

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Mark P. Van Oyen, associate professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering, is recommended for promotion to professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering.

Academic Degrees:

Ph.D. 1992 University of Michigan, Electrical Engineering Systems, Ann Arbor, MI
M.S. 1989 University of Michigan, Electrical Engineering Systems, Ann Arbor, MI
B.S. 1986 Calvin College, Electrical Engineering, Grand Rapids, MI

Professional Record:

2005-present Associate Professor (with tenure), Department of Industrial and Operations Engineering, University of Michigan
2005 Visiting Associate Professor, Department of Industrial and Operations Engineering, University of Michigan
2005 Professor (with tenure), Loyola University, Chicago, IL
2002-2005 Research Associate Professor, Department of Industrial Engineering and Management Sciences, Northwestern University, Evanston, IL
2002-2005 Associate Professor (with tenure), Loyola University, Chicago, IL
2001-2002 Associate Professor (without tenure), Loyola University, Chicago, IL
2000-2001 Research Associate Professor, Loyola University, Chicago, IL
1999-2002 Research Assistant Professor, Department of Industrial Engineering and Management Sciences, Northwestern University, Evanston, IL
1999-2000 Visiting Associate Professor, Loyola University, Chicago, IL
1993-1999 Assistant Professor, Department of Industrial Engineering and Management Sciences, Northwestern University, Evanston, IL
1992-1993 Electrical Engineer, General Electric Corporate Research and Development, Schenectady, NY

Summary of Evaluation:

Teaching: Professor Van Oyen has been active in teaching and developing a number of courses since his arrival at the University of Michigan, including Operations Analysis and Management (IOE 440); Global Synthesis Project (IOE 480); Queueing Networks (IOE 545); Simulation Analysis (IOE 574); and Practicum in Hospital Systems (IOE 481). The latter is currently his signature course. It is a senior design course that about one-third of IOE students take in their senior year. With the emphasis on healthcare systems in the department, this is a key facet of the curriculum. During his career, he has supervised nine Ph.D. students to completion. The majority of these students are at academic institutions. His two most recent Ph.D. students are at the Business School of Indiana University and in the School of Computing, Informatics and Decision Systems Engineering at Arizona State University. He has three current Ph.D. students.

Research: Professor Van Oyen's research falls into three broad areas. His early work was in the theoretical area of stochastic modeling of queueing systems. In subsequent work, he applied his outstanding background in stochastic modeling to flexibility in manufacturing and service systems. He is

one of the leading researchers in this field and his work in this area has been widely cited. Since coming to Michigan, much of Professor Van Oyen's research has been in the area of healthcare systems. He is becoming known nationally and internationally as a leader in this field as well. His work on hospital admissions and scheduling is widely recognized as important and methodologically strong. His work on streaming in hospital emergency rooms is also widely recognized as outstanding. The work that he has done with two Ph.D. students in the area of glaucoma testing enabled those students to win the very prestigious "Doing Good with Good OR" (operations research) award at the recent INFORMS (Institute for Operations Research and the Management Sciences) conference. This is arguably the top applied award for student work. Professor Van Oyen is in a critical position to contribute to his department's focus on healthcare systems engineering.

Recent and Significant Publications:

- Hopp, W.J., E. Tekin and M.P. Van Oyen, "Benefits of skill chaining in production lines with cross-trained workers," *Management Science*, 50:1, (2004) 83-98.
- Iravani, S.M.R., M.P. Van Oyen and K.T. Sims, "Structural flexibility: A new perspective on the design of manufacturing and service operations," *Management Science*, 51:2, (2005) 151-166.
- Duenyas, I. and M.P. Van Oyen, "Heuristic scheduling of parallel heterogeneous queues with set-ups," *Management Science*, 42:6, (1996) 814-829.
- Iravani, S.M.R., B. Kolfal and M.P. Van Oyen, "Call center labor cross-training: It's a small world after all," *Management Science*, Special Issue on Complex Systems, 53:7, (2007) 1102-1112.
- Saghafian, S., W. Hopp, M.P. Van Oyen, J.S. Desmond (M.D.) and S.L. Kronick (M.D.), "Patient Streaming as a Mechanism for Improving Responsiveness in Emergency Departments," Accepted to *Operations Research* June 2012.

