	June 2017	Active Controller for an Upper Extremity Exoskeleton Using EMG Feedback

30	Abinoja, Daniel Dominic N.	MS	Electronics & Communications Engineering	June 2017	Bayesian Information Criterion-Based Optimization of the Identification of Multipath Propagation Clusters in MIMO Wireless Systems
31	Tapia , John Frederick D.	PhD	Chemical Engineering	June 2017	Development of a Systematic Framework for Planning Carbon Capture Utilization and Storage (CCUS) Systems
32	Quiros, Ana Riza F.	MS	Electronics & Communications Engineering	June 2017	Development of Automated Number Coding Violation Detection System Using Computer Vision of Plate Recognition
33	Kalaw, Kristine Ma. Dominique F.	MS	Computer Science	June 2017	Recognizing Readers Affect Using EEG Data
34	Uy, Aaron Christian P.	MS	Electronics & Communications Engineering	June 2017	Design and Implementatio n of a Real- Time Vehicle Lane Weaving Detection System
35	Angeles, Donna A.	MS	Chemical Engineering	June 2017	Carbon and Nitrogen Footprint Optimization of Ammonia as an Automotive Fuel

36	Ibasco, Lexter Strike S.	MS	Civil Engineering	June 2017	
37	Bautista, Mary Grace C.	MS	Electronics & Communications Engineering	June 2017	
38	Elevado, Kenneth Jae T.	MS	Civil Engineering	June 2017	
39	Sy, Alexis Mervin T.	MS	Mechanical Engineering	June 2017	Development of Supply Chain Based Fuel Cycle Inventory Model for the Philippines
40	Querido, John Gabriel R.	MS	Chemical Engineering	June 2017	
41	Tubola, Orland D.	MS	Electronics & Communications Engineering	June 2017	
42	De Jesus, James Matthew L.	MS	Civil Engineering	October 2017	An Investigation on the Strength of Axially Loaded Cold-Formed Steel Z-Section
43	Estores, Gilford B.	PhD	Civil Engineering	October 2017	Pull-out Strength of an Expansion Stud Anchor in Carbon Fiber Reinforced Concrete
44	Octaviano Jr., Manolito V.	MS	Computer Science	October 2017	A Spell Checker for a Low- Resourced and Morphologicall y Rich Language
45	Aguilar, Kyle Darryl T.	MS	Mechanical Engineering	October 2017	Bilevel Fuzzy Optimization Model of an Algae-based Eco-Industrial Park under Cooperative Game Theory

46	Lee, Raphael A.	MS	Civil Engineering	October 2017	Evaluating Reinforced Concrete Beams Through Acoustic Emission Testing and Ultrasound Air-Coupled Sensing
47	Bernardo, Gian Paolo P.	PhD	Chemical Engineering	October 2017	
48	Bedruz, Rhen Anjerome R.	MS	Electronics & Communications Engineering	October 2017	
49	Cantos, Gabrielle Luisa D.	MS	Civil Engineering	October 2017	
50	De La Cruz, Martin Aldrin S.	MS	Civil Engineering	October 2017	
51	Dela Cruz, Carlo Dominic U.	MS	Civil Engineering	October 2017	Optimization of Bundling and Pricing Strategies in a Supply Chain Network Considering A Stochastic Consumer Purchasing Behavior
52	Barrios, Paul Siegfried C.	MS	Industrial Engineering	October 2017	The Dynamics Of Mini-Waterfalls: Modelling The Regression From Agile Scrum To Waterfall Development Within A Single Software Project
53	Ching, Phoebe Mae L.	MS	Industrial Engineering	October 2017	Design Of A Hand Wearable Device For Grasping With

					Kinematic Simulation
54	Ong, Aira Patrice R.	MS	Manufacturing Engineering and Management	October 2017	
55	Martinez, Dan William C.	MS	Mechanical Engineering	October 2017	Machine Vision-Based Facial Expression Recognition and Analysis for Filipino Gamers
56	Sena, Juan Raphael S.	MS	Electronics & Communications Engineering	October 2017	
Central Luzon State University					
57	Roberto Q. Matias	MS	Agricultural Engineering	February 2017	Development of Parcellary Information System as a Management Tool for the National Irrigation System
58	Domingo Miranda D.	MS	Agricultural Engineering	February 2017	Assessment of Existing Storage Systems for Bulb Onion (<i>Allium cepa</i> L)
59	Jason G. Morales	MS	Agricultural Engineering	February 2017	Development of Adsorbent Convection Dryer
60	Marvin M. Cinense	PhD	Agricultural Engineering	June 2017	Modified Environment for Grow-Out Production of Nile Tilapia (<i>O. niloticus</i>) Under Tank Culture System
61	Baldwin G. Jallorina	PhD	Agricultural Engineering	June 2017	Harnessing the Potential of Irrigation Water Flows for Microhydro Power Generation

62	May Ann Grace B. Nadiahan	MS	Agricultural Engineering	June 2017	Optimization of Drying Process Conditions of Moringa (<i>Moringa oleifera</i> L.) Leaves Using Response Surface Methodology (RSM)
63	Rhealyn A. Quipo	MS	Agricultural Engineering	June 2017	Design, Fabrication and Performance Evaluation of a Brush & Spraying Type Mandarin (<i>Citrus reticulata</i> Blanco) Mechanical Washer
Mapua University					
64	David, Lawrence Charlemagne G.	MS	Electronics Engineering	January - March 2017	Synergistic Use of Airborne LiDAR Data and Aerial Imagery from Unmanned Aerial Vehicle for Detailed Resources Mapping Using Decision Tree-Based Support Vector Machine Classification
65	Majait, Noemi A.	MS	Electronics Engineering	January - March 2017	Development of a Do-it-Yourself Thermal Grease: Thermal Interface Material Polymer-based Composite with Carbon

