Timetable	Monday	Tuesday	Wednesday	Thurdsday	Friday
9:00 to 9:50	Siegen	Siegen	IFFM	Patras	Risoe
10:00 to 10:50	UPM	IFFM	Patras	IST	Sheffield
11:10 to 12:00	Siegen	Siegen	Patras	Patras	Risoe
12:10 to 13:00	UPM	IFFM	IST	IST	Sheffield
LUNCH					
14:00 to 14:50	UPM	IFFM	IST	Sheffield	Risoe
15:00 to 15:50	Siegen	UPM	Patras	Risoe	Sheffield
16:10 to 17:00	UPM	IFFM	IST	Sheffield	Risoe
17:00 to 19:00 LAB-DEMO work by	Siegen	UPM	IST /IFFM	Patras	Sheffield

MAIN TOPICS COVERED BY EACH INSTRUCTOR:

University of Siegen (*Prof. Claus-Peter Fritzen)*
Concepts of Structural Health Management: Local and Global Methods
Basics of Experimental Modal Analysis. Data Processing and Signal Analysis
Vibration methods. Computational Models
Model-Updating Methods, Optimisation and Damage Identification.
Examples for Damage Diagnosis in civil engineering, aerospace and wind energy plants.

University Politécnica de Madrid (UPM) (*Prof Alfredo Güemes, Dr. José M. Menéndez)*
Classification of fiber-optic sensors
The fiber Bragg grating as a strain and temperature sensor
Fiber Bragg gratings as damage sensors for composites
Embedding fiber optic sensors in composite structures.
Examples of applications of fiber optic sensors in aeronautics and civil engineering

Polish Academy of Sciences (IFFM) (*Prof. Wieslaw Ostachowicz)*
Algorithms for damage localization and characterization
Methods based on the phenomenon of elastic wave propagation. Lamb waves
FFT–based Spectral Element Method. FEM versus Spectral Element Method
Wave propagation in composite plates. Interaction with damage. Experimental validation
Optimal sensor network. Estimation of optimal array of sensors placement

University of Patras (*Prof. Spilios Fassois)*
Statistical Time Series Models for Structural Dynamics
Identification of Time Series Models
Statistical Hypothesis Testing for Decision Making Under Uncertainty
Parametric and Non-Parametric Statistical Time Series Methods for SHM
SHM Applications and Outlook

Instituto Superior Tecnico (IST) (*Prof. Afzal Suleman)*
Review of vibration-based SHM techniques, usage monitoring, damage prognosis
Active non-destructive evaluation techniques: ultrasonics, thermography, electromagnetics
Piezoelectric transducer based SHM:
Phased arrays for SHM in critical locations.
Application to Aircraft Composite Structures

University of Sheffield (*Prof. Christian Boller)*
Why SHM in Aerospace? – An Introduction and Motivation
Loads and Overloads: Significance, Characterization, Load Monitoring. Damage tolerance.
Predictive maintenance. Aircraft as an Example for Monitoring Complex Structures
State-of-the-art in damage monitoring. Gathered experience and examples.
Strategies to implement SHM. System reliability issues. SHM integration in existing aircrafts

RISOE National Laboratory (*Dr. Malcolm McGugan, Dr. Povl Bronsted*)
An Industry view of potential SHM benefits
Establishing the fundamentals of remote condition monitoring for Offshore Wind Farms
Hardware validation in-situ: Techniques in use, new hardware developments, examples
Common access tools for wind turbine data (CM data)
SHM perspectives within Offshore Wind Energy