Approved by the Regents
May 17, 2012

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Steven J. Skerlos, associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, and associate professor of civil and environmental engineering, without tenure, Department of Civil and Environmental Engineering, College of Engineering, is recommended for promotion to professor of mechanical engineering, with tenure, Department of Mechanical Engineering, and professor of civil and environmental engineering, without tenure, Department of Civil and Environmental Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2000	University of Illinois, Industrial Engineering Urbana-Champaign
B.S.	1994	University of Illinois, Electrical Engineering, Urbana-Champaign

Professional Record:

2008 – present	Associate Professor (without tenure), Department of Civil and Environmental Engineering, University of Michigan
2006 – present	Associate Professor (with tenure), Department of Mechanical Engineering, University of Michigan
2000 – 2006	Assistant Professor, Department of Mechanical Engineering, University of Michigan

Summary of Evaluation:
Teaching: Professor Skerlos has taught and developed a range of courses, from basic undergraduate to advanced graduate level in both civil and mechanical engineering. His performance in the classroom has yielded high student evaluations. His teaching skills and efforts are highly respected and appreciated by the students. In addition to being an excellent teacher in the classroom, he took on the leadership role of being the course coordinator and lead instructor for ME450 (ME capstone design class) from 2002 to 2009, where he was responsible for the acquisition and development of all the class projects and setting up new directions for the course. His primary pedagogical contribution to ME450 was the introduction of more aggressive design review guidelines and clear evaluation rubrics.

Professor Skerlos is also an outstanding advisor and mentor. Since joining Michigan in 2000, he has graduated seven Ph.D. students, and currently advises three additional students. Most of his Ph.D. students have become faculty in peer schools. In addition, he has advised several M.S. students, many of whom have participated directly in his research projects. He has been publishing consistently with the students he advises. He is well respected and admired as a mentor and advisor. Professor Skerlos has co-founded (and is the faculty advisor for) the highly successful BLUElab, a student-run organization focused on sustainable development. His contributions in teaching and advising have been recognized with several education awards, including the Neil Van Eenam Memorial Undergraduate Teaching Award (2011) and the CoE Education Excellence Award (2006). Furthermore, his student advisees have also received numerous awards at the local and national levels.

Research: Professor Skerlos is an internationally renowned scholar and research leader in the field of sustainable design and manufacturing. When he came to Michigan in 2000, he had already established himself as one of the leading researchers in metalworking fluids. At Michigan, he continued that work and expanded his interests in sustainable manufacturing. He has also initiated research projects on several new topics, including sustainable design and environmental policy. His work on micro flow cytometry has been particularly influential in the field. He has also engaged in cross-disciplinary research on

wastewater systems.

Professor Skerlos has developed a strong research program with continuous funding at Michigan. Since coming to Michigan, he has published approximately 80 papers in journals and refereed conferences. Moreover, the quality of his work is high, leading to several major local and national awards, including winner of the 2011 Dell Social Innovation Competition and winner of the 2005 EPA P^3 National Competition on Sustainable Design. He has also obtained two patents and has two more pending. Further evidence of the impact of his work is the formation of two start-up companies.

Recent and Significant Publications:

Morrow, W.R. and Skerlos, S.J., "Fixed-Point Approaches to Computing Bertrand-Nash Equilibrium Prices Under Mixed-Logit Demand," *Operations Research*, v59, n2, pp. 328-345, 2011.

Whitefoot, K., Grimes-Casey, H., Girata, C.E., Morrow, W.R., Winebrake, J.J., Keoleian, G.A., and Skerlos, S.J., "Consequential Lifecycle Assessment with Market-Driven Design: Development and discussion," Accepted to the *Journal of Industrial Ecology*, 2011.

Kim, H.J., Keoleian, G.A., and Skerlos, S.J., "Economic Assessment of Greenhouse Gas Emissions Reduction by Vehicle Lightweighting using Aluminum and High-Strength Steel," *Journal of Industrial Ecology*, v15, n1, pp. 64-80, 2011.

Bartkowiak, S., Fisk, R., Funk, A., Hair, J., and Skerlos, S.J., "Residential Drain Water Heat Recovery Systems: Modeling, Analysis, and Implementation," *Journal of Green Building*, v5, n3, pp. 85-94, 2010.

