

<b>COURSE TITLE</b>	<b>TE142328: Intelligent Electronic Systems</b> Credits: 3 Semester: II
<b>LEARNING OBJECTIVES</b>	To have an understanding of basic principles of components of intelligent systems, and to have a capability of designing a certain application of the intelligent electronic system.
<b>COMPETENCY</b>	<ul style="list-style-type: none"> <li>• To have an understanding of basic principles and algorithms of artificial neural network (ANN), and to have a capability of performance analysis, developing computer program in realizing an ANN based intelligent system.</li> <li>• To have an understanding of mechanisms of all subsystems in fuzzy system, and to have a capability in realizing fuzzy system for data clustering and control applications.</li> <li>• To have understanding of mechanisms of evolutionary computation, and to have a capability in realizing the evolutionary computation for optimization problems.</li> <li>• To have a capability in developing of a fusion system: ANN-fuzzy, ANN-Genetic Algorithm (GA), fuzzy-GA.</li> </ul>
<b>SUBJECTS</b>	<ul style="list-style-type: none"> <li>• Concepts of intelligent systems</li> <li>• Basic neuroscience and neuron models</li> <li>• Feedforward &amp; recurrent neural networks</li> <li>• Learning methods, competitive networks</li> <li>• Neural network applications, fuzzy system, fuzzy inference system, fuzzy clustering &amp; control, evolutionary algorithm, genetic programming, fusion of intelligent system ANN-fuzzy, ANN-GA, fuzzy-GA.</li> </ul>
<b>MAIN REFERENCES</b>	<ul style="list-style-type: none"> <li>• Fredric M Hum, Ivica Kostanic, <u>Principles of neurocomputing for science &amp; engineering</u>, McGraw-Hill Inc., 2001</li> <li>• JSR Jang, CT Tsun, E. Mizutani, <u>Neuro-fuzzy and soft computing</u>, Prentice Hall Inc., 1997.</li> <li>• NK Bose and P. Liang, <u>Neural network fundamental</u>, McGraw Hill, 1996.</li> <li>• David B Fogel, <u>Evolutionary Computation</u>, IEEE Press.</li> <li>• Hua Li, M Gupta (Eds), <u>Fuzzy logic and intelligent systems</u>, Kluwer AcPress, 1995.</li> </ul>
<b>OPTIONAL REFERENCES</b>	Selected scientific journals in intelligent systems