केरल केन्द्रीय विश्वविद्यालय
CENTRAL UNIVERSITY OF KERALA
(संसद के अधिनियम, वर्ष 2009 द्वारा स्थापित / *Established under the Act of Parliament in 2009*)

Minutes of BOS in Computer Science Held on 05/01/2019 at 11 AM

Agenda:
(i) To discuss about the Syllabus
(ii) To discuss about the feedback of students
(iii) To start Centre for Computational Intelligence
(iv) To decide about the eligibility criteria for M.Sc. Computer Science
(v) To discuss about the panel of examiners and question paper setting

The following members were present during the meeting.

1. Dr. Arunkumar Thangavelu, Professor, Dept. of Computer Science and Engineering, VIT
2. Dr. K.A. Germina, Associate Professor, Department of Mathematics
3. Dr. Rajesh R, Head, Department of Computer Science
4. Mr. Kumar V.

(i) The BOS members have gone through the previous syllabus and current syllabus proposed by FC based on brainstorming workshop on curriculum development held on 04/01/2019. The BOS observes the improvement in the new curriculum/syllabus and approves the same.

(ii) The BOS has gone through the feedback of the students of 2016-18 batch and considered the suggestions. Two exemplary students cleared the NET exam and two students got placed in TCS.

(iii) The BOS recommends for starting of a Centre for Computational Intelligence based on the recommendations from the FC. Initially, Dr. Rajesh R. will serve as the Director for the centre.

(iv) Based on the recommendation of FC, the BOS recommends to amend the eligibility conditions for M.Sc. Computer Science admission as

BCA or B.Sc (Computer Science/electronics/commuincations/IT/Bioinformatics) or B.Tech/BE (Computer Science/electronics/communications/IT/electrical/ECE) or B.Sc. in Physics/Mathematics/Statistics (with computer science as a subject or having a certificate/diploma in computer related areas) or B.Voc (computer science/IT/electronics/electrical/ECE)

(v) The BOS recommends the panel of examiners/question paper setters suggested by the FC.

The meeting ended with vote of thanks.

5th Jan 2019
Dr. Arunkumar Thangavelu

5/1/2019
Dr. K.A. Germina

Dr. Rajesh R.

Mr. Kumar V.

CENTRAL UNIVERSITY OF KERALA
DEPARTMENT OF COMPUTER SCIENCE
M.Sc. COMPUTER SCIENCE

ELECTIVES					
COURSE CODE	COURSE TITLE	CONTACT HRS/WEEK			CREDITS
		LEC	LAB	TUT	
CSC5013	Bioinformatics	2	2	1	4

Lec = Lecture, Tut = Tutorial, Lab = Practical

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

Course Objective:
The objective of the course is to provide theoretical and practical aspects of bioinformatics.

By completing this course, students will obtain the following course/learning outcomes:
1. Knowledge gained:
   (i) Theoretical concepts for developing methods and algorithms for bioinformatics
2. Skill gained:
   (ii) Critical analyzing and logic **skills in developing methods and algorithms for bioinformatics**
3. Competency gained:
   (iii) Modelling and development of bioinformatics based applications.

Prerequisites: Basic knowledge of programming

Grading:

Lab implementation	– 15%
Participatory based group Project	– 10%
Assignment/Quiz/presentation	– 5%
Class Test	– 10%
Final Exam	– 60%

CSC5013 – Bioinformatics

Module 1
Introduction to Bioinformatics and molecular biology, Biological databases, Genome viewer, Applications of Bioinformatics, Processing biological sequences with MATLAB.

Module 2
Information retrieval from biological databases: Sequence homology, protein alignments, multiple sequence alignment, alignment tools, bio linguistic methods

Module 3
Biological sequence analysis: Sequence models, subsequence pattern models, gene models.

Module 4
Phylogenetics and system biology: phylogenetic reconstruction, distance based methods, character based methods, probabilistic methods, microarrays.

Text Books:

1. *Bioinformatics: Sequence & Genome Analysis, by David W. Mount, Cold spring Harbor press, 2004.*
2. *Introduction to Bioinformatics, by T K Attwood & D J Parry-Smith Addison Wesley Longman, 1999*
3. *Fundamentals of bioinformatics and computational biology, by Gautam B. Singh, Springer, 2015*

Reference:

4. *Bioinformatics- A Beginner's Guide, Jean-Michel Claverie, Cerdric Notredame, WILEY Dreamtech India Pvt. Ltd, 2006*
5. *Bioinformatics- Basics, Algorithms and Applications, Ruchi Singh, Richa Sharma, University Press, 2010*
6. *Bioinformatics- Databases, Tools, and Algorithms, Orpita Bosu, S K Thukral, Oxford University Press, 2007*
7. *Fundamentals of Bioinformatics and Computational Biology - Methods and Exercises in MATLAB, Gautam B. Singh, Springer International Publishing Switzerland 2015*