Approved by the Regents
May 21, 2020

PROMOTION RECOMMENDATION
The University of Michigan-Flint
College of Arts and Sciences
Department of Computer Science, Engineering, and Physics

Seung-Jin Lee, assistant professor of mechanical engineering, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences, is recommended for promotion to associate professor of mechanical engineering, with tenure, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences.

Academic Degrees:

Ph.D.	2011	University of Washington, Mechanical Engineering, Seattle, WA
M.S.	2005	Carnegie Mellon University, Civil and Environmental Engineering, Pittsburg, PA
B.S.	2003	Boston University, Mechanical Engineering, Boston, MA

Professional Record:

2014-Present	Assistant Professor of Mechanical Engineering, University of Michigan-Flint, Michigan
2014-2018	Assistant Professor of Sustainability, University of Michigan-Flint, Michigan
2011-2014	Post-doctoral Research Fellow, U.S. Environmental Protection Agency, Cincinnati, OH

Summary of Evaluation:

Teaching: Professor Lee is an excellent educator who emphasizes interdisciplinary and participatory learning across the wide range of courses he has taught in sustainability, renewable energy, engineering statics, solids, and dynamics. Professor Lee believes that "being a facilitator of learning means three things – to teach the fundamentals, to develop the thinking process needed to solve real-world problems and most importantly, to instill the passion for continuous learning." Professor Lee has successfully demonstrated the implementation of his teaching philosophy through his carefully crafted course syllabi, course materials, and through extensive peer evaluations, which note both the systematic and organized nature of his classroom presentations and Professor Lee's obvious rapport with students. His student evaluations show high levels of participation and the average scores for the questions "Overall, this was an excellent course," "I learned a great deal in this course," and "Overall, the instructor was an excellent teacher," were 4.35, 4.40 and 4.47, respectively.

Professor Lee has incorporated civic engagement in three of his courses, offering students access to guest speakers, industry experts, and real-world challenges in which to apply their learning. He has been deeply involved in student learning assessment, most recently serving as ABET co-coordinator for the Mechanical Engineering program. He has also worked with undergraduate research students, with Honors students and in advising students. He has participated consistently in pedagogical development workshops and programs and is always evolving his teaching practice. Professor Lee's skill, enthusiasm, and success as a teacher was recognized with the 2017 Lois M. Rosen Junior Faculty Excellence in Teaching Award.

Research: Professor Lee is an expert in environmental sustainability and renewable energy, research areas which are themselves highly multi-disciplinary. When he came to UM-Flint in 2014, he already had a significant publication record and had developed relationships with several top scholars at R1 institutions. While at UM-Flint, he has been highly productive, publishing seven journal articles, one book chapter, two peer-reviewed conference papers, and nine peer-reviewed conference abstracts. His publications include both basic and applied research projects focusing on waste management and life cycle assessment. His scholarship represents a wide scope of interests, incorporating life cycle assessment, e-waste management, biofuel production, and assessment of travel pollutants.

He has been published in top-tier journals including *Journal of Cleaner Production* and *International Journal of Life Cycle Assessment* and his work is becoming routinely cited. The specific topics of Professor Lee's research are of critical importance to global sustainability and offer the potential for high-impact in public policy and praxis, consistent with UM-Flint's mission. Professor Lee continues to develop innovative ideas and methodologies around sustainability. He has initiated research projects on several new topics including fuel cell systems and biofuels and system-based tools for energy policy.

Recent and Significant Scholarly Activity:

S.-J. Lee, J.W. Kim, Y.H. Hwang, J. Kim, Y. Kim & S. Chen (2019). Butadiene substance flow analysis and management in South Korea. *Journal of Cleaner Production*, 220, 331-339.

J.-H. Hwang, J. Church, S.-J. Lee, J. Park & W.H. Lee (2016). Use of Microalgae for Advanced Wastewater Treatment and Sustainable Bioenergy Generation. *Environmental Engineering Science*, 33 (11), 882-897.

W.W. Ingwersen, M. Gausman, A.V. Weisbrod, D. Sengupta, S.-J. Lee, J.C. Bare, E. Zanoli & M. Ceja (2016). Detailed Life Cycle Assessment of Bounty® Paper Towel Operations in the United States. *Journal of Cleaner Production*, 131, 509-522.

Service: Professor Lee's service record is extensive and demonstrates the high quality and impact of his work. Professionally, he has served on three NSF review panels, as a journal and conference reviewer many times, and as a committee member and session chair in many conferences – this is outstanding professional service. At the university, as a joint appointee in the Department of Geography, Planning, and Environment and the Engineering program in the Department of Computer Science, Engineering, and Physics, from 2014 through 2018, Professor Lee routinely participated in the departmental service activities of both departments. For many, that dual department service would suffice, but not for Professor Lee. Instead, he also served on three tenure track search committees outside of his departments, as a member of the Women's Commission, on the CAS Strategic Planning Committee, and as semester-long replacements on both the Committee on the Economic Status of the Faculty and the CAS Summer Interim I committees. Professor Lee's contribution to the Engineering program as a co-chair of the Engineering Industrial Advisory Board, and as a co-chair of the re-accreditation committee are similarly noteworthy and essential contributions to his program.

External Reviewers:

Reviewer (A): "…his work has received over 200 citations; and there is a positive trend of growing, further demonstrating that his research is being followed by other researchers in the field."

Reviewer (B): "Dr Lee's publication record, … , is quite impressive in his field. …All of the journal papers were published in highly recognized journals in his field which will ensure the scholarly impact of his publications."

Reviewer (C): "His recent work on butadiene flows, recently published in *Journal of Cleaner Production* (2019), is an excellent assessment of the challenges associated with tracking emissions associated with toxic chemicals throughout a geographically- and spatially-expansive supply chain. I have found his work, which combines life cycle assessment with statistical analysis to understand the most likely pathways for chemical pollutants to be emitted, to be very useful and to represent a very useful application of LCA methodologies."

Reviewer (D): "This research is published in top journals in the sustainability and green design/manufacturing fields … The depth and breadth of these research efforts exemplify the range of skills and research topics where Dr. Lee is a leading expert."

Reviewer (E): "Given the institutional context, Professor Lee's focus, scope, quantity, and quality of scholarship occur to me in the top quartile of work relative to peers at similar institutions, if not in the top 10%."

Summary of Recommendation:
Professor Lee is an award-winning teacher, committed to ensuring transformational student learning, whose pedagogical practices are always evolving and improving. He is a very productive and increasingly recognized scholar in the multidisciplinary fields of life cycle assessment and renewable energy. He has already demonstrated leadership in internal service as well as substantial contributions in professional service. Professor Lee has demonstrated the requisite excellence in teaching, scholarly achievement and recognition, and service to his profession, university and department. I recommend Seung-Jin Lee for promotion to associate professor of mechanical engineering, with tenure, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences.

Recommended by:

Susan Gano-Phillips, Dean
College of Arts and Sciences

Recommendation endorsed by:

Keith Moreland, Interim Provost and
Vice Chancellor for Academic Affairs

Debasish Dutta, Chancellor
University of Michigan-Flint

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