					Nanotubes Filler
66	Lopena, Jerome D.	MS	Mechanical Engineering	January - March 2017	Development of a Robot for Air-Conditioning Duct System Inspection and Air Quality Measurement
67	Junio, Jonathan B.	MS	Materials Science and Engineering	January - March 2017	Influence of Nano-Titanium Dioxide (TiO ₂) Layer Thickness and Particle Size on the Efficiency of Quantum Dot Sensitized Solar Cells (QDSSC)
68	Adier, Maria Fe V.	MS	Civil Engineering	April - June 2017	Effect of Recycled Concrete Aggregates Added with Rice Ash In Compressive and Flexural Strength of Concrete under High Loading Rate
69	Limco, Ryan A.	MS	Civil Engineering	April - June 2017	Morinda citrifolia Linnaeus (Noni) Leaf Extract Effects in Steel Reinforced Concrete: Implications for Corrosion Protection of Structures Exposed to Saline Environment
70	Landingin, Junard G.	BSMS	Chemical Engineering	April - June 2017	Beta-isotactic polypropylene (B-IPP) formation in

					electrospun isotactic polystyrene (iPS)-filled iPP and crystallization kinetics at different process conditions
71	Lorenzo, Maria Carmina M.	MS	Chemical Engineering	April - June 2017	Liquid Foundation Formulation Containing Kaolin Clay and Herbal Oils in Oils-in-Water Emulsion
72	Tirol, Sandra M.	MS	Computer Engineering	April - June 2017	Automation of Quantification Activities of Semiconductor-Back-End Process Using Binary Search Algorithm
73	Tolentino, Kevin G.	MS	Electronics Engineering	April - June 2017	Wireless Sensor Nodes with Embedded Statistical Time Series Damage Detection Algorithm Applied In a Steel Bridge Laboratory Test Platform
74	Manzano, Joseph M.	MS	Mechanical Engineering	April - June 2017	Design, Fabrication and Performance Evaluation of Hot Air Dryer Equipped with Rice Husk Fired Furnace (RHFF) and Cross flow Heat Exchanger for Rabbitfish

75	Dugenio, Jan Mellrick D.	MS	Material Science Engineering	January 2017	Synthesis and Characteristics of Poly aniline (PAni), Pani Silica and Pani Diatomite Composite Powders for LPG Sensing Application
76	Elmedulan, Keilah C.	MS	Electrical Engineering	January 2017	Development of a Unified Geodatabase System for the Mindanao State University-Iligan Institute of Technology Electrical Distribution Network
77	Escabal, Ingrid B.	MS	Electrical Engineering	January 2017	Development of Frammer/Deframer for 5GBPS JESD204B soft IP
78	Geralla, Leo E.	MS	Electrical Engineering	January 2017	Optimization of Physically-Aware Synthesis for Digital Implementation Flow
79	Gonzales, Ellen Jane B.	MS	Electrical Engineering	January 2017	Solar Potential Mapping in Iligan City Using LIDAR Data and SAGA GIS
80	Gerasta, Olga Joy L.	DOE	Mechanical Engineering	July 2017	Design and Testing of Unmanned Aerial Vehicle-Based Time Domain Reflectory
81	Hernandez, Noel M.	DOE	Mechanical Engineering	July 2017	Production, Purification and Utilization

					of Biogas as fuel for Internal Combustion Engine
82	Magomnan, Antonio-Abdu Sami M.	DOE	Mechanical Engineering	July 2017	Production, Purification, and Upgrading of Biogas from Agricultural Biomass wastes for power generation applications
83	Paclijan, Shierlyn S.	DOE	Material Science Engineering	July 2017	Development of Hydroxyapatite (HAp) and Hydroxyapatite-zinc oxide (Hap-ZnO) Powders and Assessment of their photocatalytic activity
84	Viña, Rommel R.	DOE	Mechanical Engineering	July 2017	Field Test of Thermoelectric Generator Using Parabolic Trough Solar Concentrator for Power
85	Aldueso, Karl Martin A.	MS	Electrical Engineering	July 2017	Developing A Power Monitoring Device For Transformer Load Management
86	Calimpusan, Re-Ann Cristine O.	MS	Electrical Engineering	July 2017	Modified differential voltage multiplier implemented in indoor photovoltaic energy harvesting circuit for

					wireless sensor networks using 65nm CMOS Process
87	Javier, Jayryn D	MS	Material Science Engineering	July 2017	Recovery of Lead from Waste Assaying Cupels by Leaching-Electrowinning Process
88	Lopez, Jess Christopher B.	MS	Computer Applications	July 2017	Control of 3D Printed Transradial Prosthesis: An Experiment in Human-Machine Interaction
89	Oroz, Eduardo M. Jr.	MS	Civil Engineering	July 2017	Comparative Study of Reinforced Concrete and Steel Structural Framing Systems for the Proposed 10-Storey Administration and Parking Building of MSU-IIT
90	Sabarillo, Rochelle M.	MS	Electrical Engineering	July 2017	Energy Harvesting from Indoor Ambient Light for Battery Recharging and wireless sensor nodes application implemented in 90nm CMOS Process
91	Silva. Leaniel C.	MS	Material Science Engineering	July 2017	Optimization of the Retreatment Process of Mine Tailings

					for Gold Recovery
92	Tarife, Rovick P.	MS	Electrical Engineering	July 2017	Stability Analysis of Mindanao Grid with Optimized Penetration Level of Embedded Generation
93	Vergara, Thesa L.	MS	Electrical Engineering	July 2017	Sub-1V Ultra-low quiescent current adaptive capacitorless low-dropout voltage regulator for low power management of wireless sensor networks implemented in 65nm CMOS Process
University of the Philippines - Diliman					
94	Apura, Ransie Joy A.	MS	Geomatics Engineering	June 2017	Development of a GIS Model for Evaluating Accessibility of Health Care Facilities in the City of Manila
95	Pahunang, Rekich R.	MS	Environmental Engineering	June 2017	Optimum Recovery of Phosphate Using Unseeded Fluidized-Bed Crystallization Process
96	Acosta, Timothy John S.	MS	Civil Engineering	June 2017	Development of a Rapid Visual Assessment Tool for 1-Storey School Buildings Exposed to Severe Wind

