TECHNOLOGICAL EDUCATION INSTITUTE OF

CENTRAL MACEDONIA

SCHOOL OF TECHNOLOGICAL APPLICATIONS

DEPARTMENT OF MECHANICAL ENGINEERING

Graduate Studies Program: **Academic Year 2015 - 16**	**"Renewable Energy Systems: Design, Development and Optimization"**

Dimitrios Sofialidis

Subject:

3D CFD Analysis of Mixing Tank

Introduction & Motivation:

Mixing tank are widely used in batch processes in the chemical, oil and process industries. Mixing time is a crucial parameter that defines both the quality of the product, as well as the production throughput. CFD can provide valuable insight in the mixing process and evaluate quantitatively the time required for a perfect mixing.

Implementation & Means:

A mixing tank with one or two impellers will be provided. The fluid will be a water-like material and the estimation of the mixing will be done through the injection of a "tracer" liquid, identical to the main liquid. First the analysis will be performed in steady state to resolve the flow field. Then a transient analysis will be run to monitor the tracer inside the tank.

ANSYS DesignModeler will be used for the airfoil geometry creation, ANSYS Meshing for the mesh generation and ANSYS Fluent for the computations.

References:

[1]
[2]

Requirements: *Knowledge needed for a successful dissertation.*