Title: Fundamentals of Machine Intelligence  
Code: IT510  
Credit: 3-0-0-3  
Offered to: MTech, Sem –I, MI specialization  

Course objective and outcome:  
Machine Intelligence concern with designing and developing of algorithms that allow machines, essentially computers, to evolve realistic or human like behavior based on the empirical data available. This course aims to discuss the building blocks of machine intelligence. The focus would be on how to develop algorithms that can automatically learn and recognize the complex pattern from the available data to make an intelligent decision which will be accepted to the users. Students are expected to learn the fundamental issues involved in designing algorithms for machine intelligence and pursue more insight towards understanding various machine learning algorithms.  

Course content with lec hrs.  
1. Introduction  
   # Lec. 2  

2. Vector valued Random variable (Multivariate Gaussian)  
   # Lec. 6  

3. Supervised and unsupervised learning  
   (i) BDR  
   (ii) KNN  
   (iii) K-Means  
   (iv) Fuzzy K-Means  
   (v) Feature Selection  
   (vi) Dimensionality Reduction  
      a. PCA, LDA, LPP  
   # Lec. 26  

4. Practical issues of Classification  
   Overfitting and underfitting  
   Missing values  
   Model Evaluation  
   # Lec. 6  

References:  

Evaluation system  
• Two mid term examination each of 1 hour duration (25% each)  
• Final Examination of 2 hours duration (40%)  
• Home assignments (10%)