					Loadings in the Philippines
97	Alfaro, Benjamin Jose C.	MS	Materials Science and Engineering	June 2017	Synthesis and Characterization of Pure and Al-doped $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ Lithium-ion Conducting Solid Electrolyte via Modified Pechini Method
98	Ancheta, Maria Anjelica P.	MS	Civil Engineering	June 2017	Drivers of Household Water Consumption of different Socioeconomic Classes in selected communities in Metro Manila, Philippines
99	Arrojado, Samiel Louie M.	MS	Mechanical Engineering	June 2017	Stepping Motion Control for the Acrobot
100	Ballad, Emmanuel Jr. L.	MS	Metallurgical Engineering	June 2017	Flotation of gold-loaded fine activated carbon from cyanidation tailings using emulsified non-polar collectors
101	Co, Celden B.	MS	Energy Engineering	June 2017	Modelling and Analysis of Power Generation from Low-Grade Industrial Waste Heat Using a Modified Trilateral Flash Cycle

					Incorporated with an Ejector
102	Cruz, Gil Jr. G.	MS	Environmental Engineering	June 2017	Experimental Investigation on the Effects of Granulated Coal Ash (GCA) on Water and Sediment Quality of Estero de San Miguel
103	Dalisay, Jon Dewitt E.	MS	Mechanical Engineering	June 2017	Uncertainty Quantification and Model Reduction of Combustion Kinetics Using Sparse Polynomial Chaos and the Method of Way Point Sensitivities
104	Golosinda, Lucille R.	MS	Environmental Engineering	June 2017	Kinetics of Oxidative Desulfurization of DBT in Toluene: Effects of Catalyst to Phase Transfer Agent ratio, Temperature, and Mixing Speed
105	Lacson, Carl Francis Z.	MS	Environmental Engineering	June 2017	Degradation of Imidacloprid in Binary mixture with Propylene Glycol by Fluidized-Bed Fenton Process
106	Pillejera, Ma. Ketreena V.	MS	Energy Engineering	June 2017	Bamboo Torrefaction in a High Gravity (Higee) Environment Using a

					Rotating Packed Bed
107	Retumban, Joseph D.	MS	Environmental Engineering	June 2017	Degradation of Imidacloprid in Binary mixture with Propylene Glycol by Conventional Fenton Process
108	Carpio, Rowena B.	PhD	Chemical Engineering	June 2017	Hydrothermal Liquefaction of Demineralized Wastewater Algae Biomass
109	Banta, Ma. Theresa A.	MS	Energy Engineering	June 2017	Parametric Study of Rice Husk Torrefaction for the Development of Sustainable Solid Fuel
110	Chao, Cherry Lyn V.	MS	Energy Engineering	June 2017	Influence of Potassium Carbonate (K_2CO_3) as Catalyst on Biocrude Oil Yield and Properties via Hydrothermal Liquefaction of Spirulina
111	Tanchuling, Jes Francis M.	MS	Energy Engineering	June 2017	Torrefaction of Coconut Shells Using a Batch Reactor in an Oxidative Environment
112	Villaver, Weene S.	MS	Energy Engineering	June 2017	Effects of Temperature and Reaction Time on Yield and Properties of Biocrude Produced by Hydrothermal Liquefaction of <i>Spirulina platensis</i>

113	De Yro, Persia Ada N.	PhD	Materials Science and Engineering	June 2017	Surface Functionalizati on of Carbon Quantum Dots from Hydrothermal Synthesis of Iota Carrageenan
114	Espiritu, Christian Adam L.	PhD	Chemical Engineering	June 2017	Aptamer Selection for a Trichomonas vaginalis Adhesion Protein 65 for Diagnostic Applications
115	Juayong, Richelle Ann B.	PhD	Computer Science	June 2017	Computing in Evolution- Communicatio n P systems with Energy
116	Prado, Moriel L.	PhD	Environmental Engineering	June 2017	Combined Ozone and Ultrasound as Pretreatment in the Control of the Pharmaceutic als and Membrane Fouling in Membrane Bioreactors
117	Bigornia, Dax Elbert A.	MS	Chemical Engineering	June 2017	Development, Characterizati on, and Diffusion Modelling of Physically Cross-linked Hydrogel Wound Dressings from Cellulosic Blends and Sodium Hydroxide/ Thiourea Aqueous Solution

118	Manuzon, Janice D.	MS	Materials Science and Engineering	June 2017	Oil Extraction Residue (OER) from End-of-Life Tire (ELT) Recycling as a Carbon Black Substitute for Rubber Products
119	Manuzon, Janine D.	MS	Materials Science and Engineering	June 2017	Lamination of Chitin-Cellulose Nanocomposite and Thermoplastic Starch
120	Martinez, Lorielyn B.	MS	Computer Science	June 2017	Development of Criteria for Locating Stops in the Vicinity of Signalized Intersections
121	Mendoza, Darell James M.	MS	Civil Engineering	June 2017	Evaluation of the Performance of Center-Hole Ultrasonic Testing Method for Bored Piles
122	Mendoza, Genedyn Gems S.	MS	Electrical Engineering	June 2017	Class-Reconfigurable RF Power Amplifier using Continuously Tunable Harmonic Output Matching Network
123	Ondoy, Karl C.	MS	Chemical Engineering	June 2017	Epoxidized Micronized Rubber Powder as a Reinforcing Filler for Epoxy Resin
124	Tilendo, Amierson C.	MS	Chemical Engineering	June 2017	Development of geothermal scale powder and

					unsaturated polyester resin for stereolithographic application
125	Osonio, Airah P.	MS	Materials Science and Engineering	June 2017	Radio-frequency Plasma Reduction Silverlons Impregnated Into a Natural Zeolite Framework
126	Reyes, Martin III S.	MS	Electrical Engineering	June 2017	Effect of Solar Panel Array Configuration, Operating Head and Maximum Power Point Tracking Using Field Weakening Control in a Photo-voltaic Pumping System
127	Seranilla, Justin Jesse L.	MS	Energy Engineering	June 2017	GIS and Multi-Criteria Decision Analysis in Resource Assessment and Site Selection of Mini-Hydropower: The Case of Palawan
128	Sta. Rosa, David Dennis	MS	Civil Engineering	June 2017	Comparison of Compressive Strength and Stress-Strain Behavior of the Various Components of the Guadalupe Tuff Formation

