K.N. Toosi University of technology   Aerospace Engineering Faculty

Program and Degree: **BSc in Aerospace Engineering**	
Course Description	
Course Title	**Introduction co Computational Fluid Mechanics**
Prerequisites	Aerodynamics-2
The course aims	To provide students with knowledge of elementary methods in numerical solution of fluid flow governing equations with aerospace applications. Students who pass this course will have the following abilities: 1- Ability of design and numerical calculations of aerodynamics problems 2- Ability of design and generation of computational grids for Fluid Flow domains 3- Ability of using CFD software e.g. FLUENT 4- Ability of using grid generator software e.g. GAMBIT
Contents	1- Fluid flow regimes calcifications. 2- Applications and principles of finite difference methods for solution of governing equations for viscous and inviscid flows. 3- Consistency, Stability, Convergence, Iterative methods, effects of round-off and truncation errors on solution of elliptic, hyperbolic, and parabolic PDEs 4- Methods and algorithm in solution of compressible and incompressible flows
Duration	**1 Semester (16 weeks)**
Course Hours	**3 hours/week**
Course Type	**Required**