	column vectors, operators and tensor products of Matrices. Density Operator: Density Operator of Pure & Mix state, Key Properties, Characterizing Mixed State, Practical Trace & Reduce Density Operator, Density Operator & Bloch Vector.		
5.	Quantum Measurement Theory: Distinguishing Quantum states & Measures, Projective Measurements, Measurement on Composite systems, Generalized Measurements, Positive Operator- Valued Measures.	8	
6.	Recent trends in Quantum Computing Research, Quantum Computing Applications of Genetic Programming.	6	

Text book and Reference books:

Quantum Computing without Magic by Zdzislaw Meglicki
2. Quantum Computing Explained By DAVID Mc MAHON
3. Quantum Computer Science By Marco Lanzagorta, Jeffrey Uhlmann
4. An Introduction to Quantum Computing Phillip Kaye, Raymond Laflamme, Michele Mosca.

Subject: Computer Vision	
Course Code: PEC-AIML 701B	**Semester: VII**
Duration: 36 Hrs.	**Maximum Marks: 100**
Teaching Scheme	**Examination Scheme**
Theory: 3 hrs./week	End Semester Exam: 70
Tutorial: 0	Attendance : 5
Practical:	Continuous Assessment:25
Credit: 3	
Aim:	

Sl. No.	
1.	Students will learn basic principles of image formation, image processing algorithms and different algorithms for reconstruction and recognition from single or multiple images
Objective:	
Sl. No.	
1.	To implement fundamental image processing techniques required for computer vision

2.	Understand Image formation process		
3.	Extract features form Images and do analysis of Images		
	To develop applications using computer vision techniques		
Pre-Requisite:			
Sl. No.			
1.	Programming		
2.	Mathematic course		
Contents		**Hrs./week**	
Chapter	**Name of the Topic**	**Hours**	**Marks**
01	Overview, computer imaging systems, lenses, Image formation and sensing, Image analysis, pre-processing and Binary image analysis	**3**	**10**
02	Edge detection, Edge detection performance, Hough transform,corner detection	**6**	**10**
03	Segmentation, Morphological filtering, Fourier transform	**3**	**10**
04	Feature extraction, shape, histogram, color, spectral, texture, using CVIPtools, Feature analysis, feature vectors, distance /similarity measures, data preprocessing	**9**	**10**
05	**Pattern Analysis:** Clustering: K-Means, K-Medoids, Mixture of Gaussians Classification: Discriminant Function, Supervised, Un-supervised, Semisupervised Classifiers: Bayes, KNN, ANN models; Dimensionality Reduction: PCA,LDA, ICA, and Non-parametric methods.	**9**	**20**
06	Recent trends in Activity Recognition, computational photography, Biometrics	**6**	**10**
	Sub Total:	**36**	**70**
	Internal Assessment Examination & Preparation of Semester Examination	**4**	**30**
	Total:	**40**	**100**

Assignments:
Based on the curriculum as covered by subject teacher.

List of Books Text Books:

Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the Publisher
Richard Szeliski	Computer Vision: Algorithms and Applications		
Goodfellow, Bengio,and Courville	Deep Learning		
Reference Books:			
Fisher et al	. Dictionary of ComputerVision and Image Processing		

Multi-agent Intelligent Systems
Code: PEC- AIML701D
Contacts: 3L

Name of the Course:	Multi-agent Intelligent Systems	
Course Code: **PEC-AIML701D**	Semester: VII	
Duration:6 months	Maximum Marks: 100	
Teaching Scheme		**Examination Scheme**
Theory: 3 hrs./week		Mid Semester exam: 15
Tutorial: NIL		Assignment and Quiz : 10 marks
		Attendance: 5 marks
Practical:		End Semester Exam: 70 Marks
Credit Points:	3	

Unit	Content	Hrs/Unit	Marks/Unit
1	Introduction: what is an agent?: agents and objects; agents and expert systems; agents and distributed systems; typical application areas for agent systems.	3	
2	Intelligent Agents: the design of intelligent agents - reasoning agents (eg AgentO), agents as reactive systems (eg subsumption architecture); hybrid agents (eg PRS); layered agents (eg Interrap) a contemporary (Java-based) framework for programming agents (eg the Jack language, the JAM! system).	9	