129	Tiodin, Adrian V.	MS	Environmental Engineering	June 2017	Adsorption of Arsenic (V) and Nickel(II) Binary Aqueous Solution on Chitosan-coated Bentonite: A Batch Optimization Study
130	Ursos, Michael Edward T.D.	MS	Civil Engineering	June 2017	A Finite Element Based Method for Estimating Natural Frequencies of Locally Damaged Homogeneous Beams
131	Razon, Christine Joy M.	MS	Environmental Engineering	July 2017	Assessment of Solid Waste Management in Boracay Island using Waste Mass Flow Analysis
132	Aurora, Raymart G.	MS	Energy Engineering	December 2017	Integrating Geographic Information Systems (GIS) and Multi-Criteria Decision Making (MCDM) for Site Selection of Solar PV Power plant in the Philippines: Case Study in Cebu Province
133	Baduria, John Patrick N.	MS	Electrical Engineering	December 2017	Fast Charging of Lithium-ion Batteries Using Peak Power Estimation
134	Bernardo, Enrile D.	MS	Environmental Engineering	December 2017	Isolation, Characterizati

					on, and Application of Cellulose Nanofibers Derived from Coconut Husk Fibers using Chemical-Ultrasonic Process
135	Bisa, Harvey O.	MS	Civil Engineering	December 2017	Design and Fabrication of Air Uplift Chamber for Testing Roof Panel Systems in the Philippines
136	Bonavente, Daryll P.	MS	Electrical Engineering	December 2017	Modularized Cell Balancing
137	De Chavez, Reynaldo Jr. C.	MS	Chemical Engineering	December 2017	Synthesis, Characterization, and Application of Agar/Alginate /Carrageenan Hydrogel Blends for Water Retention in Soil
138	De Jesus, Neon S.	PhD	Electrical and Electronics Engineering	December 2017	Doppler Tolerant Modified P4 Code (DTMP4 Code) for Pulse Compression Radar
139	Denoga, Gerald Jo C.	PhD	Energy Engineering	December 2017	A Comparative Analysis of the Fuel Economy of Public Utility Buses in Metro Manila Using an Output-Split Hybrid Drivetrain versus other Hybrid

					Drivetrain Configurations
140	Esparcia, Eugene Jr. A	MS	Energy Engineering	December 2017	High Capacity Ammonium Tetra vanadate (NH ₄ V ₄ O ₁₀) as Non-Aqueous Magnesium-ion Battery Cathode Material
141	Genuino, Divine Angela D.	MS	Environmental Engineering	December 2017	Synthesis and Application of Activated Biochar from the Slow Pyrolysis of Municipal Solid Wastes for the Removal of Organic Contaminants from Aqueous Solutions
142	Lomotan, Robert James Y.	MS	Mechanical Engineering	December 2017	An Investigation of the Actual Fuel Economy of a Drive Cycle Developed Using Road Load Energy Criterion
143	Mejia, Hanzel N.	MS	Civil Engineering	December 2017	Modelling the Effects of Rainfall Intensity in Speed-Flow-Density Relationships at North Luzon Expressway (NLEX)
144	Narvato, Kathleen Jane F.	MS	Environmental Engineering	December 2017	Effects of Nitrite on the Abatement Efficiency of 17 α -ethinylestradiol During

					Treatment of Synthetic Municipal Wastewater Effluent with UV and UV/H ₂ O ₂
145	Ong, Dennis C.	PhD	Environmental Engineering	December 2017	Utilization of Groundwater Treatment Sludge and Sludge-Derived Manganese Dioxide for the Removal of Nickel Ions from Aqueous Solutions
146	Orpilla, Michael B.	MS	Electrical Engineering	December 2017	Fault Location in the Distribution System with Load Based Variation Compensation
147	Pacquiao, Melvin R.	MS	Environmental Engineering	December 2017	Multi-functional, highly fluorescent Carbon Dots from Enokitake Mushroom (<i>Flammulina velutipes</i>) for Metal Ion Sensing and Imaging Applications
148	Rodriguez, Genev Yesiree M.	MS	Energy Engineering	December 2017	Energy Planning using Multicriteria Decision Analysis and Goal Programming based on Key Decision Makers' Objectives:

					The Case of Palawan
149	Soriano, Refrendo D.	PhD	Electrical and Electronics Engineering	December 2017	Characterizing the Effect of Rotational Motion of a Mobile Receiver on the Wireless Signal Reception in a Non-Line of Sight Indoor Environment
150	Tolentino, Adrian M.	MS	Electrical Engineering	December 2017	Near-Field Electric Field Limit for Radiated Emissions Pre-Compliance
University of San Carlos					
151	Fernandez, Lemuel Al D.	ME	Civil Engineering	May 2017	Material Quantity and Cost Comparison of Rectangular Shape Building Using Structural Bearing Wall System and Moment Resisting Frame System
152	Cavero, Dyanne Brendalyn M.	ME	Industrial Engineering	May 2017	On Fuzzy Data Envelopment Analysis for University Department Efficiency Evaluation with Uncertain and Missing Data
153	Labio, Krystle Mae M.	ME	Computer Engineering	May 2017	A software tool for feature classification and profiling using Aerial Images of Urban environments

154	Evangelista, Ivan Roy	ME	Electronics and Communications Engineering	October 2017	Flying Insect Detection and Classification based on Insect Wingbeat Frequency and Circadian Rhythm with Crop Environment Monitoring
155	Montejo, Antonio III C.	ME	Electronics and Communications Engineering	October 2017	Characterizati on of a Multi- hop Network at the University of San Carlos Talamban Campus Using Television White Space
156	Palconit, Maria Gemel	ME	Electronics and Communications Engineering	October 2017	CO2 Emission Monitoring and Evaluation of Public Utility Vehicles Based on Road Grade and Driving Patterns at the University of San Carlos: An Internet of Things (IoT) Application
157	Siacor, Francis Dave	MS	Chemical Engineering	October 2017	Effects of Temperature and Aqueous Ethanol Concentration on the Extraction of Phenolic Compounds from Mango (Mangifera indica L. Anacardiacea e) Seed Kernel.