Guest, J.S., Skerlos, S.J., Daigger, G.T., Corbett, J.R., and Love, N.G. "The use of qualitative system dynamics to identify sustainability characteristics of decentralized wastewater management alternatives," *Water Science and Technology*, v61, n6, pp. 1637-1644, 2010.

Skerlos, S.J. and Winebrake, J.J., "Targeting plug-in hybrid electric vehicle policies to increase social benefits," *Energy Policy*, v38, n2, pp. 705-708, 2010.

Kim, H.J., McMillan, C.A., Keoleian, G.A., and Skerlos, S.J., "Greenhouse Gas Emissions Paybacks for Lightweighted Vehicles using Aluminum and High-Strength Steel," *Journal of Industrial Ecology*, v14, n6, pp. 929-946, 2010.

Morrow, W.M., Qi. H., Kim, I., Mazumder, and J., Skerlos, S.J., "Environmental Aspects of Laser Based Tool and Die Manufacturing," *Journal of Cleaner Production*, v15, n10, pp. 932-943, 2007.

Chan, K.Y., Skerlos S.J., and Papalambros, P.Y.. "An Adaptive Sequential Linear Programming Algorithm for Optimal Design Problems with Probabilistic Constraints," *Journal of Mechanical Design*, v129, n2, pp. 140-149, 2007.

Service: Professor Skerlos is an outstanding citizen, providing excellent service and leadership to the University and to the technical community. He is an associate editor for the two top manufacturing engineering journals in the country, has served multiple times as a guest editor, served as the lead organizer for the SME/NAMRI conference in 2007 and has served as a member of the technical program committee and/or executive committee for dozens of major conferences over the past few years. Internally, he has served the University at numerous levels. He currently is the ME associate chair for graduate education, a member of the executive committee of the Graham Institute, and the advisor and mentor to the BLUElab.

External Reviewers:
Reviewer A: "He is nationally and internationally well-known and respected."

Reviewer B: "It addresses an important problem and does so in a way which is innovative, eclectic and productive using a specific example – developments in automobile fuel economy – to draw conclusions of general significance for both engineering design and government policy. T his is very impressive work."

Reviewer C: "Not only has he and his team published significant papers on the topic, but patents and substantial technology transfer has occurred…As a result, he is recognized nationally as an important green engineer with a green manufacturing focus…His service to the studentry and scholarly community at the University of Michigan and elsewhere is also exemplary. I am particularly impressed by his founding and direction of BLUElab, to connect undergraduate students to sustainable development problems."

Reviewer D: "I have always considered him to be among the best people in this area…He has nurtured some very good graduate students who have gone on to be quite successful."

Reviewer E: "He is certainly among the most prominent mechanical engineers in the field of sustainable engineering. For example, I use material from his paper on sustainable design engineering as a source in my industrial ecology and sustainable design course."

Reviewer F: "Professor Skerlos is in a small group of sustainable manufacturing experts in the United States who are doing in-depth research in an area, produce results that are practical and sought-after, think carefully and practically about the policy implications of their work, but also constantly strive to innovate and seek out new projects in their domain. I am most impressed by his patents and skills to commercialize research outcomes."

Reviewer G: "His ability to collaborate and focus on important research areas leading to tangible results generates high impact in his field. He also has shown strong interest in multi-disciplinary work and has succeeded in leading an impressive number of multi-disciplinary research programs."

Reviewer H: "Prof. Skerlos is a thought leader in the area of 'green' manufacturing, significantly advancing the state of knowledge in Mechanical Engineering through his research, teaching, and service with the professional community…Prof. Skerlos' current work on sustainable design principles and their relationship to environmental policies is groundbreaking and significant in its contributions to both the theory and practice of Mechanical Engineering and to realizing the goals and objectives of public policies."

Summary of Recommendation: Professor Skerlos has developed a strong research program and publication record. His work has major impact in the field of sustainable design and manufacturing, and is well recognized and highly praised by his peers. He is an excellent teacher, advisor and mentor to our students. He is a leader and great citizen contributing to both external and internal services. It is with the support of the College of Engineering Executive Committee that I recommend Steven J. Skerlos for promotion to professor of mechanical engineering, with tenure, Department of Mechanical Engineering, and professor of civil and environmental engineering, without tenure, Department of Civil and Environmental Engineering, College of Engineering.

David C. Munson Jr.

David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

May 2012