Approved by the Regents
May 16, 2013

PROMOTION RECOMMENDATION
The University of Michigan-Dearborn
College of Engineering and Computer Science
Department of Mechanical Engineering

Dohoy Jung, assistant professor of mechanical engineering, Department of Mechanical Engineering, College of Engineering and Computer Science, is recommended for promotion to associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering and Computer Science.

Academic Degrees:

Ph.D. 2001	Mechanical Engineering, University of Michigan, Ann Arbor, MI
M.S. 1991	Mechanical Engineering, Seoul National University, Seoul, Korea
B. S. 1989	Mechanical Engineering, Seoul National University, Seoul, Korea

Professional Record:

2008 – Present	Assistant Professor, Department of Mechanical Engineering, University of Michigan-Dearborn, Dearborn, Michigan
2002 – 2007	Assistant Research Scientist, Department of Mechanical Engineering, University of Michigan, Ann Arbor, Michigan

Summary of Evaluation:

Teaching: Professor Jung's teaching is rated excellent. He has taught 11 regular courses at UM-Dearborn, developed and taught two new undergraduate courses, one in the area of advanced energy systems for vehicles and the other for solar energy harvesting, and has supervised seven senior design projects and three capstone projects. His average effectiveness from the student evaluation over the past five years was above 3.7 out of 4.0 placing him among the top 15% of faculty members from his department. Comments from students interviewed as part of this review support the written evaluations.

Research: Professor Jung's research is rated excellent. It centers on the applications of thermal sciences to advanced energy conversion including internal combustion engine, hybrid powertrain, PEM fuel cells, vehicle thermal management, waste energy recovery, solar energy harvesting and on modeling, simulation, and system integration of advanced energy conversion systems. He pursued both academic and applied research during his seven years as an assistant research scientist in the Department of Mechanical Engineering at UM-Ann Arbor before becoming an assistant professor of mechanical engineering at UM-Dearborn. Since joining UM-Dearborn, he has obtained 21 funded grants and contracts for a total of over $2.2M, of which 16 grants/contracts total over $836,000 as single PI and five totaling $1.37M as co-PI. He has published a total of 23 journal papers of which nine were published since he assumed his current position as an assistant professor. While at UM-Dearborn, Professor Jung penned six conference papers, nine scholar papers in magazines and popular press, and one book chapter. He made 11 professional presentations, participated in 14 invited talks, and taught two short courses. He has supervised four MS theses and is supervising two Ph.D. students, one in the automotive system engineering program at UM-Dearborn and the other in mechanical engineering at UM-AA. He was the recipient of the UM-Dearborn Distinguished Research Award in 2012.

Recent and Significant Publications:

Jung, D., Kwak, K-H, and Assanis, D. N., Integration of a single cylinder engine model and a boost system model for efficient numerical mapping of engine performance and fuel consumption, *International Journal of Automotive Technology,* Vol.13, No. 1, pp. 1-7, 2012.

Keum, S., Park, H., Babajimopoulos, A., Assanis, D. N., and Jung, D., Modeling of heat transfer in internal combustion engines with variable density effect, *International Journal of Engine Research*, Vol. 12, No. 6, pp. 513-526, 2011.

Park, S., Malikopoulos, A., Kokkolaras, M., and Jung, D., Thermal management system modeling and component sizing for heavy duty series hybrid electric vehicles, *International Journal of Heavy Vehicle Systems*, Vol. 18, No. 3, pp. 272-287, 2011.

Yu, S., and Jung, D., A study of operation strategy of cooling module with dynamic fuel cell system model for transportation application, *Renewable Energy*, Vol. 35, Issue 11, pp. 2525-2532, 2010.

Ahlawat, R., Fathy, H., Lee, B., Stein J., and Jung, D., Modeling and simulation of a dual clutch transmission vehicle to analyze the effect of pump selection on fuel economy, *Vehicle System Dynamics*, Vol. 48, Issue 7, pp. 851-868, 2010.

Park, S., and Jung, D., Design of vehicle cooling system architecture for a heavy duty series-hybrid electric vehicle using numerical system simulations, *ASME J. Eng. Gas Turbines and Power*, Vol. 132, Issue 9, pp. 092802-1-092802-11, 2010.

Service: Professor Jung's service is rated excellent. He has served on various department and college committees and is the CECS newsletter coordinator for mechanical engineering. He has served as an organizer for seven conference sessions, and chaired two conference sessions. He served as an editorial board member for *KSAE Auto Journal* from 2010-2011 and as a referee for 12 different technical journals throughout his professional career. Professor Jung has served as the department web coordinator for the last five years. In that role he completely redesigned the department's website.

External Reviewers:

Reviewer A: "Dr. Jung is judged by me to have characteristically produced a very high quality and quantity of scholarly results, often of strong impact on his field of energy/thermal – fluid science."

Reviewer B: "I am most impressed by the variety of the topics that his research covers ... I found that his paper on vehicle cooling system for a heavy-duty hybrid electric vehicle (*J Engng Gas Turbines Power*, 2010) quite outstanding. This work is very original in that the model consists of detailed components adequate to simulate the thermal management of a hybrid vehicle."

Reviewer C: "The papers that he included in his packet, particularly the paper entitled, 'A reduced quasi-dimensional model to predict the effect of nozzle geometry on diesel engine performance and emissions' are of high quality."

Reviewer D: "He served a two-year term as an editorial board member of the Korean Society of Automotive Engineers Auto Journal... This level of service activity is acceptable for a person of his rank."

Reviewer E: "This well written paper demonstrated that the model described in the paper could be used to determine the most efficient architecture for cooling series-hybrid electric vehicle."

Reviewer F: "While there are hundreds of papers published every year in energy management of hybrids, Dr. Dohoy's is one of the few that I ask my graduate students to read."

Summary of Recommendation:
Professor Jung is an excellent teacher at both undergraduate and graduate levels. His teaching effectiveness ranks among the top 15% of the faculty in his department by students' evaluations. He is an excellent researcher, as is evidenced by his funding and publication records. His peers both in the department and outside the university judge his publications as being of high quality. Since joining UM-Dearborn, he has obtained research funds totaling $836,000 as single PI and an additional $1.37M as co-PI from the federal government and private industries. He has supervised four M.S. theses and is currently advising two Ph.D. students. Professor Jung has published a total of 23 journal papers, of which nine were published in the five years since joining UM-Dearborn. He received the UM-Dearborn Distinguished Research Award in 2012. His service to the department, to the college, and to his professional societies is outstanding. We are pleased to recommend, with the strong support of the College of Engineering and Computer Science Executive Committee, Dohoy Jung for promotion to associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering and Computer Science.

Anthony W. England
Interim Dean
College of Engineering and Computer Science

Daniel Little
Chancellor
University of Michigan-Dearborn

May 2013