

**Dr Hussein MEDLEJ**

**MCEMA Research Laboratory - Lebanese University.**

**Photophysicals and Photochemicals Process**

**16h/2ECTS**

**04 - 11 January 2021**

**12h20 – 14h00**

**For registration send an email to:**

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## **Objectives**

*Acquisition of the theoretical bases in photochemistry and photophysic.*

*Understanding of the principles governing the reactivity of molecular excited states and the solids under irradiation.*

*Presentation of the major classes of natural and industrial photochemical processes.*

## **Content**

### **A- PHOTOCHEMISTRY**

#### **1. Introduction**

#### **2. Electronic Transition States**

- **Electronic Wave Functions**
- **Potential Energy Surface**
- **Vibrational Wave Functions**
- **Singlet and Triplet States**
- **Jablonski Diagram**
- **Adiabatic Process**

#### **3. Radiative Transitions**

- **Electromagnetic Radiation**
- **Absorption and Emission**
- **Polar Moment Transition**

#### **4. Non-Radiative Transition States**

- **Internal Conversion**
- **Electron Transfer**
- **Energy Transfer**

## **5. Solvation Effect on the Electronic transition**

## **6. Kinetic of the Excited States**

- **Stern-Volmer Equation**
- **Quantum Yield**

## **B. PHOTOPOLYMERISATION**