CENTRAL UNIVERSITY OF KERALA
केरल केन्द्रीय विश्वविद्यालय

DEPARTMENT OF COMPUTER SCIENCE

SCHOOL OF MATHEMATICAL AND PHYSICAL SCIENCES

Minutes of BOS in Computer Science Held on 09 July 2016 at 11.00 AM

Agenda: To discuss about the Syllabus, feedback of students, previous question papers, evaluation strategies

The following members were present during the meeting.

1. Dr. P. S. Hiremath, Professor, KLE Technological University
2. Dr. Rajesh R.
3. Dr. T.M. Thasleema
4. Mr. Ragesh N.K., Specialist, DSP & Multimedia, Tata Elxsi Ltd., Thiruvananthapuram
5. Mr. Fasil O.K., Software Engineer, NuCore Software Solutions

1) The BOS members have gone through the previous syllabus and current syllabus. The BOS observes the improvement in the curriculum/syllabus. The BOS members also suggested to include some industry related electives. The BOS approved the syllabus.

2) The feedback of 2014-16 batch students and 2015 admitted students were obtained. The BOS members has gone through the measures taken by the Faculty Council and approved the same.

3) The BOS members has gone through the previous question papers. The BOS members also verified (i) whether the question paper covers the entire syllabus, (ii) whether the question papers are upto the mark, (iii) whether the evaluation strategies of the answer papers are good. The BOS members were satisfied with procedures for the same.

Dr. P. S. Hiremath

Dr. Rajesh R.

Dr. T.M. Thasleema

Mr. Ragesh N.K.

Mr. Fasil O.K.

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M.Sc. COMPUTER SCIENCE

CORE COURSE					
COURSE CODE	COURSE TITLE	CONTACT HRS/WEEK			CREDITS
		LEC	LAB	TUT	
CSC5105	Computational Intelligence Systems	2	2	1	4

Lec = Lecture, Tut = Tutorial, Lab = Practical

This is a participatory, experimental and problem solving **skill development course**.

Course Objective

   The objective of the course is to provide theoretical and practical aspects of computational intelligence in representing real world problems and digitally modelling it.

By completing this course, students will obtain the following course/learning outcomes:
1. Knowledge gained:
    (i)   fundamental concepts of computational intelligence (fuzzy, neural networks and genetic algorithms)
2. Skill gained:
    (ii)   modelling and representation of real world problems using fuzzy logic and neural networks
    (iii)   optimization of real world problems using genetic algorithms.
    (iv)   Critical analyzing and logic skills in developing computationally intelligent algorithms.
3. Competency gained:
    (v)   Development of Computational Intelligence system in a variety of real world problem

Prerequisites: Nil

Grading:

Lab experiments and implementation	– 12%
Participatory based group Project	– 10%
Mini project (individual)	– 8%
Class Test/Assignment/Quiz/presentation	– 10%
Final Exam	– 60%

CSC5105 - Computational Intelligence Systems

Module 1
Introduction to computational intelligence - relevance, advantages, components and applications of computational intelligence - ability of computational intelligence to handle uncertainty, vagueness, ambiguity.

Module 2
Introduction to fuzzy logic - applications of fuzzy logic - types of membership functions, fuzzy inference system - fuzzifier - defuzzifier - inference engine - rule base, fuzzy rules - mamdani type and Takagi-Sugeno type fuzzy rules.

Module 3
Introduction to Genetic Algorithm (GA) - applications of GA - concepts of genes, chromosomes, population and its initialization - fitness function – selection, crossover, mutation, reinsertion - steps of simple genetic algorithm

Module 4
Introduction to biological neurons - Introduction to artificial neurons - types of transfer functions - architecture of feedforward neural networks - backpropagation learning algorithm - applications of neural network

Module 5
Latest literature review and case studies.

Text Books
1.   J.J. Buckley, Esfandiar Eslami, *An introduction to fuzzy logic and fuzzy sets*, Springer International edition, 2002
2.   S.N. Sivanandam, S.N. Deepa, *Introduction to genetic algorithms*, Springer, 2008
3.   S. Sivanandam, S. Sumathi, *Introduction to Neural Networks using Matlab* 6.0, The McGraw-Hill, 2005
Reference
1.   Yen & Langari, *Fuzzy Logic: Intelligence, Control, and Information*, 1/E, Prentice Hall, 1999.
2.   Timothy J. Ross, *Fuzzy logic with engineering applications*, 3rd ed, Wiley India, 2010