PROMOTION RECOMMENDATION
University of Michigan
College of Engineering

Steven J. Skerlos, assistant professor of mechanical engineering, Department of Mechanical Engineering, College of Engineering, is recommended for promotion to associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering.

Academic Degrees

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

Professional Record

2000-present	Assistant Professor of Mechanical Engineering, University of Michigan
1994-1999	Research Assistant, University of Illinois at Urbana-Champaign
1993	Engineering Associate, ITT Intermetall, Freiburg, Germany
1992	Computer Programmer, University of Belgrano, Buenos Aires, Argentina

Summary of Evaluation:

Teaching: The candidate teaches in the field of sustainable technology and is an exceptional teacher. He created highly successful new courses and enhanced existing ones. He has convincingly demonstrated his natural gift for the profession with teaching evaluations in the 4.5 -5.00 range. Many students remark that his teaching changed their perspective, and his graduate students cite that his mentoring changed their careers. In the teaching evaluations and letters, common words like "best", "demanding", "devoted", "inspiring", "enthusiastic" appear. One student stated that Professor Skerlos creates a "positive individual relationship." Even outside references remarked on his teaching: "excellent" (E) and "sound educator" by Reviewer (H). He also received the CoE Joel and Alice Spira Award, ME Teaching Incentive Award, CoE 1938E Award, and Gilbert Whitaker Grant Award for Improvement of Teaching.

Research: The candidate conducts research in environmental science and technology, as it applies to design and manufacturing. The quantity, quality and impact of Professor Skerlos research activities are excellent: published 23 articles in premiere journals; generated more than $1.2 M; pursued technology transfer opportunities through invention disclosures, patent filings, and multiple engagements of industrial partners. His internal and external evaluators are unequivocally supportive in their assessment of the candidate's work. Casebook evaluators praised Professor Skerlos for the quantity, quality and impact of his publications and indicate that he has established a leadership position among his peer group nationally.

Recent and Significant Publications:

Morrow, W.M., Qi. H., Kim, I., Mazumder, J., Skerlos, S.J., 2005,"Environmental Aspects of Laser Based Tool and Die Manufacturing", *Journal of Cleaner Production* (in press).

Zhao, F., Landis, H.R., Skerlos, S.J., 2005, "Pore Scale Model of Permeability for Isotropic and Anisotropic Porous Filters using 3-Dimensional Stochastic Reconstruction", *Environmental Science and Technology*, Vol. 39, No. 1, pp. 239-247.

Chang, S.-C., Rihana, A., Bahrman, S., Gruden, C., Khijniak, A., Skerlos, S.J., Adriaens, P., 2004. "Flow Cytometric Detection and Quantification of Mycobacteria in Metalworking Fluids", *International Bioremediation and Biodeterioration Journal*, Vol. 54, No. 2-3, pp. 105-112.

Michalek, J., Papalambros, P.Y., Skerlos, S.J., 2005, "A Methodology for Studying the Effects of Emissions Policies on Optimal Vehicle Design Decisions", *Journal of Mechanical Design: Transactions of ASME*, Vol. 126, pp. 1062-1070.

Zhao, F., Urbance, M., Skerlos, S.J., 2004, "Mechanistic Model of Coaxial Microfiltration for a Semi-Synthetic Metalworking Fluid Microemulsion", *Journal of Manufacturing Science and Engineering: Transactions of ASME*, Vol. 126, pp. 435-444.

Tung, Y-C., Lin, C-T, Zhang, M., Kurabayashi, K., Skerlos, S.J., 2003, "PDMS-Based Opto-fluidic Microsystem for Flow Cytometry", *Sensors and Actuators B*, Vol 98, No. 2-3, pp 356-367.

Skerlos, S.J. and Zhao, F., 2003, "Economic Considerations in the Implementation of Microfiltration for Metalworking Fluid Biological Control", *Journal of Manufacturing Systems*, Vol. 22, No. 3, pp. 202-219.

Zimmerman, J., Takahashi, S., Hayes, K., Skerlos, S.J., 2003, "Experimental and Statistical Design Considerations For Economical Evaluation Of Metalworking Fluids Using The Tapping Torque Test", *Lubrication Engineering*, April, 2003, pp. 17-24.

