PROMOTION RECOMMENDATION
The University of Michigan-Dearborn
College of Engineering and Computer Science
Department of Industrial and Manufacturing Systems Engineering

Approved by the Regents
May 20, 2010

Cheol Won Lee, assistant professor of industrial and manufacturing systems engineering, Department of Industrial and Manufacturing Systems Engineering, College of Engineering and Computer Science, is recommended for promotion to associate professor of industrial and manufacturing systems engineering, with tenure, Department of Industrial and Manufacturing Systems Engineering, College of Engineering and Computer Science.

Academic Degrees

Ph.D. 2000	Mechanical Engineering, Purdue University, West Lafayette, IN
M.S. 1994	Precision Engineering and Mechatronics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea
B.S. 1992	Precision Engineering and Mechatronics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea

Professional Record

2004 – Present	Assistant Professor, Department of Industrial and Manufacturing Systems Engineering, University of Michigan-Dearborn
2000 – 2004	Senior Research Engineer, Northboro R&D Center, Saint-Gobain Ceramics & Plastics, Northborough, MA

Summary of Evaluation:

Teaching: Professor Lee's teaching is rated significantly capable. Since joining the IMSE department in 2004, he has continuously improved his teaching performance. Many students consider Professor Lee to be an effective and knowledgeable instructor who is always prepared for class. Students had many positive comments about his concern of student learning and his willingness to help. Since joining the department in 2004, Professor Lee taught undergraduate courses of varying class sizes in industrial and system engineering and manufacturing engineering programs. With the exception of the engineering probability and statistics course all his other undergraduate courses are in the area of manufacturing and have lab sections. In 2007, he also developed an undergraduate course in industrial controls. This four credit hour course was created by revising a similar prior course which had not been offered for more than four years. He prepared most of the class notes and assignments, and also designed two new lab sessions for this new course. He consistently received excellent student evaluations for this course. He also supervised two undergraduate directed studies, one master thesis dissertation and one postdoctoral research associate.

Research: Professor Lee's research is rated as excellent. He focuses on integration of heterogeneous and asynchronous information flows for modeling and estimation, and optimization and optimal control of uncertain dynamic systems. His most recent research activities are focused on development of fundamental frameworks for realizing abovementioned principles with complex manufacturing processes and systems. He published fourteen papers and several of them in top tier journals in the area of manufacturing. In addition to journal publications, he has two pending patents and two disclosures. One of the pending patents and two disclosures are based on his work at UM-

Dearborn. Professor Lee has written several proposals during his time at the University and just recently has been successful in obtaining a research grant from industry. The promotion and tenure committee's only area of concern is his relatively low external grant activity. However, they feel that his effort in proposal submission has been very consistent and with time, given the technical quality of his work, he has a good chance of securing funding from federal funding agencies. Recently he also tried to diversify his funding sources by actively seeking support from industry. Since last summer he has submitted two proposals to industry, one of which has been awarded. Furthermore, in his past work he was using traditional manufacturing processes (i.e., grinding) for the purpose of validating some of his novel algorithms. He is making conscientious efforts in extending the application areas of his algorithms to more contemporary manufacturing problems including micro/nano manufacturing and energy issues.

Recent and Significant Publications:

Lee, C.W., "Multirate Estimation for Discrete Processes under Multirate Noise with Application to the Grinding Process," *Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control*, Vol. 131, No. 4, 2009.

Lee, C.W., "Dynamic Optimization of the Grinding Process in Batch Production," *Transactions of the ASME, Journal of Manufacturing Science and Engineering*, Vol. 131, No. 2, 2009.

Lee, C.W., "A Control-Oriented Model for the Cylindrical Grinding Process," *International Journal of Advanced Manufacturing Technology*, Vol. 44, No. 7, pp. 657–666, 2009.

Lee, C.W., and Shin, Y.C., "Growing Radial Basis Function Networks Using Genetic Algorithm and Orthogonalization," *International Journal of Innovative Computing, Information and Control*, Vol. 5, No. 11, 2009.

Lee, C.W., "Estimation Strategy for a Series of Grinding Cycles in Batch Production," *IEEE Transactions on Control Systems Technology*, Vol. 16, No. 3, pp. 556–561, 2008.

Lee, C.W., and Shin, Y.C., "Modeling of Complex Manufacturing Processes by Hierarchical Fuzzy Basis Function Networks with Application to Grinding Processes," *Transactions of the ASME, Journal of Dynamic Systems, Measurement, and Control*, Vol. 126, No. 4, pp. 880 – 890, December 2004.

Service: Professor Lee's service is rated excellent/significantly capable. He was the IMSE faculty secretary in 2005-2006 academic year and also served on the University Media Committee since January 2009. Currently he is the faculty advisor to the Society of Manufacturing Engineers Student Chapter at the University of Michigan Dearborn. Professor Lee has been a technical reviewer to several top tier journals in the manufacturing field and also served on an NSF review panel. In 2009 he co-chaired a session at the ASME International Manufacturing Science and Engineering Conference. His service to the manufacturing academic profession is excellent.

External Reviewers:

Reviewer A: "I am impressed by not only the high number of publications but also the diversity of topics and the overall quality of content. Dr. Lee's research publications are highly respected and recognized by the national manufacturing community."

Reviewer B: "The wide range of subject matters he has addressed shows the breath of Dr. Lee's knowledge and expertise."

Reviewer C: "One quantitative indication of the quality of the papers is the number of citations. The 2003 paper by Lee and Shin has 29 citations attributed to it. Some of the other papers also have citations greater than 10, which is a strong indication of the scholarly impact of his work."

Reviewer D: "Dr. Lee has done very good research work on manufacturing process study, particularly on grinding processes. The work has been well recognized by his high quality publications."

Reviewer E: "He is clearly establishing himself as the key researcher in the process control of grinding."

Reviewer F: "He devoted a significant amount of effort reviving one of the courses that he taught IMSE4825, Industrial Controls, which had not been offered for several years. For an untenured junior faculty, such effort reflects upon Dr. Lee's devotion to teaching, and the effort is commendable."

Reviewer G: "The venues he has chosen to publish his research are excellent and include ASME and IEEE Transactions. As an Associate Editor for ASME Transactions for 7 years, I can attest to the fact that articles submitted to this journal are very rigorously peer reviewed, and often the acceptance rates are quite low."

Summary of Recommendation:
Professor Lee is an excellent researcher whose research work is judged to be of very high quality both by his peers in the department and outside the University. He is an effective and significantly capable teacher who distinguishes himself by his dedication to student learning and willingness to help. His service to the University and to manufacturing academic profession is excellent. We are very pleased to recommend, with the strong support of the College of Engineering and Computer Science Executive Committee, Cheol Won Lee for promotion to associate professor of industrial and manufacturing systems engineering, with tenure, Department of Industrial and Manufacturing Systems Engineering, College of Engineering and Computer Science.

Subrata Sengupta
Dean
College of Engineering and Computer Science

Daniel Little
Chancellor
University of Michigan-Dearborn

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