COMPUTER VISION

PROF. JAYANTA MUKHOPADHYAY
Department of Computer Science and Engineering
IIT Kharagpur

TYPE OF COURSE : Rerun I Elective I UG
COURSE DURATION : 12 weeks (26 Jul’21 - 15 Oct'21)
EXAM DATE : 23 Oct 2021

PRE-REQUISITES : Linear Algebra, Vector Calculus, Data Structures and Programming
INTENDED AUDIENCE : Computer Science and Engineering, Electronics Engineering, Electrical Engineering

COURSE OUTLINE :
The course will have a comprehensive coverage of theory and computation related to imaging geometry, and scene understanding. It will also provide exposure to clustering, classification and deep learning techniques applied in this area.

ABOUT INSTRUCTOR :
Prof. Jayanta Mukhopadhyay, Professor in Computer Science and Engineering, IIT Kharagpur, and engaged in teaching and research in this area for about 30 years.

COURSE PLAN :
- **Week 1**: Fundamentals of Image Processing
- **Week 2**: 2-D Projective Geometry and Homography and Properties of homography
- **Week 3**: Camera geometry
- **Week 4**: Stereo geometry
- **Week 5**: Stereo Geometry
- **Week 6**: Feature detection and description
- **Week 7**: Feature matching and model fitting
- **Week 8**: Color Processing
- **Week 9**: Range image processing
- **Week 10**: Clustering and classification
- **Week 11**: Dimensionality Reduction and Sparse Representation
- **Week 12**: Deep Neural Architecture and applications