

The Manufacturing Technology Research Center (MTRC) ORT Braude College of Engineering, Karmiel



The mission of the Manufacturing Technology Research Center in the Mechanical Engineering Department of ORT Braude College is to act as a focal point for research and development of various manufacturing technologies, emphasizing machining processes such as turning, milling and drilling.

The Center develops capabilities and expertise in the field of manufacturing processes, making it a national hub for research and industrial knowledge. The Center's objectives are to collaborate with industrial companies who develop machining tools or employ different manufacturing technologies. MTRC offers its services and collaboration in research and industrial projects in the following areas:

- Life length analysis of machining tools
- Surface finish of tools and workpieces
- Conventional and vibration-assisted drilling
- Numerical modeling of different manufacturing processes
- Dental drilling
- Metallurgy of tools and materials.

The Center works with adjunct lecturers in the mechanical engineering department who are expert researchers in the field. In addition, some projects of graduate and undergraduate students at the department are part of the Center's research activities.

■ Examples of projects completed in the Center:

- The effect of coating and degree of grinding on tool-life of end mills and on the surface finish of the workpiece (titanium) – in collaboration with Kennametal/Hanita
- An empirical model for predicting the tool-life of turning inserts – in collaboration with ISCAR

■ Staff Members

- **Dr. Samy Abu-Salih**, Modeling of micro mechanical systems
- **Dr. Uri Ben-Hanan**, Mechatronics and control systems
- **Dr. Rami Masri**, Elastoplastic response of solids
- **Assoc. Prof. Michael Regev**, Microstructure characterization of metals and alloys

■ Laboratory equipment

- Two CNC milling machines
- CNC lathe
- Computer workstations with optical microscopes for measuring wear and characterizing failures
- Scanning electron microscope (SEM)
- Force and vibration sensors
- Software for numerical analysis of various metal-cutting processes, including COMSOL, ANSYS and DEFORM



Ofek Eshkolot provides the means for implementing advanced technologies and research developed at ORT Braude College. The Ofek Eshkolot company directs staff towards applied research opportunities, creation of intellectual property (such as patents), and commercialization. Ofek Eshkolot bridges the gap between the business world and academia. The company is collaborating with Fraunhofer – a large European research organization – and invites additional local and worldwide industrial companies to participate in joint research.

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