In talking to many customers over the years, I could feel a real desperation in filling positions that require multi-body dynamics (MBD) skills. Equally, I sensed the same frustration from professors in higher education who have trouble attracting students to their dynamics classes. Why? Because there is an impression that Computer Aided Engineering (CAE) equals Finite Element Analysis (FEA). So, academia is producing a steady crop of graduates who are well versed in FEA but because of the lack of understanding of the market need, graduates skilled in MBD are scarce.

To better quantify the market need, we surveyed our users recently. 73% of the users were either from auto or aero OEMs or their suppliers. The results are not surprising:

- 40% said that the amount of multi-body simulations will grow 2-5X in the next few years.
- 83% said that hiring engineers with MBD skills is moderately difficult, difficult or could not find anyone at all!
- 64% said that the level of MBD skill of newly graduated engineers coming out of universities was insufficient to highly insufficient.
- Only 30% satisfied with the MBD education that university is providing.

So, what is going on in academia and what is required? Kinematics and dynamics courses are taught as part of core undergraduate engineering curriculum helping provide the required foundation in mechanics for the students. However, students are rarely exposed to the computational modeling and simulation software solutions used by practicing engineers, and are typically limited to simplified tools. Further, multibody system dynamics simulation is not hard once you know the basics of kinematics and dynamics. Schools need to have more emphasis on engineering math and classical dynamics, vibration and control theory course work to understand the theory. Of course, the best kind of training is on the job training with respect to products that matter to engineers, as opposed to generic classroom training. This offers a wonderful opportunity for universities to create internships with manufacturers that are starved for this skill.

Going forward, schools should consider the following steps to deliver the right product (skilled graduates) to an industry:

- Promote multi-body dynamics as a specialization that can deliver a good job quickly upon graduation.
- Provide a curriculum which incorporates foundational theory like dynamics and core mathematics.
- Ensure that professors are readily available to support the curriculum.
- Expose students to software that is used in industry. MSC Software’s Adams is the world’s most popular multi-body dynamics software for automotive and aerospace companies and their suppliers so this is a great place to start.
- Educate the placement office on this new specialization coming out of the school so they can find employers who are ready to hire.
- Reach out to industry to establish internship programs for this highly valued new product that the school is producing.

The industry needs these skills and jobs clearly exist. Now it is up to the schools to mobilize to fill a void which has existed on a global basis for too long. If you have any questions about how MSC can help catalyze a multi-body dynamics program in your school, please write me at dominic.gallello@mscsoftware.com.