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Adjunct Assistant Professor

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Academic Degrees

BS	Electrical Engineering	2011	Montana State University, Bozeman
PhD	Applied Mechanics	1997	Montana State University, Bozeman Dissertation Title: "An Experimental Investigation of Microstructure Induced Microstructure Metamorphism in a Cohesive 'Model Snow'"
MS	Mathematics	1991	Montana State University, Bozeman
MS	Engineering Mechanics	1989	Montana State University, Bozeman Thesis Title: "Determining the Change in Snow Microstructure During Large Deformation Processes by the Method of Quantitative Stereology"
BA	Physics	1984	University of Montana, Missoula

Teaching Experience

Adjunct Instructor, Montana State University – Bozeman, MT, in both Civil Engineering and Mechanical Engineering: Fall 2001-Spring 2010. Adjunct Assistant Professor, Fall 2010 – Current .

Undergraduate

Computer Applications in Engineering	
Materials Science Laboratory	Fall 2002-present
Thermodynamics I and II	
Introduction to Heat Transfer	Summer 2009
Introduction to Machine Design	Spring 2004, 2005
Statics	Spring 1993, Fall 1994
Rigid Body Dynamics	Summer 2009-2011
Strength of Materials	Summer 2003 , Spring 2004
Finite Element Methods	Fall 2001, 2002, 2009- 2011
Mechanical Vibrations	Spring 2002, 2003, 2012
Applied Fluid Mechanics	Spring 2002-Fall 2005, Fall 2010
Numerical Methods in BREN	Fall 2001

Graduate

Engineering Analysis and Numerical Methods Spring 2003, 2004
Continuum Mechanics Fall 1995

Honors and Awards

Mechanical Engineering Instructor of the year in 2006

Research Experience

Post Doctoral

Civil Engineering, Montana State University, "Numerical Modeling and Design of Geosynthetic Reinforced Flexible Pavements", June 1998-June 2001.

Civil Engineering, Montana State University, "A Proposal to Examine the Application of CT Technology to Highway Icing", February 1999-December 1999.

Mechanical Engineering, Montana State University, "The Effects of Tape Gaps and Stagger on the Strength and Stiffness of Composite Laminates", September 1997-December 1999.

Publications

Perkins, S.W. and Edens, M.Q., "A Design Model for Geosynthetic-Reinforced Pavements", International Journal of Pavement Engineering, Volume 4, Number 1, 37 – 50, March 2003

Perkins, S.W., Edens M.Q. "Finite element modeling of a geosynthetic pullout test." Geotechnical and Geological Engineering, 21: 357-375, 2003.

Pavements", Perkins, S.W. and Edens, M.Q., "Finite Element and Distress Models for Geosynthetic-Reinforced Pavements", International Journal of Pavement Engineering, Volume 3, Number 4, December 2002, 239 - 250

Edens, M.Q, and Adams, E.E., "An experimental investigation of ice adhesion to paved highway surfaces via mechanical locking", Western Transportation Institute, February 2001.

Perkins, S.W., Wang, Y., Edens, M.Q. and Fragaszy, R.J. "Prediction of Permanent Deformation in the Unbound Aggregate and Subgrade Soils of a Paved Roadway", Unbound Aggregates in Road Construction, Balkema, Rotterdam, Netherlands, pp. 377-384. 2000.

Perkins, S.W., Edens, M.Q., Wang, Y. and Fragaszy, R.J., "A Finite Element Model Illustrating Reinforcement Mechanisms for Paved Roadways", Second European Geosynthetics Conference, EuroGeo 2000, Bologna, Italy, October, 2000.

Edens, M.Q., and D. Cairns, "The Effects of Tape Gaps and Stagger on the Strength and Stiffness of Composite Laminates", Boeing Report, April 2000.

Brown, R.L., M. Q. Edens and M. Barber, "Mixture Theory of Mass Transfer Based Upon Microstructure", Defense Science J., 49(5), October 1999.

R. L. Brown, M. Q. Edens, M. Barber and A. Sato, "Equi-temperature metamorphism of snow", Proceedings of the 3rd International Conference on Snow Engineering, May, 1996.

