

# MA 512- Advanced Manufacturing Technology

<b>Course Code:</b>	MA-512
<b>UTAA Credit (Theoretical-Laboratory hours/week):</b>	3(3-0)
<b>ECTS Credit:</b>	6.0
<b>Department:</b>	Mechanical and Aeronautical Engineering
<b>Language of Instruction:</b>	English
<b>Level of Study:</b>	Graduate
<b>Offered Semester:</b>	Fall and Spring Semesters.

## Course Objectives

Introducing non-traditional methods of metal processing. Introducing advanced methods of plastic forming. Introducing the principle and practice of advanced powder metallurgy method. To introduce some advanced techniques of metal surface processing

## Course Content

Non-traditional machining methods, Mechanical, Electrical, Thermal, and Chemical Methods. Advanced Forming methods, Hot pressing. Hydro-forming, Roll forming, Electro-Magnetic forming, Powder metallurgy and Advanced Ceramics, Surface treatments of metals, Surface Chemistry, Case hardening methods, Surface Coatings, Plasma assisted Surface Treatments

## Course Learning Outcomes

- 1-To understand the current state of technology, utility and limits of modern manufacturing
- 2-To recognize of non-traditional machining methods
- 3-To familiar of advanced methods of plastic forming
- 4-To learn of advanced powder metallurgy and the application of principles
- 5-To learn up-to-date information about the Surface treatment of metals.