Semester Plan
(Theory)

TCET/FRM/IP-02/09   Revision: A

Semester: VII   Course: ETRX

Subject: Artificial Intelligence (AI)   Class: BE ETRX

S.No.	Prerequisite/ Bridge course:	Duration (Week /Hrs)	Modes of Learning	Recommended Sources
1	1. Vector Algebra 2. Programming Skill like C/C++ 3. MATLAB	4 hours	Self Learning/ Revision	**Textbooks:** 1. Neural Network a – comprehensive foundation ' 2. Neuro-Fuzzy and Soft Computing: A Computational Approach to Learning and Machine Intelligence,'' by J.S.R. Jang, C.T. Sun, and E. Mizutani, Prentice Hall, 1996 3. Foundations on Neuro-Fuzzy Systems, D. Nauck, F. Klawonn, R. Kruse, Wiley, Chichester, 1997 4. Fuzzy Logic with Engineering Applications by T.J. Ross, McGraw-Hill Book Company, 1995.

Class Room Teaching

Sr. No	Module No.	Lesson No	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference	Remarks
1	Module 1	1	**SOP-Orientation Theory**	Power point presentation, Chalk & Board		M1	
2	Module 1	1	**SOP-Orientation Theory**	Black Board & Chalk, Power point presentation		M1	
3	Module 1	1	**SOP-Orientation Theory**	Black Board & Chalk, Power point presentation		M1	
4	Module 1	1	**SOP-Orientation Theory**	Power point presentation, Chalk & Board		M1	
5	Module 1	1	**Chapter 1: Fundamental Concepts of Neural Networks :-** Fundamental concepts of NN	Power point presentation, Chalk & Board		M1	
6	Module 1	1	Biological Neurons	Black Board & Chalk, Power point presentation		M1	
7	Module 1	1	Hebb NN	Black Board & Chalk, Power point presentation		M1	
8	Module 1	1	Learning rules	Black Board & Chalk, Power point presentation		M1	
9	Module 1	1	Errors in measurement, classification of errors	Black Board & Chalk, Power point presentation		M1	
10	Module 1	1	Remedies to eliminate or to minimize errors, statistical analysis of errors	Black Board & Chalk, Power point presentation		M1	

| 11 | Module | 2 | 2 | **Chapter 2: Supervised Learning Network :-** Important terms of NN | Black Board & Chalk, Power point presentation | | M2 | |

12	Module	2	2	Basics of Fuzzy logic	Black Board & Chalk, Power point presentation		M2	
13	Module	2	2	Application areas of NN	Power point presentation, Chalk & Board		M2	
14	Module	2	2	Supervised NN	Power point presentation, Chalk & Board		M2	
15	Module	2	2	Unsupervised NN	Power point presentation, Chalk & Board		M2	
16	Module	2	2	Perceptron NN	Black Board & Chalk, Power point presentation		M2	
17	Module	2	2	**Adaline**	Chalk & Board, Animation		M2	
18	Module	2	2	Madaline	Black Board & Chalk, Power point presentation		M2	
19	Module	2	2	McCulloch Pitts	Black Board & Chalk, Power point presentation		M2	
20	Module	3	3	**Chapter 3: Unsupervised Learning Network :-** Back Propagation Network	Black Board & Chalk, Power point presentation		M3	
21	Module	3	3	Function Network	Black Board & Chalk, Power point presentation		M3	
22	Module	3	3	**Genetic NN**	Chalk & Board, Animation		M3	
23	Module	3	3	Application of function NN	Black Board & Chalk		M3	
24	Module	3	3	Max Net	Black Board & Chalk,		M3	
25	Module	3	3	Mexican Hat	Black Board & Chalk, Power point presentation		M3	
26	Module	3	3	Kohonen net	Black Board & Chalk, Power point presentation		M3	
27	Module	3	3	Maps	Black Board & Chalk, Power point presentation		M3	
28	Module	4	4	**Chapter 4: Associative Networks :-** LVQ , applications	Black Board & Chalk, Power point presentation		M4	
29	Module	4	4	ART1	Chalk & Board, Animation		M4	
30	Module	4	4	ART2	Black Board & Chalk, Power point presentation		M4	

| 31 | Module | 4 | 4 | Problem solving | Black Board & Chalk, Power point presentation | | M4 | |

32	Module	4	4	Problem solving	Chalk & Board, Animation		M4	
33	Module	5	5	**Chapter 5: Fuzzy Logic :-** Pattern association	Black Board & Chalk, Power point presentation		M5	
34	Module	5	5	Autoassociative network	Black Board & Chalk, Power point presentation		M5	
35	Module	5	5	Hetero associative	Black Board & Chalk, Power point presentation		M5	
36	Module	5	5	Bidirectional Network	Black Board & Chalk, Power point presentation		M5	
37	Module	5	5	Discrete Hopfield	Black Board & Chalk, Power point presentation		M5	
38	Module	5	5	Special network	Black Board & Chalk, Power point presentation		M5	
39	Module	5	5	Boltman network	Black Board & Chalk, Power point presentation		M5	
40	Module	5	5	Brain in Box	Power point presentation, Chalk & Board		M5	
41	Module	5	5	Fuzzy sets , Crisp set	Black Board & Chalk, Power point presentation		M5	
42	Module	5	5	Operation on fuzzy sets	Black Board & Chalk, Power point presentation		M5	
43	Module	5	5	Fuzzy relations	Chalk & Board, Animation		M5	
44	Module	5	5	Fuzzy means ,membership functions	Black Board & Chalk, Power point presentation		M5	
45	Module	5	5	fuzzification	Black Board & Chalk, Power point presentation		M5	
46	Module	5	5	Defuzzification	Black Board & Chalk, Power point presentation		M5	
47	Module	5	5	Fuzzy controllers	Black Board & Chalk, Power point presentation		M5	
48	Module	5	5	Extension principles	Black Board & Chalk, Power point presentation		M5	
49	Module	5	5	Examples on fuzzy	Black Board & Chalk, Power point presentation		M5	
50	Module	5	5	Doubt solving session	Black Board & Chalk, Power point presentation		M5	
51	Module	5	5	Doubt solving session	Black Board & Chalk, Power point presentation		M5	
52	Module	5	5	Doubt solving session	Black Board & Chalk, Power point presentation		M5	
53								

Remark:	Syllabus Coverage:	Practice Session: 2	**Content Beyond Syllabus:** CAD Tool,SOI tecnologies and multigate transistor technologies CAD Tool
Course:			

No. of (lectures planned)/(lecture taken): 52/

Advanced course:			

Text Books:

1. Neural Network a – comprehensive foundation '
2. Neuro-Fuzzy and Soft Computing: A Computational Approach to Learning and Machine Intelligence,'' by J.S.R. Jang, C.T. Sun, and E. Mizutani, Prentice Hall, 1996
3. Foundations on Neuro-Fuzzy Systems, D. Nauck, F. Klawonn, R. Kruse, Wiley, Chichester, 1997
4. Fuzzy Logic with Engineering Applications by T.J. Ross, McGraw-Hill Book Company, 1995.

Digital Reference:

http://nptel.ac.in/courses/117105084/

Name & Signature of
Faculty   Signature
        of HOD
Signature of Principal
/Dean (Academics)

Date:

Date: Date:

Note:

1.   Plan date and completion date should be in compliance

2.   Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.

3.   Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.

4.   According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 55 hrs   and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.

5.   In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.

6.   Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)

 7.   Technology to be used in class room during lecture shall be written below the topic planned within the bracket.