National Conference on
DATA COMPUTING, COMMUNICATION,
SECURITY AND IOT (NCDCCSIT'18)

April 13, 2018

Organised by
Department of Computer Science and Engineering
School of Computing
DATA COMPUTING, COMMUNICATION, SECURITY AND IOT (NCDCCSIT’18)

© Department of Computer Science and Engineering
School of Computing


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School of Computing

Department of Computer Science and Engineering

Vision

- To become a Centre of Excellence in Teaching and Research in the field of Computer Science and Engineering

Mission

- To prepare the students for a prospective career in IT industry and for higher learning by imparting sound technical knowledge.

- To carry out research in cutting edge technologies in computer engineering to meet the requirement of the industry and society

Bachelor of Technology (Computer Science and Engineering)

PROGRAMME EDUCATIONAL OBJECTIVES

PEO1: TECHNICAL PROFICIENCY:
The Graduates will be technically competent to excel in IT industry and to pursue higher studies.

PEO2: PROFESSIONAL GROWTH:
The Graduates will possess the skills to design and develop economically and technically feasible computing systems using modern tools and techniques.

PEO3: MANAGEMENT SKILLS:
The Graduates will have effective communication skills, team spirit, ethical principles and the desire for lifelong learning to succeed in their professional career.
Programme outcomes

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the Engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
Editorial Board:

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About the University

Kalasalingam Academy of Research and Education (formerly Arulmigu Kalasalingam College of Engineering) was established in the year 1984 by the Kalasalingam Anandam Ammal Charities. Accredited by NAAC with "A" Grade, it offers 33 UG courses, 32 PG courses, 5 M.Phil and 17 Ph.D programs in various disciplines such as Aeronautical, Agriculture, Automobile, Biotechnology, Biomedical, Chemical, Civil, Computer Science, Electronics and Communication Engineering, Electrical and Electronics, Electronics and Instrumentation, Food Technology, Information and Communication Technology, Information Technology, Manufacturing, Mechanical, Viscom, Computer Applications, Mathematics, Physics, Chemistry, Humanities and Business Administration. Six of our departments got NBA accreditation for three and six years. This Institution is the first institution in India to offer Integrated Bachelor degree course in Engineering for the Speech and Hearing Impaired students. This institution has signed MoU with foreign universities. Research Organizations and industries with an objective of promoting Research and Development

About the Department

Department of Computer Science and Engineering was established in 1984. In 1995 it became the first department in South India, offering ME(CSE). Based on infrastructure and faculty strength, especially for Networking in "TIFAC CORE in Network Engineering", the department was recognized as Research center by Anna University in 2003 to offer MS (by Research) and Ph.D in Computer Science and Engineering. Recently the department has established, eYantra Laboratory, Cyber forensics and Research Laboratory to pursue projects and research activities.

Highly qualified and experienced faculty members with specialization in Computer Networks, Network Security, WSN, Distributed Computing, Data Analytics, Internet of Things, Data Mining, Image Processing, Software Engineering, Evolutionary Algorithms and Soft Computing and are working in the department. Courses offered by the department are B.Tech(CSE) - Accredited by NBA Under Tier-1 OBE, M.Tech (CSE, Network Engineering, Information Assurance & Security) and Ph.D.
About the Conference

The aim of this conference is to provide an outstanding opportunity for both academics and industrial communities alike to address the emerging technologies and challenges on topics relevant to today’s fast moving areas of Computer Science and Informatics. The conference will feature invited talks, poster presentation and paper presentations. The vision of (NCDCCSIT’18) is to faster communication among Researchers and Practitioners working on varied areas of Computer Science and Informatics. Prospective authors are invited to submit full and original research papers which have not been submitted / published / under consideration elsewhere. Happy reading!.
CHANCELLOR’S MESSAGE

I am extremely glad to know that the department of Computer Science and Engineering has planned to organize National Conference on “Data Computing, Communication, Security and IoT (NCDCCSIT’18)” on April 13, 2018.

The theme of the conference “Data Computing, Communication, Security and IoT (NCDCCSIT’18)” is very relevant in the current era. I exceptionally appreciate the efforts of the department in conducting this conference on this valuable title for the awareness towards the technology.

I believe that this conference will provide better opportunities for students, researchers and academicians to deliver their knowledge in this field. I am sure that this conference will benefit all the participants immensely.

