

(Textile Engineering Department)

Graduate

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**Course Title: Dynamic of Weaving & Knitting**

**Lecturer: Dr. Houshang Nosrati**

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**Course Topics:**

- Introduction to weaving developments and their reasons
- Limitation parameters for production increasing of looms
- Weft and warp yarns tensions and their nature
- Weft tension peak relations regarding to energy relation and effective parameters
- Air-jet weaving, definitions, history, importance and its different with other weft insertion methods
- Effective parameters on the air-jet weft insertion
- Characteristics of air stream in air-jet weft insertion
- Air stream in the main nozzle nozzle design
- Air stream in the shed Confessor
- Weft yarn motion in air stream based on Bernolys law and air drag force relations
- Simulation of weft yarn motion and developing of weft yarn motion equations
- The modeling of an air-jet loom by weft yarn motion equations and numerical solution of equations
- Evaluation of developed model by experimental results and verification the model
- Introduction to industrial control and weft yarn tension control in air-jet loom by PID control system
- Water - jet weaving: dynamics equation of water jet in weft insertion and study the effective parameters
- Projectile weaving: dynamics equation of projectile and weft yarn motion

**Reading Resources:**

- Air- jet weft insertion, Textile progress, 2001, Liuwen wangluwe, Textile Institute, U.K
- Hand book of weaving, Sabit Adanur, Technomic, 2000, U.S.A