

# COURSE DETAIL

## ADVANCED MATERIALS AND MANUFACTURING (LEVEL 3)

**Country**

United Kingdom - England

**Host Institution**

University College London

**Program(s)**

Summer at University College London

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mechanical Engineering

**UCEAP Course Number**

140

**UCEAP Course Suffix**

S

**UCEAP Official Title**

ADVANCED MATERIALS AND MANUFACTURING (LEVEL 3)

**UCEAP Transcript Title**

ADV MATS&MANUFACTUR

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

### **Course Description**

This course introduces students to the transformative and innovative field of advanced materials and nanomaterials, focusing on their applications in the electronics, energy, and healthcare sectors. Students are introduced to state-of-the-art material characterization techniques, such as advanced microscopy and profilometer, to analyze properties at the nanoscale. The course explores surface and particle nanoengineering, contrasting bottom-up and top-down fabrication methods, including cutting-edge advanced manufacturing techniques like 3D printing and precision machining. Highlighting successful nanotechnology applications, such as flexible electronics and energy storage devices, the module also introduces Life Cycle Assessment (LCA) to evaluate the environmental impacts of materials and manufacturing processes. Through the hands-on mini-projects, students apply knowledge to real-world challenges, gaining practical skills in sustainable material design and advanced manufacturing. This comprehensive course equips students with the expertise to innovate and address complex issues in materials science and manufacturing, sparking their curiosity and excitement for the field.

### **Language(s) of Instruction**

English

### **Host Institution Course Number**

ISSU0130

### **Host Institution Course Title**

ADVANCED MATERIALS AND MANUFACTURING (LEVEL 3)

### **Host Institution Campus**

### **Host Institution Faculty**

**Host Institution Degree**

**Host Institution Department**  
Mechanical Engineering

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