Service: Professor Van Oyen has a strong service record. He served as the director of the Engineering Global Leadership program for three years (2006-2009) and oversaw the significant expansion of the program from one serving only two departments to a program that attracts students from virtually every department in the College of Engineering. He is also contributing significantly to the writing of an NSF Engineering Research Center proposal on healthcare systems. Outside the university, he serves as an associate editor of two leading journals (*Naval Research Logistics* and *IIE Transactions*) and has served on the editorial boards of two other journals as well. He has also served as an officer of the Applied Probability Council within INFORMS.

External Reviewers:

Reviewer A: "... this seems to me a very strong case for progression to Full Professor with tenure, indeed one of the strongest I have seen in recent years...he has made major contributions in three pretty distinct fields, namely queueing control, workforce flexibility and...healthcare operations...His early work on queueing control was innovative, earned him a national reputation in the area and appeared in some of the very best journals in the area...Mark is the colleague to consult if I want an authoritative opinion on a contribution to this [workforce flexibility] field...I believe him to have an international reputation in workforce flexibility and a growing international profile in the field of healthcare operations."

Reviewer B: "...it is my belief that Mark has a strong case for promotion to full professorship with tenure. I hope the department and the Dean will agree."

Reviewer C: "In my opinion, from a sheer numbers standpoint (a very imperfect metric), such output is more than sufficient for promotion to full professor at all top schools in our field...Mark's h-index lies in the top scholars in the world in MS/POM...I strongly support Mark's promotion to full professor. In my mind it is overdue."

Reviewer D: "I particularly like his two recent papers that explore the use of streaming in hospital emergency departments...and hospital admission scheduling and control...They are well motivated, well developed and carefully analyzed...his record of student supervision is outstanding."

Reviewer E: "I have been impressed by his strong technical ability, his willingness to tackle very difficult problems, and his ability to develop and explain deep insight into the behavior of the systems he is studying...Mark's research demonstrates that he is not only good at answering questions and solving problems, he possesses the rarer creative talent of asking the right questions and designing models appropriate to the questions...Mark fully deserves promotion to full professor."

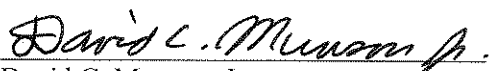
Reviewer F: "I recommend, without reservation, that Dr. Van Oyen be promoted to Full Professor at the University of Michigan. He more than meets the requirements for Full Professor at my current and past academic institutions."

Reviewer G: "Mark has demonstrated a sustained record of publishing in high-quality journals throughout his career...He is well deserving of promotion to the rank of full professor at any leading university in the country..."

Reviewer H: "I very much like his paper on patient streaming in EDs that just appeared in Operations Research and the working paper on complexity based triage that is currently in the pipeline...I use both papers in my PhD level Healthcare Operations Management course."

Reviewer I: "My favorite of this set of papers is the glaucoma paper...The model is very creative and this is certainly one of the best OR healthcare papers I've read in the past few years...I think Mark's case for promotion to full professor with tenure is not only clear cut, but belated."

Summary of Recommendation: Mark Van Oyen has amassed an impressive record of research, teaching and service. He is viewed as a leader in the analysis of queuing systems and in the development of models of flexibility in manufacturing and service systems. He is also becoming very visible for his more recent work on healthcare systems engineering. His teaching is central to the mission of the department and is very strong. Finally, he is a good citizen of both the department and the broader professional community in terms of service. It is with the support of the College of Engineering Executive Committee that I recommend Mark P. Van Oyen for promotion to professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering.



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

May 2013