158	Locsin, Cherl Niño	ME	Computer Engineering	October 2017	Neural Networks Application for Water Distribution Support System
-----	-----------------------	----	-------------------------	-----------------	--

Appendix B

List of 2017 FRDG Recipients

Name		Duration	Research Title/ Poster Presentation	Conference	Venue
Institute of Civil Engineering					
1	Oscar Victor M. Antonio	April 2-4, 2017	Effects of Isothermal Sealed Curing on the Compressive Strength of High - Strength Concrete for Reinforced Mass Concrete Structure	2nd World Congress on Civil, Structural and Environmental Engineering	Barcelona, Spain
2	Maria Antonia Tanchuling	April 12-14, 2017	Characterization and proposed utilization of garden and food wastes generated from UP Diliman	3rd Symposium of the International Waste Working Group - (IWWG-ARB)	Seoul, Korea
3	Jose Regin F. Regidor	July 25-28, 2017	Characteristics of Ridesharing in Metro Manila	Symposium on Sustainable Development Research in Asia Pacific	Melbourne, Australia
4	Ricardo D. Sigua	September 18-21, 2017	Study on Lane Capacities of Motorcycles Under Controlled Conditions	2017 Eastern Asia Society for Transportation Studies (EASTS) Conference	Ho Chi Minh City, Vietnam
5	Oscar Victor M. Antonio, Jr.	November 13-17, 2017	Investigation of Hematite Nanoparticle Treatment in Mitigating Corrosion in Reinforced Concrete	15th Asia Pacific Conference for Non-Destructive Testing (APCNDT)	Singapore
6	Eugene C. Herrera	October 30 - November 01, 2017	Environmental Modeling for Water Resource Assessment of Typhoon Haiyan-hit	10th Regional Conference on Environment	Hanoi, Vietnam

			Coastal Watersheds in the Philippines	al Engineering 2017	
7	Augustus C. Resurreccion	December 10-14, 2017	Ecological Risk Assessment of Heavy Metals in Soil, Water and River Sediments in and around Bued River	Society for Risk Analysis 2017 Annual Meeting	Virginia, USA
8	Jaime Y. Hernandez Jr.	December 3-7, 2017	Investigation of Failure Progression of a 1-Story Gable-roof Building Subjected to Sustained Wind Speeds	9th Asia Pacific Conference on Wind Engineering (APCWE9)	Auckland, New Zealand
9	Maria Antonia N. Tanchuling	October 30 - November 01, 2017	Viability of Growing Sampaguita in Heavy Metal Contaminated Media	10th Regional Conference on Environmental Engineering	Hanoi, Vietnam
Department of Chemical Engineering					
10	Mark Daniel G. de Luna	April 2-6, 2017	Effect of synthesis parameters in the removal of 4-chlorophenol under visible light irradiation using ammonium iron (II) sulfate - doped nano - titania photocatalyst	253rd American Chemical Society National Meeting	USA
11	Rizalinda L. De Leon	March 28-30, 2017	Photocatalytic Hydrogen Production from Seawater using $Cd_xZn_{1-x}S$	2017 4th International Conference on Chemical and Food Engineering (ICCFE 2017)	Osaka, Japan
12	Terence P. Tumolva	March 28-30, 2017	Characterization of MEPCM - incorporated paint as latent heat storage system	2017 4th International Conference on Chemical and Food Engineering (ICCFE 2017)	Osaka, Japan
13	Kristian Yap	July November 24-26, 2017	Low-cost Fabrication and Performance	2017 International	Dubai, UAE

			Testing of Polydimethylsiloxane (PMDS) Micromixers using an Improved Print-and-Peel (PAP) Method	Conference on Functional Materials and Chemical Engineering (ICFMCE 2017)	
Department of Computer Science					
14	Henry Adorna	N.	July 24-28, 2017	"Simulation of Transition P Systems in Numerical P Systems with Migrating Variables" and "ECPe Having Bounded and Unbounded Communication"	18 International Conference on Membrane Computing Bradford, UK
15	Jaime Caro	D.L.	September 12-13, 2017	'A Clique Finding Algorithm for the Approximate Gene Cluster Discovery Problem	Workshop in Computation: Theory and Practice Osaka, Japan
Electrical and Electronics Engineering Institute					
16	Nestor Michael C. Tiglao		March 15-17, 2017	ICEP 2017 IAENG International Conference on Control and Automation (ICCA 2017)	ICEP 2017 IAENG International Conference on Control and Automation (ICCA 2017) New Jersey, USA
17	Nicolette Arriola	Ann	March 15-17, 2017	Road Surface Obstacle Detection using Vision and LIDAR for Autonomous Vehicle	The International and Multi-Conference of Engineers and Computer Scientist 2017 Hong Kong
18	Manuel Ramos, Jr	C.	March 15-17, 2017	Characterization of LM35 Sensor for Temperature Sensing of Concrete	The International and Multi-Conference of Engineers and Computer Scientist 2017 Hong Kong

