CSE4403/6002 3.0 Introduction to Soft Computing
Tuesdays, Thursdays 10:00-11:20 – CSEB 3303
Fall Semester, 2011

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Soft Computing Course Calendar (14 September 2011 version)
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Part I – Fuzzy Sets and Fuzzy Logic
Part II – Rough Sets
Part III – Neural Networks
Part IV – Evolutionary Computing
Part V – Probabilistic Reasoning
Part VI – Applications, Intelligent Systems design, Hybrid Systems, Expert Systems
Part VII – Student Presentations

#	Date	Title	Asgn's
	Part I – Fuzzy Sets and Fuzzy Logic		
1	15 Sep 11	**Course Introduction, Fuzzy Sets & Fuzzy Logic** Course information: overview of course; logistics and administrivia, textbook and other main references, evaluation scheme, academic honesty policy, tentative course schedule; resources. Introduction to logic and representation. Introduction to fuzzy sets and fuzzy logic. Handouts: look on CSE WIKI for material under Handouts – week 1. Files: Lecture 1 notes (ppt).	**A0 out**
2	20 Sep 11	**More Fuzzy Logic Background and Applications of Fuzzy Logic** Background material on fuzzy logic; applications of fuzzy logic. Handouts: look on CSE WIKI for material under Handouts – week 1. Files: Lecture 2 notes (ppt).	**A0 due**
3	22 Sep 11	**Finish Fuzzy Logic and Begin Rough Sets** Why use Fuzzy Logic. How does it work? How is Fuzzy Logic used? Linguistic variables. Examples. Rough sets, basic concepts, decision tables, dependency of attributes, dispensable and indispensable, reducts and core. Handouts: look on CSE WIKI for material under Handouts – week 2 & 3. Files: Lecture 3 notes (ppt).	
4	27 Sep 11	**Rough Sets** Membership functions, properties of rough membership. Rough sets and fuzzy sets. Examples. Handouts: look on CSE WIKI for material under Handouts – week 2 & 3. Files: Lecture 4 notes (ppt).	

5	29 Sep 11	**Rough Sets** More Rough Sets. Various reducts and Rough Sets Applications Handouts: look on CSE WIKI for material under Handouts – week 2 & 3. Files: Lecture 5 notes (ppt).	**A1 out**
6	4 Oct 11	**Neural Networks** Neural Networks. Questions. Motivation. Application. Introduction Handouts: look on CSE WIKI for material under Handouts – week 3 & 4. Files: Lecture 6 notes (ppt).	
7	6 Oct 11	**Neural Networks** Neural Networks. Fundamentals. Framework for distributed processing. Network topologies. Training of ANN's. Notation. Perceptron. Back Propagation Handouts: look on CSE WIKI for material under Handouts – week 3 & 4. Files: Lecture 7 notes (ppt).	
	10-16 Oct	**Reading Week**	
8	18 Oct 11	**Evolutionary Computing** Evolutionary computing is soft computing. It is also: Natural computing, Optimization search, Heuristics, Local search Handouts: look on CSE WIKI for material under Handouts – week 5 & 6. Files: Lecture 8 notes (pdf).	
9	20 Oct 11	**Evolutionary Computing** Genetic Algorithms & Evolution Strategies Handouts: look on CSE WIKI for material under Handouts – week 5 & 6. Files: Lecture 9 notes (pdf).	**A1 Due**
10	25 Oct 11	**Evolutionary Computing** Evolutionary & Genetic Programming Handouts: look on CSE WIKI for material under Handouts – week 5 & 6. Files: Lecture 10 notes (pdf).	
11	27Oct 11	**Probabilistic Reasoning** Probabilistic reasoning, inference, deduction, inductive, abductive. Formal logic, probability theory Handouts: look on CSE WIKI for material under Handouts – week 6 & 7. Files: Lecture 11 notes (pdf).	
12	1 Nov 11	**Probabilistic Reasoning** Bayesian Networks Handouts: look on CSE WIKI for material under Handouts – week 6 & 7. Files: Lecture 12 notes (pdf).	**A2 out**
13	3 Nov 11	**Probabilistic Reasoning** More Bayesian Networks	

		Handouts: look on CSE WIKI for material under Handouts – week 6 & 7. Files: Lecture 13 notes (pdf).	
14	8 Nov 11	**Neural Networks** Finish Neural Networks. Recurrent networks and examples. Handouts: look on CSE WIKI for material under Handouts – week 3 & 4. Files: Lecture 14 notes (ppt). Lectures 14a-14e videos	
15	10 Nov 11	**Web Intelligence, Brain Informatics and Granular Computing** description Handouts: look on CSE WIKI for material under Handouts – week 8. Files: Lecture 15 notes (ppt).	
16	15 Nov 11	**Granular Computing** description Handouts: look on CSE WIKI for material under Handouts – week 8. Files: Lecture 16 notes (ppt).	
17	17 Nov 11	**Applications, Intelligent Systems design, Hybrid Systems** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 17 notes (ppt).	
18	22 Nov 11	**Applications, Intelligent Systems design, Hybrid Systems – A Bayesian System** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 18 notes (ppt).	
19	24 Nov 11	**Applications, Intelligent Systems design, Hybrid Systems – Cancer Tumor Detection** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 19 notes (ppt).	
20	29 Nov 11	**Applications, Intelligent Systems design, Hybrid Systems** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 20 notes (ppt).	
21	1 Dec 11	**Applications, Intelligent Systems design, Hybrid Systems** description Handouts: look on CSE WIKI for material under Handouts – week 9 & 10. Files: Lecture 21 notes (ppt). Files: Lecture 19 (ppt).	**A2 Due**
		Student Project Presentations	

22	6 Dec 11	**Student Project Presentations**	
23	12 Dec 11	**Course Projects Due**	