Service: The candidate's service is appropriate for a junior faculty, notably his service in the ME graduate committee. National service includes society activities (ASME, NAMRI and Int. Soc. for Industrial Ecology), co-editorship of journal special issues and chairing sessions for several conferences. At the U-M, he co-founded the student group BLUElab, which received the 2005 CoE Elaine Harden Award for leadership and service to technology and sustainability and has served as member of several campus organizations (ERB Institute, Center for Sustainable Systems, CoE Engineering Teaching Academy, CoE Environmental Technology Council, IESET and the ConsEnSus Program).

External Reviewers:

Reviewer (A): "I am impressed with both the quantity and quality of his work based on his peer-reviewed funding and publication productivity." "Steve Skerlos is a star, who excels in research, teaching, service, and impact on society."

Reviewer (B): "Professor Skerlos has developed a very viable research program and he is making excellent progress towards national prominence." "The quality and content of Professor Skerlos's research program is also excellent." "I have reviewed approximately 100 résumés of faculty in his peer group and I rank him in the top 5 candidates of that peer group."

Reviewer (C): "I would characterize Professor Skerlos as one of a few "pioneering researchers" in what is commonly referred to as green manufacturing." "I believe he is likely at the top of his peer group in the US in this area and I am comparing him to the cohort containing Professor Arpad Horvath [University A] (and recently tenured in Civil Engineering) and John Sutherland [University B] (further along in his career but frankly not as big an impact as Skerlos)."

Reviewer (D): "If I were to judge his work based on his papers submitted to JMSE and the feedback received from the reviewers and associate editors, I would have to say that the quality of his work was exceptional with respect to meticulous attention to detail in both technical content and in presentation and writing."

Reviewer (E): "In my opinion, Dr. Skerlos is an excellent scholar, and one focusing on important problems." "I am impressed with the effort Dr. Skerlos devotes to his teaching. He has shared with me his syllabi and lecture materials, which are excellent." "Dr. Skerlos is, I believe, one of a quite small group of international leaders in green engineering."

Reviewer (F): "I would say that there is no doubt that he has already established himself internationally as a major contributor in the area of Industrial Ecology. Compared to other mechanical and industrial engineering faculty I know, who work in this area..." "Remarkably it appears as though he has been able to make a unique contribution with each new episode of this journey. I admire his tenacity and intelligence. Certainly among the international Industrial Ecology community he is the foremost expert on metal working fluids." "I see Steve Skerlos as a major international contributor to Mechanical Engineering and Industrial Ecology..."

Reviewer (G): "His work has shown good analytical rigor, deft integration of laboratory results and a wide-ranging search for solutions among new technologies." "Having served with Prof. Skerlos on several research review panels, I am impressed with his ability to discern important issues and articulate his opinions."

Reviewer (H): "...Dr. Skerlos has established himself as an expert in the field of manufacturing processes and systems, especially on the topical subject of environmentally sustainable design and manufacturing." "Dr. Skerlos has demonstrated a high level of technical competence and professional leadership in the field of manufacturing science and environmental engineering, much more significantly than peers in the same career development stage..."

Reviewer (I): "Professor Skerlos is among a new breed of Mechanical Engineers who are seriously considering environmental consequences of engineering design and manufacturing." "I believe Dr. Skerlos has accomplished a lot at Michigan and you are fortunate to have him on your faculty."

Reviewer (J): "My overall impression of Professor Skerlos is very positive." "His service contributions to the discipline of sustainability engineering are exemplary." "... he has shown that he is among the best in the nation at doing so."

Reviewer (K): "...Dr. Skerlos has become a clear leader in his field. Compared to his peers in the same area, I would place Dr. Skerlos in the top two or three (among approximately twenty)..." "He definitely possesses the innate talent, drive and genuine enthusiasm necessary to succeed as a lifelong scholar and teacher." "I have every expectation that he... will be one the "stars" that competing institutions will try to recruit."

Summary of Recommendation: Professor Steven J. Skerlos has an exceptional record in teaching, research and service within the field of sustainable technology. He has taken a leadership position nationally. He has developed a number of excellent collaborations within the University, in which he is a significant contributor and an inspiration to others. The letters from external and internal reviewers, as well as that of his students provide ample supporting evidence. They also make it clear that he is a positive contributor to the climate and diversity in the University of Michigan, as well as a positive force within the broader national and international community. It is with the support of the College of Engineering Executive Committee that I recommend him for promotion to associate professor of mechanical engineering, with tenure, Department of Mechanical Engineering, College of Engineering.

Ronald Gibala
Interim Dean, College of Engineering

May 2006