19	Adelson N. Chua	April 30- May 03, 2017	Smart-Wire: A 0.5 V 44uW 0C to 100C Powerline Energy Harvesting Sensor Node	Custom Integrated Circuits Conference	USA
20	Russel John Gallano	June 06-09, 2017	Break-even Distance Analysis of Residential Solar PV System and Line Extension for Off- Grid Electrification Methodology in the Philippines and A Binary Programming Model for SAIFI Considering Protective Device Failure	IEEE International Conference on Environment and Electrical Engineering 2017	Milan, Italy
21	Neil Irwin M. Bernardo	December 13-15, 2017	Performance Evaluation of Spread Spectrum-based Multiple Access Techniques Combined with 5G Multi-Carrier Waveforms	11th International Conference on Signal Processing and Communica tion Systems	Gold Coast, Australia
22	Manuel C. Ramos Jr.	November 25-27, 2017	NVDI Image Extractor of an Agricultural Land Using an Autonomous Quadcopter with a Filter-modified Camera; and Autonomous Seed- Planting Vehicle	7th IEEE International Conference on Control Systems, Computing and Engineering (ICCSCE 2017)	Penang, Malaysia
23	Rico Jossel M. Maestro	November 05-08, 2017	A Study on Partial Reconfiguration with Compression via Modularizing Secondary Process of a General Purpose Processor	IEEE Region 10 Conference (TENCON)	Penang, Malaysia
24	Anastacia B. Alvarez	November 05-08, 2017	EQSCALE: Energy- Quality Scalable Feature Extraction Engine for Sub-mW Real-time Video Processing with 0.55mm ² Area in 40nm CMOS	Asian Solid State Conference	Seoul, South Korea

25	Marc Rosales D.	November 05-08, 2017	Switched-Capacitor Regulator with Digital Feedback; Implementation of Dynamic Voltage Frequency Scaling on a Processor for Wireless Sensing Applications	2017 IEEE Region 10 Conference (TENCON)	Penang, Malaysia
26	Maria Theresa G. De Leon	November 05-08, 2017	Implementation of Dynamic Voltage Frequency Scaling on a Processor for Wireless Sensing Applications; Designing Wireless Transceiver Blocks for LoRa Application	2017 IEEE Region 10 Conference (TENCON)	Penang, Malaysia
27	Chris Vincent J. Densing	November 05-08, 2017	A Study on the Effects of Dynamic Voltage and Frequency Scaling on an Error Detection Block for a LoRa Communications System	2017 IEEE Region 10 Conference (TENCON)	Penang, Malaysia
28	Nestor Michael C. Tiglao	December 12-17, 2017	A Cache-aware Congestion Control for Reliable Transport in Wireless Sensor Networks	9th EAI International Conference on Mobile Networks and Management (MONAMI 2017)	Melbourne, Australia
Department of Geodetic Engineering					
29	Ariel C. Blanco	July 04-07, 2017	Geospatial Analysis of Dengue Incidences in Quezon City, Philippines	Spatial Statistics 2017 Conference	Lancaster, UK
30	Ariel C. Blanco	June 01-03, 2017	Positional Accuracies from Unmanned Aerial Systems (UAS) With and Without Ground Control Points	43rd GEP Annual National Directorate Meeting and Convention	General Santos City, Philippines

31	Louie P. Balicanta	June 01-03, 2017	Guiguinto Local Geoid Model of 2016 (GLGM2016)	43rd GEP Annual National Directorate Meeting and Convention	General Santos City, Philippines
32	Oliver T. Macapinlac	June 01-03, 2017	Extracting Land Coordinates from Photographs using Multiple View Geometry	43rd GEP Annual National Directorate Meeting and Convention	General Santos City, Philippines
33	Florence A. Galeon	June 01-03, 2017	Monitoring the Popularity of Geodetic Engineering Course	43rd GEP Annual National Directorate Meeting and Convention	General Santos City, Philippines
34	Ariel C. Blanco	August 22-24, 2017	Generation and Application of Sugarcane Growth Monitoring Products of the UP-SRA Yield	Geo-Smart Asia 2017 Conference	Malaysia
35	Edgardo G. Macatulad	October 03-05, 2017	DEM generation from close-range photogrammetry using extended Python Photogrammetry Toolbox	Geomatics and Geo-special Technology International Conference 2017	Kuala Lumpur, Malaysia
36	Mark Edwin A. Tupas	October 23-27, 2017	Data Processing and Management of Diwata-1 Imagery Using Free and Open source Software Stack	38th Asian Conference on Remote Sensing (ACRS 2017)	New Delhi, India
Department of Industrial Engineering and Operations Research					
37	Virginia J. Soriano	July 17-21, 2017	Development of a risk assessment tool for small scale gold mining in the Philippines	8th International Conference on Applied Human Factors and Ergonomics	California, USA
38	Aura C. Matias	July 17-21, 2017	Prevalence and Predictive Models of Health Problems among Sold Waste	8th International Conference on Applied	California, USA

			Collectors in Quezon City, Philippines' Work Related Factors affecting Sustained Alert State among Bank Security Personnel in the Philippines, Prevalence, Severity and Risk Facets of work-related Musculoskeletal Disorder (WMSD) among Stevedores in a break-bulk Port Terminal; A task Analysis of Small-scale jewelry Craft Workers to investigate the effects of work System elements and sitting mobility on Body Discomfort	Human Factors and Ergonomics	
39	Lowell Lorenzo	July 5-7, 2017	Minimizing Makespan in a Class of Two-Stage Chain Reentrant Hybrid Flow Shops	WCE 2017 - World Congress on Engineering 2017	London, UK
40	Rex Jalao	November 24-27, 2017	Analytic Hierarchy Process (AHP) Group Decision Making Methodology for Imprecise Preferences	3rd International Conference on Fuzzy Systems and Data Mining	Taiwan
41	Mili-Ann M. Tamayao	June 25-29, 2017	"Sustainability Planning Platform Using QFD, TRIZ, and Life Cycle Analysis" and "GIS and Multi-Criteria Decision Analysis in Resource Assessment and Site Selection of Mini-Hydropower: The Case of Palawan"	2017 Joint Conference of the International Society for Industrial Ecology (ISIE) and the International Symposium on Sustainable Systems and Technology (ISSST)	Chicago, USA

