GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

Communication Systems Engineering

Subject Name: **Computer Vision (Major Elective - IV)**

Sr. No	Course content
1.	**Computer Vision Imageing Model and Geometry:** Scene radiance and image irradiance, reflectance model of a surface, Lambertian and specular reflectance, photometric stereo.
2.	**Ill-Posedness of Vision problems:** Regularization theory
3.	Shape from shading, structured light and texture. Optical flow, structure from motion and recursive motion analysis. Stereo vision and correspondence problem.
4.	Depth analysis using real-aperture camera; depth from defocused images.
5.	**MRF Approach to Early Vision Problems:** (Shape from shading, matching, stereo and motion) image texture analysis.
6.	Introduction to image understanding. Integrated vision, sensor fusion.

Reference Books:

1. B. K. P. Horn, Robot Vision, MIT Press.
2. D. Marr, Vision, Freeman and Co., San Francisco.
3. S. Chaudhuri and A. N. Rajagopalan, Depth from Defocused images, Springer Verlag, NY 1999. Selected Papers.