SÛRETÉ DE FONCTIONNEMENT DES SYSTÈMES ET DES STRUCTURES

HEALTH MONITORING

Lecturers: **Michelle SALVIA, Olivier BAREILLE**

| Lecturers : 0.0 | TC : 28.0 | PW : 0.0 | Autonomy : 0.0 | Study : 0.0 | Project : 0.0 | Language : AN

Objectives

In the transportation and the energy-supply industry, a rigorous and reliable maintenance strategy shall be applied.
In this course, the methods of control and health-monitoring will be described. Their advantages and limitations will be addressed and discussed.
Some specific materials and technique dedicated to the structural health monitoring will be reviewed. The topic will be

Keywords :   structures surveillance
ageing, material damages for structures
signal processing
wear and damage index

Programme

The SHM steps
Measurement and sensor systems
Composite material in aeronautics : application of the SHM
Smart materials
Damage models and predictive models

Learning outcomes

- establishing a monitoring strategy
- identification of damage phenoma
- data analysis and compared studies

Independent study

Objectifs :

Méhodes :   The 8 lectures are completed by 3 sequences of lab (1 experimental + 2 numerical).

Core texts

J. Lemaître, *A COURSE ON DAMAGE MECHANICS*, Springer Verlag, New York, 1996
Adams Douglas E. *HEALTH MONITORING OF STRUCTURAL MATERIALS AND COMPONENTS*, Wiley, 2007
Karbhari Vistasp M. and Ansari Farhad*STRUCTURAL HEALTH MONITORING OF CIVIL INFRASTRUCTURE SYSTEMS*, Woodhead Publishing CRC Press, 2009

Assessment

Final exam (knowledge - coeff. 0,3)
Document analysis and practical exercises (know-how - coeff. 0,6)
Practice (methodology - coeff. 0,1)