42	Joanna Z. Resurreccion	December 10-14, 2017	Integrating Geospatial Information in Network Modeling for Prepositioning Supplies under Extreme-event Conditions	Society for Risk Analysis 2017 Annual Meeting	Virginia, USA
Department of Mechanical Engineering					
43	Louis Angelo M. Danao	June 26-30, 2017	Parametric Study of Vertical Axis Wind Turbine Rotor Configurations Using CFD	ASME 2017 Power and Energy Conference 2017	North Carolina, USA
44	Edwin Quiros	April 4-6, 2017	LPG as an Alternative Fuel for Philippines Jeepneys - A Preliminary Study	WCX 17: SAE World Congress Experience	USA
45	Jose Gabriel E. Mercado	June 26-30, 2017	Emission and Performance Analysis of a Light Duty Common Rail Direct Injection Engine fueled by CME-Diesel Blends	Power and Energy Conference and Exhibition	North Carolina, USA
46	Menandro S. Berana	July 5-7, 2017	-Theoretical Evaluation of Effect of Internal Heat Exchanger in Standard Vapor Compression and Compressor - Driven Ejector Refrigeration Systems -Modelling and Performance Analysis of a Thermoelectric Energy Harvesting System from Manhole, Logger Housing and Chamber Structure for Water Utility Company Application	2017 International Conference of Mechanical Engineering	United Kingdom
47	Edwin N. Quiros	June 26-30, 2017	Performance and Emissions Characteristics of Philippine CME-Diesel Blends	American Society of Mechanical Engineers (ASME) 2017 11th	North Carolina, USA

				International Conference on Energy Sustainability	
Department of Mining, Metallurgical and Materials Engineering					
48	Mary Donnabelle L. Balela	June 18-23, 2017	"Preparation of Polyacrylonitrile Coated Kapok Microtubes Decorated with Copper-based Nanoparticles" and "Deposition of Ultralong Copper Nanowires for Transparent Conductors"	2017 International Conference on Materials for Advanced Technologies (ICMAT2017)	Suntec, Singapore
49	Manolo Mena G.	October 26-29, 2017	"Analysis of Dendrite Images formed by Electrochemical Migration in a Semiconductor Sensor"	2017 2nd International Conference on Materials Technology and Application (ICMTA 2017)	Tokyo, Japan
50	Magdaleo R. Vasquez Jr.	October 15-20, 2017	Electron Beam-Mediated Reduction of Silver Ions Impregnated in a Natural Zeolite Framework	17th International Conference on Ion Sources (ICIS)	Geneva, Switzerland

Appendix C

DOST-funded R&D Projects of Faculty Members

Title	Start Date	Completion Date	Implementing Agency	Project Leaders/ Proponents	Total Cost	Classification /Monitoring Agency
ANEEME: Synthesizing and Sharing Animation Building Blocks for Rapid Creation of 3D Motion Scenes	01 July 2015	On going	UP-EEEI	Prof. Rowel O. Atienza	13,052,071.00	DOST-PCIEERD
VREX: Human Hands as Input Device for an Immersive Virtual reality Experience	20 March 2015	On going	UP-EEEI	Prof. Rowel O. Atienza	5, 436,641.00	DOST-PCIEERD
Developing an Automated Reading Tutor for Elementary Students of Filipino	16 July 2015	On going	UP-EEEI	Prof. Michael Gringo Angelo R. Bayona	7,711,596.00	DOST-PCIEERD
Philippine Metropolitan Advanced Traveler Information System (PhilMATIS)	16 July 2016	On going	UP-EEEI	Prof. Rhandley D. Cajote	3,643,218.00	DOST-PCIEERD
Philippine Competitive Development Program: Critical Thinking and Problem Solving	14 April 2014	On going	UP-EEEI	Prof. Rhandley D. Cajote	7,711,596.00	DOST-PCIEERD
Interdisciplinary Signal Processing for Pinoys: Software Applications for Education (ISIP-SAFE)	15 July 2015	On going	UP-EEEI	Prof. Rhandley D. Cajote	5,352,816.00	DOST-PCIEERD
ISIP-SAFE-Development of Closed-Captioning systems for Philippine Languages	16 July 2016	On going	UP-EEEI	Prof. Rhandley D. Cajote	4,218,218.00	DOST-PCIEERD
The Smart Wire Program Project 2 Integrated Energy Harvesting Storage and Regulation for the Smart Wire Sensor Node	01 October 2012	On going	UP-EEEI	Prof. Maria Theresa G. De Leon	21,267,484.00	DOST-PCIEERD
The Smart Wire Program Project 3 Energy Ultra Low Power Computation and Communication for the Smart Wire Sensor	01 October 2012	On going	UP-EEEI	Prof. Chris Vincent J. Densing	12,625,484.00	DOST-PCIEERD
Pilot Testing of Wind Generator System	01 January 2013	On going	UP-EEEI	Prof. Miguel E. Escoto, Jr.	7,005,465.90	DOST-PCIEERD
Development of a Multipath Transport Protocol for Cooperative Community Networks	01 January 2015	On going	UP-EEEI	Prof. Roel M. Ocampo	4,796,930.00	DOST-PCIEERD
The Establishment and Operation of the Philippine Institute for	01 September 2013	On going	UP-EEEI	Prof. Marc D. Rosales	83,279,272.00	DOST-PCIEERD

