Approved by the Regents
May 16, 2019

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

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

2013 – present	Associate Professor, with tenure, University of Michigan-Dearborn, Dearborn, Michigan
2008 – 2013	Assistant Professor, Mechanical Engineering, University of Michigan, Ann Arbor, MI
2002 – 2008	Assistant Research Scientist Faculty, Mechanical Engineering, University of Michigan, Ann Arbor, MI
2001 – 2002	Research Investigator/Research Fellow, Mechanical Engineering, University of Michigan, Ann Arbor, MI
1997 – 2000	Graduate Research Assistant, Mechanical Engineering, University of Michigan, Ann Arbor, MI
1991 – 1996	Research Engineer, Daewoo Motor Company, Inchon, Korea
1989 – 1990	Graduate Teaching Assistant, Mechanical Engineering, University of Michigan, Ann Arbor, MI

Summary of Evaluation:
Teaching: Professor Jung is rated excellent and significantly capable in teaching. He is a key member of the department's faculty in the area of thermal-fluid sciences. He has been very successful in teaching, course development, and in instructional innovation. Since 2008, Professor Jung has taught five undergraduate courses and two graduate courses. These numbers do not include the courses associated with the thesis and research project supervision. Professor Jung's teaching evaluations since his last promotion are high: 4.11 to 5.0 on the 5-point scale. The students in their comments compliment the clarity of the instructional style, excellent knowledge of the modern aspects of the subject, thoroughness, and readiness to help students. At the University of Michigan-Dearborn, Professor Jung has developed and taught three new courses: ME4471 (Solar Energy System Analysis and Design), ME493 (Advanced Vehicle Energy Systems), and ME538 (Vehicle Thermal Management). These courses address emerging areas of engineering and are highly popular among students. He has been successful as a faculty advisor to students on research and capstone design projects. He has supervised six Ph.D. dissertations, six research theses and capstone design projects by M.S. students, four undergraduate student research projects, and fifteen undergraduate senior design projects.

Research: Professor Jung is rated excellent, significantly capable, and competent in research. His research work is in the area of application of thermal and fluid sciences to advanced energy

conversion, specifically to internal combustion engine systems, hybrid powertrain, PEM fuel cells, vehicle thermal management, and solar energy systems. The work is of interdisciplinary nature as it targets the intersection of the methods of theoretical analysis and computer simulations to fully practical problems of automotive technology. Professor Jung is the recipient of the University of Michigan-Dearborn Distinguished Research Award in 2012. During his academic career, he received 35 research grants, 22 of them as a principal investigator. Since the last promotion in 2013, he received 11 research grants, with the total funding amount of $1.23 million. The funding is primarily the result of collaboration with the automotive industry. Professor Jung has published 34 research articles (22 of them while working at the University of Michigan-Dearborn) in high-quality peer-reviewed archival journals. He has also published 22 reviewed conference papers (11 while at the University of Michigan-Dearborn), 1 book chapter, and nine articles in professional magazines. 11 research articles and four reviewed conference papers have been published since the year of last promotion (2013). He delivered 21 invited seminar presentations, six of them since the year of last promotion. The majority of the publications are co-authored by Professor Jung with his students and post-doctoral research assistants and with collaborators at the University of Michigan-Ann Arbor and industry.

Recent and Significant Publications:

Park, S., Jung, D. (2013). Battery cell arrangement and heat transfer fluid effects on the parasitic power consumption and the cell temperature distribution in a hybrid electric vehicle. *Journal of Power Sources*, *227*, 191-198.

Park, J., Lee, K. S., Kim, M. S., Jung, D. (2014). Numerical analysis of a dual-fueled CI (compression ignition) engine using Latin hypercube sampling and multi-objective Pareto optimization. *Energy*, *70*, 278-287.

Xu, J., Bandyopadhyay, K., Jung, D. (2016). Experimental investigation on the correlation between nano-fluid characteristics and thermal properties of Al2O3 nano-particles dispersed in ethylene glycol–water mixture. *International Journal of Heat and Mass Transfer*, *94*, 262-268.

Park, S., Jung, D. (2013). Effect of operating parameters on dynamic response of water-to-gas membrane humidifier for proton exchange membrane fuel cell vehicle. *International Journal of Hydrogen Energy*, *38*(17), 7114-7125.

Lee, S., Zhang, Y., Jung, D., Lee, B. (2014). A Systematic Approach for Dynamic Analysis of Vehicles With Eight or More Speed Automatic Transmission. *Journal of Dynamic Systems, Measurement, and Control*, *136*(5), 051008.

Ma, J., Kwak, K. H., Lee, B., Jung, D. (2016). An empirical modeling approach for the ignition delay of fuel blends based on the molar fractions of fuel components. *Fuel*, *164*, 305-313.

Kwak, K. H., Jung, D., Borgnakke, C. (2014). Enhanced spray and evaporation model with multi-fuel mixtures for direct injection internal combustion engines. *International Journal of Engine Research*, *15*(4), 488-503.

Service: Professor Jung is rated excellent and significantly capable in service. He has served on 12 committees at the department level, 8 committees at the college level, and 4 committees at the university level. Especially influential were his activities as the coordinator of the ABET accreditation effort for the mechanical engineering program (2015-2016), chair of the mechanical engineering undergraduate program committee (2016-2018), and director of the mechanical sciences and engineering Ph.D. program (since fall of 2018). In 2018, he took on the leading role in preparing the proposal for the new Doctor of Engineering program in automotive systems engineering. The

record of service to the broad engineering community is also impressive. It, in particular, includes organizing and chairing multiple sessions at the SAE conferences.

External Reviewers:
Reviewer A: "...Dr. Jung has taught 13 different courses, and has developed some or parts of these courses. He has provided descriptions of his contributions to the teaching mission of the department. In general, his activities seem to indicate a fair amount of initiative, and a sincere desire to provide a solid educational experience for the students."

Reviewer B: "In summary, Dr. Jung's promotion to full professor in your department at the University of Michigan-Dearborn is very timely action to take and I strongly support his promotion to full professor. He has provided demonstrated evidence of successful research support and student advising, high quality technical publications and significant service to the campus and the community. His real worthwhile contributions are expected to grow in the future. His case would be viewed very favorably if Professor Jung were considered for promotion here in the department of mechanical engineering at the University of Maryland."

Reviewer C: "In light of these documents [CV and 3 papers], it is unquestionably clear that Dr. Jung's research, scholarly, and creative contributions along with his teaching ability and service have earned him international recognition as an expert and leader in the field of internal combustion engines."

Reviewer D: "If he were in my department [my institution], he definitely would be promoted. I have no doubt that he will be an asset to your department."

Reviewer E: "In summary, I was very impressed by Dr. Jung's scholarly achievement and service to the community. I fully support Dr. Jung's promotion to Professor in your department."

Summary of Recommendation:
Professor Jung's achievements in teaching and development of new courses are highly regarded by students and colleagues, making him one of the key faculty members in the department. More recently, Professor Jung has been very active and successful in the service to the campus community taking the responsibility for such critical areas as engineering assessment (ABET) and managing the growing PhD program. We are very pleased to recommend, with strong support of the College of Engineering and Computer Science Executive Committee, Dewey Jung for promotion to professor, of mechanical engineering, with tenure, College of Engineering and Computer Science.

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

Domenico Grasso, Chancellor
University of Michigan-Dearborn

May 2019