Welcome to the RIT's Gear Research Laboratory

RIT's Gear Research Laboratory was established in 2015 by Dr. Alfonso Fuentes Aznar in the Department of Mechanical Engineering of the Kate Gleason College of Engineering. The Gear Research Laboratory at RIT, in collaboration with researchers at the Polytechnic University of Cartagena (UPCT) in Spain, is focused on the development of IGD - Integrated Gear Design - as the ultimate computer program for advanced gear design as well as analysis, optimization, and troubleshooting of gear drives.

IGD - Integrated Gear Design - is being developed thinking of both, gear design and gear manufacturing. The geometry of gears is obtained using the principles of the modern theory of gearing and the kinematics of the cutting tools exactly as in real production. A complete set of cutting processes and cutting tools are available for gear generation application. The evaluation of the obtained gear geometries is fast and inexpensive. IGD implements a virtual gear generator that models any type of geometry and applies enhanced approaches of tooth contact analysis and finite element modeling. Other tools included in IGD allow us to achieve the optimal design, as for example the module of free-form design for the application of micro-geometry modifications to the gear tooth surfaces or the backlash analysis based on actual geometry and contact analysis.

The Gear Research Lab is poised to contribute to Rochester's long tradition and recognized global leadership in gear design and manufacturing in support of our corporate partners and our community. We are also providing the technical education necessary to ensure the supply of a talented workforce of engineers to support the gear industry. We are always looking for new researchers and the establishment of corporate or academic partnerships. If you are interested in working or collaborating with us, please do not hesitate to contact us.