UNMANNED AIRCRAFT SYSTEMS
(SYSE- 821)

Credit Hrs 3.0

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1. **Pre-requisite:** UG level courses of Engineering.

2. **Course Objectives:** This course introduces the classes and types of unmanned aircraft systems. Examples of several systems and their sub-systems will be used to explain the underlying principles involved. The design requirements for aerodynamics, structure, propulsion and systems to suit particular roles will be discussed.

3. **Outcomes:**

   a. Students will be able to do integrated analysis of most recent trends and developments in the rapidly expanding Unmanned Aircraft Systems industry.
   b. Students will be able to understand how knowledge of mono-disciplinary fields like aerodynamics, electronics, economics, materials, structures, thermodynamics etc are integrated into the design, development and deployment of unmanned aircraft systems

4. **Course Contents:**

   a. The Design of UAV Systems.
      (1) Design/Selection of System.
   b. The Development of UAV Systems.
      (1) System Development & Certification.
      (2) Ground Testing.
      (3) In-flight Testing.
   c. The Deployment of UAV Systems.
      (1) Operational Trials/Deployment
      (2) Roles→Navy/Army/Air Force/Civilian/Paramilitary/Commercial
   d. Future of Unmanned Aerial Systems.
      (1) Future prospects & challenges.
      (2) Unmanned Systems continuous evolution.

5. **Text Books/Reference Material:**

   a. Reg Austin, *Unmanned Aircraft Systems-UAVS Design, Development & Deployment*, 1st ed. Wiley Aerospace Series, United Kingdom, 2010.
   b. Valavanis, K. P., *Advances in Unmanned Aerial Vehicles-State of the art and Road to autonomy*, 1st ed. Springer, United Kingdom, 2010