Integrated Circuits Project						
PHIL- MICROSAT PROGRAM PROJECT 1: Microsatellite Bus Development	01 January 2015	On going	UP-EEEI	Prof. Joel Joseph S. Marciano, Jr./ Prof. Marc R. Talampas	241,716,414.85	DOST-PCIEERD
Innovation Hub: UP Diliman	01 February 2016	On going	UP-EEEI	Prof. Luis G. Sison	12,419,908.00	DOST-PCIEERD
Design and Development of UP Bike System	01 August 2016	On going	UP-EEEI	Prof. Nestor Michael C. Tiglao	17,860,569.00	DOST-PCIEERD
Philippine Renewable Energy Resource Mapping from LiDAR Surveys	07 January 2014	On going	UP-DGE/TCAGP	Prof. Ma. Rosario Concepcion O. Ang		DOST
			UP-DGE/TCAGP	Prof. Louie P. Balicanta		DOST
Phil-LiDAR 2 Program: Project 1. Philippine Agricultural Resource Assessment from LiDAR Surveys	01 July 2014	On going	UP-DGE/TCAGP	Prof. Louie P. Balicanta	107,848,734.65	DOST
Phil-LiDAR 1 Program: Project 2. LiDAR and SAR Data Validation and Calibration	01 December 2011	On going	UP-DGE/TCAGP	Prof. Ariel C. Blanco	56,625,943.10	DOST
Phil-LiDAR 2 Program	01 July 2014	On going	UP-DGE/TCAGP	Prof. Ariel C. Blanco	249,144,952.79	DOST
Phil-LiDAR 2 Program Nationwide Detailed Resource Assessment Using LiDAR Program A. Automation of Feature Extraction from LiDAR Data for Nationwide Detailed Resource Assessment	01 July 2014	On going	UP-DGE/TCAGP	Prof. Ariel C. Blanco	249,144,952.79	DOST
Phil-LiDAR 2 Program: Project 1. Extraction from LiDAR Surveys	01 July 2014	On going	UP-DGE/TCAGP	Prof. Ariel C. Blanco	56,625,943.10	DOST
Phil-LiDAR 2 Program: Project 2. Aquatic Resource Extraction from LiDAR Surveys	01 July 2014	On going	UP-DGE/TCAGP	Prof. Ariel C. Blanco	41,079,228.14	DOST
Phil-LiDAR 2 Program: Project 3. Forest Resource Extraction from LiDAR Surveys	01 July 2014	On going	UP-DGE/TCAGP	Prof. Bienvenido G. Carcellar III	54,709,848.63	DOST
Phil-LiDAR 2 Program: Project 3. Forestry Resource Assessment from LiDAR Surveys	01 July 2014	On going	UP-DGE/TCAGP	Prof. Enrico C. Paringit	54,709,848.64	DOST
Phil-LiDAR 2 Program: Project 3. Forest Resource Assessment from LiDAR Surveys	01 July 2014	On going	UP-DGE/TCAGP	Prof. Enrico C. Paringit	54,709,848.64	DOST
Phil-LiDAR 2 Program: Project 4. Philippine Hydrological Dataset	01 July 2014	On going	UP-DGE/TCAGP	Prof. Anjillyn Mae C. Perez	32,238,350.75	DOST

Resource Assessment from LiDAR Surveys						
Phil-LiDAR 2 Program: Project 2. Aquatic Resource Assessment from LiDAR Surveys	01 July 2014	On going	UP-DGE/TCAGP	Prof. Ayin M. Tamondong	41,079,228.14	DOST
Development of Philippine Scientific Earth Observation Micro-Satellite (PHL-MICROSAT) Project 3. Development of a Data Processing, Archiving, and Distribution Sub-system for the Ground Receiving Station of the Philippines Scientific Earth Observation Micro-Satellite	01 April 2015	On going	UP-DGE/TCAGP	Prof. Mark Edwin A. Tupas	20,978,790.22	DOST
Phil-LiDAR 1 Program: Project 1.5.A Data Archiving and Distribution of LiDAR Datasets in the Philippines		On going	UP-DGE/TCAGP	Prof. Mark Edwin A. Tupas	51,527,416.24	DOST
Phil-LiDAR 1 Program: Project 1.5.A Data Archiving and Distribution of LiDAR Datasets in the Philippines		On going	UP-DGE/TCAGP	Prof. Mark Edwin A. Tupas	26,297,029.65	DOST
Electrochemical Investigation of the Pseudo capacitive Properties of Nickel/Nickel Oxide Nanowire Nonwoven Electrode Formed Under External Magnetic Field	01 June 2016	31 May 2017	UP-DGE/TCAGP	Prof. Mary Donabelle L. Balela	1,904,848.40	DOST

ERDT Program Steering Committee

Dr. Josette T. Biyo
Director, Science Education Institute
Department of Science and
Technology

Dr. Rizalinda L. De Leon
Dean, College of Engineering
University of the Philippines Diliman
ERDT Program Leader

Dr. Menandro S. Berana
Associate Dean for Instructions and
Research, College of Engineering
University of the Philippines Diliman
ERDT Project Leader

Dr. Evangeline P. Bautista
Dean, School of Science and
Engineering
Ateneo de Manila University
ERDT Project Leader

Dr. Ireneo C. Agulto
Dean, College of Engineering
Central Luzon State University
ERDT Project Leader

Dr. Jonathan R. Dunga
Dean, Gokongwei College of
Engineering
De La Salle University
ERDT Project Leader

Dr. Jonathan W.L. Salvacion
Dean, Graduate Studies
Mapua University
ERDT Project Leader

Atty. Edgar Alan A. Donasco
Dean, College of Engineering
Mindanao State University - Iligan
Institute of Technology
ERDT Project Leader

Dr. Feliciano B. Alagao
Professor, College of Engineering
Mindanao State University - Iligan
Institute of Technology
ERDT Project Leader

Dr. Evelyn B. Taboada
Dean, College of Engineering
University of San Carlos
Project Leader

Engr. Ricardo Fornis
Associate Professor, College of
Engineering
University of San Carlos
Project Coordinator (2013 – Present)

Dr. Arnold R. Elepaño
Dean, College of Engineering and
Agro-Industrial Technology
University of the Philippines Los Baños
Project Leader

*ERDT Central Office
Room 203, Melchor Hall
UP College of Engineering
Diliman, Quezon City 1101
(02) 434-0304; (02) 981-8500 loc. 3160
www.erdft.coe.upd.edu.ph*