



Charles D. Van Karsen

At the lectern, a tall, imposing figure leans over his tablet PC and scans the eyes of his students, reading faces and body language to gauge comprehension. In this moment of silence, he senses the need to reinforce the vibrations theory he has just presented. Putting down the stylus, he steps back and asks rhetorically, “Now, where might we see this theory in action?” With that query, Professor Chuck Van Karsen, NVH expert, launches into a detailed story from his time as a consultant in the “engineering trenches,” working on the reduction of vibration in washing machines. It is here, at the intersection of engineering theory, practice, and education that Van Karsen turns everyday experience into a pedagogical tool. He says, “Teaching is my passion. I love sharing my experiences from the field.”

Van Karsen’s widely recognized NVH expertise was built upon solid engineering ground. He earned his BS and MS degrees in Mechanical Engineering from Cincinnati University, completing seven quarters as a co-op with Copeland Corporation as an undergraduate. At the recommendation of Dr. Bill Shapton, then a University of Cincinnati faculty member and later a Michigan Tech professor, Van Karsen accepted a position in Cincinnati Milacron’s NVH department after his graduation.

NVH Industry Experience

Van Karsen began his professional career at a pivotal point in the development of vibration analysis technology. He notes, “I got into the field at a very interesting time, where the technology—both on the analytical and the experimental side—was switching over from cumbersome analog equipment to high-speed digital systems. It was exciting, and I encountered something new every week.” During his 12 years in industry, he played an active role in the discovery of new methods and possibilities that arose from these emerging technologies.

After leaving Cincinnati Milacron, he spent seven years as a consultant with Structural Kinematics, solving the most complex NVH problems and ultimately establishing himself as an expert in the field. The unexpected opportunity to teach at Michigan Tech came at an ideal time, when Van Karsen was working 10- to 12-hour days and spending little time with his young family. Once again, Bill Shapton acted as a catalyst for Van Karsen’s professional advancement. He encouraged him to accept a faculty position in the ME-EM Department, where Van Karsen’s world-class expertise in NVH would be a valuable resource for students and faculty. Eager for a change of pace, Van Karsen accepted the position at Michigan Tech in 1987. He declares, “We moved to Houghton and never looked back. It was the best decision we ever made.”

Teaching Philosophy

Teaching was a natural transition for Van Karsen, who had often led seminars and technology training workshops while in industry. He states that the trick to communicating dense technical material to students is to find the fun in the



fundamentals. “You’ve got to stay technically sound, but you can’t get too serious.” In class, he draws on his wealth of industry experience to illustrate technical concepts, relating anecdotes that demonstrate practical applications of the theory.

Van Karsen also believes in the importance of hands-on learning in the classroom, finding it an effective way to engage students—often with inspiring results. “I give students a challenging problem or project to teach them to apply the fundamentals. I help them discover that when they think about the problem and proceed carefully, they can see reality through the theory. When it works, it’s great to hear them say, ‘Wow! The system responded as we predicted!’ That look of understanding and satisfaction on a student’s face is what drives me.”

Currently, Van Karsen teaches *Mechanical Vibrations*, *Experimental Vibro-Acoustics*, *Analytical and Experimental Modal Analysis*, *Mechanical Engineering Laboratory*, and *Controls*. In addition to his activities at Michigan Tech, Van Karsen maintains his involvement with industry, continuing to be a respected presence with a number of clients. He provides consulting services, offers guest lectures, and frequently presents seminars on the latest NVH developments.



Still, when asked what tops his priority list of these diverse activities, Professor Van Karsen answers, “For me, the most important thing is seeing as many successful, well-trained, prepared students as possible go out that door ready to begin their professional careers. That is my motivation, and it’s why I still love to teach after 19 years at Michigan Tech.”