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Hemant Pendse named 2021 Distinguished Maine Professor

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Pendse named 2021 Distinguished Maine Professor

February 17, 2021

Hemant Pendse, an internationally recognized leader in forest bioproducts research, has been named the University of Maine 2021 Distinguished Maine Professor.

The annual Distinguished Maine Professor Award honors a UMaine professor who exemplifies the highest qualities of teaching, research and public service. It is sponsored by the University of Maine Alumni Association and its classes of 1942 and 2002.

Pendse was nominated for the award by College of Engineering Dean Dana Humphrey. The selection process is conducted by a 17-person committee of alumni, current and retired faculty, and a representative of the student body. Each nominee is evaluated on three criteria related to UMaine's land-grant mission: teaching performance based on peer and student evaluations; the quality and productivity of the nominee's research, scholarship, and creative activities; and the nominee's contributions of professional expertise in a volunteer capacity in support of university and public causes, services, and initiatives.

The UMaine Alumni Association will honor Pendse at the annual Alumni Achievement Awards and Recognition Ceremony on Thursday, April 29. Due to COVID-19 precautions, this year's event will be held online and streamed on YouTube.

Since joining the university in 1979, the professor of chemical engineering and chair of the Department of Chemical and Biomedical Engineering has spearheaded innovative research that has earned two patents, produced 82 publications, given more than 200 technical papers and garnered \$17 million in external funding. He also has yielded new economic opportunities for Maine through his work on forest bioproducts.

Students know Pendse as an educator who challenges them to think critically, provides clear and concise lessons, is always willing to help, and dedicates himself to their success.



Hemant Pendse



“Dr. Pendse is a gifted leader who provides tremendous service to the university and industry,” wrote UMaine College of Engineering Dean Dana Humphrey in his nomination. “He is able to visualize the potential of the organizations and then work collaboratively with students, faculty, staff, administration and outside constituencies to achieve this vision.”

Pendse founded the Forest Bioproducts Research Institute in 2010, and serves as its director. FBRI aims to identify the logistic, scientific, economic and policy factors that would allow forest-based products to be made at a commercial scale and inspire the creation of a biorefinery in Maine.

Under Pendse’s leadership, FBRI built the nation’s first pilot-scale plant for manufacturing nano-fibrillated cellulose, or nanocellulose. The institute earned \$48 million for various projects, \$17 million of which is attributable to Pendse’s efforts.

FBRI developed and secured patents for its breakthrough thermal deoxygenation process (TDO) for making biofuels for jets and marine engines, and for its process to create advanced materials like nanocellulose. Pendse was instrumental in scale up to continuous pilot operations that benefit researchers and private business alike.

Jake Ward, vice president of innovation and economic development at UMaine, wrote in his letter of recommendation that Pendse’s ability to not only lead, but collaborate with fellow faculty members and external partners from other academic institutions, communities and the private sector brought FBRI and the benefits it yields to fruition. His efforts have bolstered the university’s capacity for serving the public and fostering economic growth.

“The success of this project has not only resulted in stronger research programs and more grant funding at UMaine, but true economic development success with the partnership with Old Town and a variety of owners of the mill.” Ward wrote.

The UMaine chemical engineer’s research interests involve pulp and paper manufacturing, colloid systems, particulate and multiphase processes and sensor development. During his studies, he has developed forest biorefinery pilot-scale industrial process systems, an ultrasonic slurry characterization system, a laboratory instrument for particle surface charge characterization in concentrated colloids and an online particle size distribution sensor system for concentrated slurries. He also has developed multiple theories and methodologies to assist in particulate systems characterization and processing.

“He is an inspiring scholar whose research has significantly impacted Maine industries, university faculty members and Maine research infrastructure,” wrote colleagues Clayton Wheeler, chemical engineering professor and FBRI associate director, Jonathan Rubin, economics professor and director of the Margaret Chase Smith Policy Center, and Jeffrey Benjamin, former associate professor of forestry, in their joint recommendation letter.

Pendse’s numerous awards include the 2009 College of Engineering Ashley Campbell Award, 2012 Genco Award from the University of Maine Pulp and Paper Foundation, and the 2012 UMaine Presidential Research and Creative Achievement.

Pendse’s record of public service includes advising the Municipal Review Committee, a group of 115 Maine cities and towns united to tackle solid municipal waste problems; and serving on the Economic Development Assessment Team, Maine Innovation Economy Advisory Board, the Governor’s Wood-to-Energy Taskforce and more. He and the FBRI have also aided with the Forest Opportunity Roadmap/Maine (FOR/Maine), a public-private partnership seeking new markets for wood products and bolstering technological innovation to support new commercial uses for wood. He has also served on the Corporate Advisory Council for Nelson Industries, Stoughton, Wisconsin, and the Transport & Energy Processes Division of the American Institute of Chemical Engineers (AIChE) in various capacities.

“Perhaps his greatest value in this respect is his willingness and ability to serve these communities as an unbiased technical expert, expertise many communities lack and could not afford, when vetting opportunities,” Ward wrote in his recommendation letter. “He is often called upon by Maine’s federal delegation to play this role and as a technical advisor on state-wide/nation-wide initiatives.”

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