Course Name	COMPUTER VISION	Course Code	COMP 562		
Credit Hours	3	Contact Hours	Theory	Lab	Total
			2	2	4
Offered as	☐ University Requirement ☐ College Requirement ☒ Program Requirement ☒ Core ☒ Elective ☐ ITEC ☒ COMP ☐ CNET				
Level	10	Prerequisite	COMP 461		

Course Description:

This course focuses on development of algorithms and techniques to analyze and interpret the visible world around us. This requires understanding of the fundamental concepts related to multi-dimensional signal processing, feature extraction, pattern analysis visual geometric modeling, stochastic optimization etc. Knowledge of these concepts is necessary in this field, to explore and contribute to research and further developments in the field of computer vision. Applications range from biometrics, medical diagnosis, document processing, mining of visual content, to surveillance, advanced rendering etc.

Upon completion, the student will be able to:

- Understand the mathematical modeling methods for low, intermediate and high level image processing tasks.
- Design new algorithms to solve recent state of the art computer vision problems.
- Perform software experiments on computer vision problems and compare their performances.
- Analyze the geometric relationships between 2D images and the 3D world.
- Build a complete system to solve a computer vision problem.

Grading						
	☒ **Exam 1**	**10%**	☒ **Exam 2**	**10%**	☒ **Assignment(s)**	**20%**
	☒ **Final**	**40%**	☒ **Lab**	**20%**	☐ **Mini Project**	

Text Book:

- Richard Szeliski, Computer Vision: Algorithms and Applications, Springer-Verlag London Limited 2011.
- Computer Vision: A Modern Approach, D. A. Forsyth, J. Ponce, Pearson Education, 2003

References:

- Richard Hartley and Andrew Zisserman, Multiple View Geometry in Computer Vision, Second Edition, Cambridge University Press, March 2004.
- K. Fukunaga; Introduction to Statistical Pattern Recognition, Second Edition, Academic Press, Morgan Kaufmann, 1990.
- R.C. Gonzalez and R.E. Woods, Digital Image Processing, Addison- Wesley, 1992.