UTC/ED/ CST02 (2023/2024)

Graduate School ED71 'Sciences pour l'ingénieur' at Université de Technologie Compiègne is organizing an intensive postgraduate course on nonlinear mechanics. The course is offered to **Doctoral Students** from UTC and partner institutions in Picardie and Sorbonne Universités.

The course lecturer **Adnan Ibrahimbegovic** is Professor Classe Exceptionnelle and Chair for Computational Mechanics at University of Technology Compiègne, an elite engineering school and a founding member of Sorbonne Universités. He has obtained his engineering education in Sarajevo, PhD at the University of California Berkeley, USA and Habilitation at the University Pierre and Marie Curie in Paris, France. He has held professorships and research positions at four different universities (including UC Berkeley, USA; EPFL, Switzerland; ENS-Cachan, France and currently UTC, France). He is the past Chairman of ENS-Cachan Teaching and LMT-Cachan Research Departments and Head of Master Program MaiSE. He has received: IACM Fellow Award, Humboldt Research Award for Germany, Research Award for Slovenia, International Fellow NSERC Award for Canada, 'Claude Levy-Strauss' Chair for Univ. Sao Paulo, Brazil, 'Asgard' Chair for NTNU, Norway, 'Hôte Académique' Award for EPFL, Switzerland. He has produced over 500 publications, including 150 papers in scientific journals and 8 textbooks and monographs. He was promoted to IUF in 2015.

Course schedule (35 hrs)

Time / Dates: 8:30-10:00, 10:30-12:00:
            Mon. 8/1/2024 –Fri. 19/1/2024 (30hrs)
Time / Date: 8:30-10:00, 10:30-12:00, 14:00-17:00
            Mon. 29/1/2024 (5hrs)

Course Contents

1. *Introduction: Variational formulations in linear and nonlinear solid mechanics*

2. *FEM technology for 2D/3D BVP in elasticity*

3. *Thermodynamics foundation of inelastic constitutive behavior at small strains*

4. *Advanced constitutive models: plasticity, damage …*

5. *Coupled multi-physics problems: thermo-mechanics and electromagnetism*

6. *Multi-scale problems: probability and size-effect in applications to composite materials*

7. *Nonlinear solid and structural mechanics problems at large displacements*

8. *Fluid-structure interaction problems*

9. *Constitutive models at large strains and instability of structures and materials*

10. *Advanced aspects of dynamics of structures and flexible multibody systems*

Course materials

The course material consists of copies of recent papers and the course textbook to obtain for participants: A. Ibrahimbegovic, "*Nonlinear Solid Mechanics: Theoretical Formulation and Finite Element Solution Methods*", Springer 2009.
http://www.springer.com/mathematics/computational+science+%26+engineering/book/978-90-481-2330-8

ADVANCED MECHANICS OF SOLIDS, STRUCTURES AND MULTIBODY FLEXIBLE SYSTEMS

Mon. 8 – Fri. 19 jan. 2024 Amphi Gauss:
8:30-10:00, 10:30-12:00
Mon. 29 jan. 2024 Amphi Gauss
8:30-10:00, 10:30-12:00, 14:00-17:00

A doctoral course given by
Adnan Ibrahimbegovic, IUF

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Université deTechnologie Compiègne /
Sorbonne Universités - France