Course Number	EAI 6102
Course Title	**Pattern Recognition**
Course Outline	Introduction and motivation of advanced pattern recognition Modern Classification Methods, Random fields, Pattern recognition based on multidimensional models Contextual classification, Hidden Markov models, Multi-classifier systems Advanced parameter estimation methods, Advanced Unsupervised classification, Modern methods of feature selection. Data normalization and invariants, Benchmarking. Analysis and synthesis of image information. Applications od pattern recognition in Text Processing and Healthcare.
Learning Outcome	• Mastery of advanced concepts in pattern recognition. • In-depth understanding of various advanced algorithms across different pattern recognition paradigms. • Comprehensive knowledge of advanced aspects of classification, clustering, feature selection, feature extraction, and projection techniques. • Ability to apply advanced pattern recognition algorithms to real-world projects
Assessment Method	Quiz / Assignment / ESE

Textbooks:

1. "Pattern Recognition and Machine Learning" by Christopher M. Bishop, Springer, 2006.
2. "Pattern Classification" by Richard O. Duda, Peter E. Hart, and David G. Stork, Wiley, 2001.
3. "Machine Learning: A Probabilistic Perspective" by Kevin P. Murphy, MIT Press, 2012.
4. "Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville, MIT Press, 2016.
5. "Introduction to Statistical Pattern Recognition" by Keinosuke Fukunaga, Academic Press, 1990.