Semester-II, Paper-4
NEURAL & FUZZY LOGIC CONTROL

<table>
<thead>
<tr>
<th>Teaching Scheme</th>
<th>Examination Scheme</th>
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<tbody>
<tr>
<td>Lecturers: 4 Hrs / week</td>
<td>Theory: 100 marks</td>
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<tr>
<td>Practical: 2 Hrs / week</td>
<td>Term work: 25 marks</td>
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**Unit 1.** (10 Hrs, 20 Marks)

**Unit 2.** (10 Hrs, 20 Marks)

**Unit 3.** (10 Hrs, 20 Marks)
Neural network in control system, Neuro-control approaches, training algorithm evaluated training algorithms, through simulation, self tuning neuro-control scheme, self tuning PID controller, Application of neuro-control for process control

**Unit 4.** (10 Hrs, 20 Marks)
Introduction of fuzzy control, Introduction fuzzy control form an intuition perspective, mathematical of fuzzy control fuzzy sets, fuzzy relations, approximate resolving representing a set of rules, Non linear fuzzy control: The control problem, FKBC as non linear transfer element PID & duding mode type FKBC some typical application of fuzzy based control systems.

**Unit 5.** (10 Hrs, 20 Marks)
Fuzzy knowledge based controller FKBC design parameters Structure of FKBC fuzzification and Defuzzification module, rule based choice of variable and contents of rules, derivation of data based choice of membership function and scaling factors, choice of fuzzification and Defuzzification procedure. Fuzzy-Neuro and Neuro-Fuzzy Controllers.
References:

6. Neuro-fuzzy and soft computing, PHI publication

List of Experiments:
Term work shall consist of at least eight experiments based on above topics using MATLAB software.