



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:**
- To discuss about the Syllabus
 - To discuss about the feedback of students
 - To start Centre for Computational Intelligence
 - To decide about the eligibility criteria for M.Sc. Computer Science
 - To discuss about the panel of examiners and question paper setting

The following members were present during the meeting.

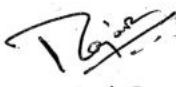
- Dr. Arunkumar Thangavelu, Professor, Dept. of Computer Science and Engineering, VIT
- Dr. K.A. Germina, Associate Professor, Department of Mathematics
- Dr. Rajesh R, Head, Department of Computer Science
- Mr. Kumar V.

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

The meeting ended with vote of thanks.


Dr. Arunkumar Thangavelu
5th Jan 2019


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


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 Atwood & 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, Cedric 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