



Erasmus+

## Key Action 1, Student Mobility Project

University of Central Lancashire (UCLan) - UK and Arab Academy for Science, Technology  
Maritime Transport (AASTMT) - Egypt & Future University - Egypt

### Undergraduate Students Mobility (3 months)

#### Target Departments

- 1) Mechanical Engineering (Mechatronics)
- 2) Electronic Engineering

- 3) Electrical Engineering
- 4) Computer Engineering

#### Information to Applicant

**Requirement:**

- Copy of the Passport
- Curriculum Vitae (European CV)
- Transcript of Records in Engineering subject (Mechanical Engineering (Mechatronics), Electrical Engineering, Electronic Engineering) or Computer science.
- Two recommendation letters from lecturers

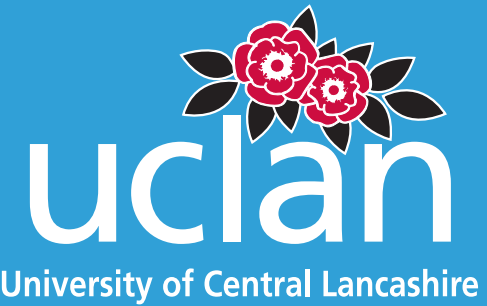
**Selection Criteria of Participants:**

- 1<sup>st</sup> and 2<sup>nd</sup> year student in Mechatronics Engineering, Mechanical Engineering, Electrical Engineering or Electronic Engineering subject, or Computer science. With GPA: 3.5 or higher during his/her engineering BSc study.
- Level of student academic performance.
- Level of activity in student's life: e.g. participation in different students' committees, education and sport competitions, volunteering etc.

**The project Offers:**

- €850 monthly allowance
- €530 contribution to travel costs
- **Duration:** 3 months
- **Available Scholarships:** 50
- **Programme Date:**  
17 JUNE - 16 September 2018

THE ENGINEERING  
INNOVATION CENTRE



ERASMUS+ ICM Project 2017-1-UK01-KA107-036314

# ENGINEERING SUMMER SCHOOL

Programme: Sensors and Instrumentation

DATE: 18 JUNE - 16 September 2018

School of Engineering, University of Central Lancashire, Preston, PR1 2HE, UK.

Summer School Programmes focus on engineering activities that allow engineering students to practice the topic area of each programme and develop their skills.

All programmes include lectures, tutorials, and an engineering challenge project.

For further information and booking enquiries:

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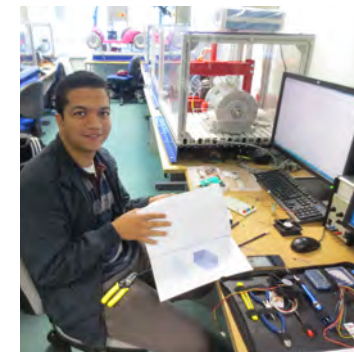
**PROGRAMME AIMS:**

This programme will provide you with a comprehensive understanding of different types of sensors, the use of advanced instrumentation, industrial instruments, data acquisition, and allow you to practice software development using several case studies in measurement systems. All attendees will be encouraged to join the Programme Competition in developing 'Mechatronics Project'.



**TOPICS COVERED:**

- Introduction to Measurement Systems
- Sensors Characteristics; Static and Dynamic
- Measurement Error; Uncertainty Analysis
- Data Acquisition, ADC's, and Introduction to Software used in Measurement systems
- Measurement of Displacement, Speed, Level, Temperature, Strain, Torque, Power, Vibration, Flow and Pressure
- Application Examples, Presentation & Communication Skills



[Key Action 1 – HIGHER EDUCATION]

**Learning Agreement for Erasmus+ mobility for studies**

Academic Year 2017-18

Engineering Summer Programme on 'Sensors and Instrumentation'

**Indicative delivery plan**

<i>Week</i>	<i>Session</i>	<i>Topic area</i>
<b>1</b>	Session 1 <b>Lab</b> <b>CM006</b>	<b>Introduction to Measurement Systems; Sensors &amp; Transducers; Instrument Errors, Instrument Calibration</b>
	Session 2 <b>Lab</b> <b>CM006</b>	<b>Sensors Static and Dynamic Characteristics; Models of Instrument Systems; Accuracy, Precision, Error in Measurement; Uncertainty Analysis</b>
	Session 3 <b>Lab</b> <b>CM006</b>	Report Writing and Presentation-Introduction to LabVIEW and Application 1
<b>2</b>	Session 4 <b>Lab</b> <b>CM006</b>	<b>Sensors Static and Dynamic Characteristics; Models of Instrument Systems; Accuracy, Precision, Error in Measurement; Uncertainty Analysis</b>
	Session 5 <b>Lab</b> <b>CM006</b>	<b>Introduction to Data acquisitions, and ADC's</b>
	Session 6 <b>Lab</b> <b>CM006</b>	Introduction to LabVIEW and Application 2
<b>3</b>	Session 7 <b>Lab</b> <b>CM006</b>	<b>Measurement of Displacement, and Speed</b>
	Session 8 <b>Lab</b> <b>CM006</b>	<b>Measurement of Liquid level</b>
	Session 9 <b>Lab</b> <b>CM006</b>	LabVIEW and Application Example 3
<b>4</b>	Session 10 <b>Lab</b> <b>CM006</b>	<b>Measurement of Temperature</b>
	Session 11 <b>Lab</b> <b>CM006</b>	Measurement of Strain; Strain Gauges
	Session 12 <b>Lab</b> <b>CM006</b>	LabVIEW and Application Example 4
<b>5</b>	Session 13 <b>Lab</b> <b>CM006</b>	<b>Measurement of Force and Torque</b>
	Session 14 <b>Lab</b> <b>CM006</b>	<b>Measurement of Power</b>
	Session 15 <b>Lab</b> <b>CM006</b>	Development of Measurement System using NI LabVIEW
<b>6</b>	Session 16	<b>Measurement of Flow</b>

	<b>Lab CM006</b>	
	Session 17 <b>Lab CM006</b>	<b>Measurement of Pressure</b>
	Session 18 <b>Lab CM006</b>	
<b>7</b>	Session 19 <b>Lab CM006</b>	Application Example 5
	Session 20 <b>Lab CM006</b>	Development of Measurement System using NI LabVIEW
	Session 21 <b>Lab CM006</b>	Development of Measurement System using NI LabVIEW
<b>8</b>	Session 22 <b>Lab CM006</b>	Development of Measurement System using NI LabVIEW
	Session 24 <b>Lab CM006</b>	Development of Measurement System using NI LabVIEW
	Session 25 <b>Lab CM006</b>	Development of Measurement System using NI LabVIEW
<b>9 - 12</b>	<b>Programme Project - Presentation - Report</b>	