Sato, A., M. Q. Edens and R. L. Brown, "Metamorphism of artificial fine snow and physical modeling," Proceedings of the 3rd International Conference on Snow Engineering, Sendai, Japan, May, 1996.

Brown, R. L., M. Q. Edens, M. Barber and A. Sato, "Equi-temperature metamorphism of snow", Proceedings of the 3rd International Conference on Snow Engineering, Sendai, Japan, May, 1996.

R. L. Brown, M. Q. Edens and A. Sato, "Metamorphism of fine-grained snow due to surface curvature differences", Annals of Glaciology, 19, 1994.

Adams, E. E., D. C. Vandervoort, M. Q. Edens and R. M. Lang, "Ice grain orientation in processed snow", Proceedings of the International Conference on snow & its Ramifications, Manali, India, September, 1994.

Edens, M. Q. and R. L. Brown, "Measurement of microstructure from surface sections", Proceedings of the International Conference on snow & its Ramifications, Manali, India, September, 1994.

Edens, M. Q. and R. L. Brown, "The relationship between the microstructure and mechanical properties of snow", First International Conference on Winter Vehicle Mobility, CRREL Special Report 93-17, 164-173. July 1993.

Brown, R. L. and M. Q. Edens, "On the relationship between neck length and bond radius during compression of snow", J. Glaciology, 37(126) 203-208, 1991.

Edens, M. Q. and R. L. Brown, "Changes in microstructure of snow under large deformations", J. Glaciology, 37(126): 193-202, 1991.

Conference Presentations

"Detection of bonds between ice grains in snow surface sections." International Snow Science Workshop, Breckenridge, Co., 4-8 October, 1992.

"Automated detection and measurement of snow microstructure from surface sections." Symposium on Snow and Snow-related Problems, Nagaoka, Japan., 14-18 September 1992.

"The relationship between the microstructure and mechanical properties of snow." First International Conference on Winter Vehicle Mobility, Santa Barbara, Ca., June 1991

Professional Societies

IEEE, 2008-present
ASEE, 2010-present
ASME 2012

Professional Service

Faculty/Staff Development Committee, Spring 2007-Current

Sample Comments From Course Evaluations

Mechanical Vibrations, Spring 2012:

Dr. Edens does a good job of addressing questions and seems genuinely concerned about his students.

Dr. Edens is one of the best teachers at our school. He is very concerned with his students learning and goes to the extreme to make sure we are mastering the subjects, not just getting grades in. We really appreciate his teaching and expertise!!

Edens is a cool dude. Examples are very helpful. Work load was tremendous at the beginning of the year. Excellent! I would expect no less from Dr. Edens. He is incredibly helpful outside of class, and a phenomenal professor. Great Professor

Great teacher for this course. His knowledge is so vast, and he really knows it and is interested in it. It's a refreshing change from some of the other teachers who aren't as excited about their subject. He also provides challenging problems, but grades them in a fair and impartial way. It's also important to note that the problems, while challenging, are completely fair and evaluate the mastery of the subjects that he has taught you. Dr. Edens really knows his stuff.

I really enjoyed taking this class from Dr. Edens, he showed concern for the students and genuinely cared whether or not the students understood the material.

Micheal Edens is one of the best instructors in the ME dept. The classes I have had from him have all been very informative. His concern for students is also better than most

every professor I have had here at MSU.

FEA Fall 2011:

I enjoyed the class. Workbench is a good addition to the lab part. As far as the lectures go, the content was well organized-logical and progressive. I didn't do as well as I would have liked, due to the exams. I was very comfortable with the finite element side of things in the exams, but lost a lot of points going through the algebra. While not saying that the exams were unfair or unproductive, I think the focus, or "points" in future exams can be shifted more towards the finite element setup, and less towards the algebraic details/manipulations. The text did a good job covering the required concepts and presented them in a straightforward manner. The lecture instruction was also clear and to the point.

I think this class should be a required course at the undergraduate level for a mechanical engineering student, instead of being offered as an elective. Glad I took the course.

I like edens, he's great. Great subject too. Fun course.