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| **Course** | ECE 66100 – Computer Vision |
| **Type of Course** | Core course for the Computer Engineering option of the MSE program |
| **Catalog Description** | This course deals with how an autonomous or a semi-autonomous system can be endowed with visual perception. The issues discussed include: vision psychophysics, image representation, edge detection, region-based segmentation, camera modeling, stereo vision, pose calculations, object recognition, optical flows, visual tracking, color vision, and beginning concepts of computational geometry. Students are expected to implement vision algorithms through programming assignments. |
| **Credits** | 3 |
| **Contact Hours** | 3 |
| **Prerequisite Courses** | MA 35100 |
| **Corequisite Courses** | None |
| **Prerequisites by Topics** | This course will assume a reasonable knowledge of linear algebra. |
| **Textbook** | Lecture notes |
| **Course Objectives** | This course provides an introduction to the fundamental concepts and standard algorithms in image processing and computer vision. |
| **Lecture Topics** | 1. Introduction
2. Image representation
3. Edge detection
4. Hough transformation
5. Region-based segmentation
6. Camera modeling and calibration
7. Stereo vision
8. Geometrical moments
9. Visual tracking
10. Color vision
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| **Computer Usage** | Medium |
| **Laboratory Experience** | None |
| **Design Experience** | High |
| **Coordinator** | Yanfei Liu, Ph.D. |
| **Date** | 03/02/2018 |