I wish the conference all success.

(DR.K.SRIDHARAN)
CHANCELLOR
VICE CHANCELLOR’S MESSAGE

I am extremely glad to know that the department of Computer Science and Engineering has planned to organize National Conference on “Data Computing, Communication, Security and IoT (NCDCCSIT’18)” on April 13, 2018. I hope this conference brings together Scientists, Engineers and Practitioners working in the field of Information, Communication and IoT and related areas to present their work.

I am confident that this initiation from the department will contribute for the better development of Researchers, Faculty Members and especially for Students to exchange their ideas on the current Data world.

I am also very much hopeful that this conference will be a stepping-stone for the organizing an International Conference in forthcoming years.

I wish the conference all success.

(Dr. S. SARAVANASANKAR)
VICE CHANCELLOR
DEAN - SoC MESSAGE

I am delighted to know that the department of Computer Science and Engineering has planned to organize National Conference on “Data Computing, Communication, Security and IoT (NCIDCCSIT’18)” on April 13, 2018. I appreciate the effort taken by the committee members of the conference in organizing this national conference.

I hope this conference will be a good start for the junior researchers who present their papers in acquiring confidence on their work. I strongly urge the presenters of the conference to convert their ideas presented as projects to solve the engineering problem in the field of analytics, communication, security and IoT.

I expect and wish the department to conduct this conference as an international conference in the forthcoming year. I pray for the success of the conference.

(Dr.P.DEEPALAKSHMI)
DEAN - SoC
HOD'S MESSAGE

It is a great pleasure for me that our CSE department is conducting a national level conference on “Data Computing, Communication, Security and IoT (NCDCSIT '18). The conference is a meeting and information exchange between the end user, the development and the research communities. The purpose of this conference is to bring together researchers, experts from industry, academia, and other interested organizations to meet, exchange information and ideas in developments in the field of Computer Science and Information Technology. It brings together the newest developments in technologies; engineering solutions, and academic research results. The conference program has been designed to provide ample opportunities to researchers to network and to share ideas and information about our domain. I hope this conference NCDCSIT '18 will be enjoyable, memorable, and productive for participants and looking forward to the technological innovations that result from your networking and discussions.

I wish the conference all success

(Dr.R.RAMALAKSHMI)
HOD/CSE

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Design of an Insilico Tool for Polymerise Chain Reaction (PCR)

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Abstract: Polymerise chain reaction (PCR), a laboratory technique used to produce multiple copies of a segment of a DNA. PCR process can be achieved in three steps namely, Denaturation, Annealing and Extension/Elongation. These steps can be performed by computers very fast without even using chemicals to react. The PCR process in computers called Insilico PCR. The Insilico PCR tool is provided with many pathogenic genomes, Pathogenic refers to the organisms which can harm humans. By giving the primers of interest the tool will search the entire database and gives the list of organisms which can react with the primers given in a very less time. The result of the tool is to give the list of genomes which can be amplified by the given primers is minimal time. In finding the gene mutation, each DNA is independent of other DNA sequences. So, the tool run multiple threads in order to get the product in minimum time.

Keywords: Insilico PCR, DNA amplification, PCR, DNA primer checking.

1. INTRODUCTION

DNA

DNA sequence consists of 4 types of components. They are cytosine(C), guanine(G), adenine(A), thymine(T). Each of these components will bind with its compliment to forms a double stranded helix structure that is DNA. C binds with G, A binds with T and vice versa.

PCR

Polymerise Chain Reaction (PCR) is a very common technique used in biological and medical labs for many purposes. One of those purposes is, to find the amplified DNA. Amplification of DNA segments makes possible the detection of pathogenic virus or bacteria, and for DNA manipulation to prevent the genetic disorders. So, it is very important, in biological labs to find the amplified DNA.

2. Annealing

In Annealing process the temperature will be lowered. The primers given will bind with the DNA strands that are separated. Forward primer will bind with one strand of DNA and reverse primer will bind with the other strand of the DNA molecule.

Process involved in finding the amplified DNA in Biological labs:

Requirements:
- DNA sequence that have the target DNA to be amplified.
- Two primers(forward primer and reverse primer).
- Nucleotides
- Polymerise
- Thermal cycler (carries out temperature cycles)

Steps for PCR process in biological labs:

1. Denaturation:

   PCR reaction will be carried out in a small reaction tubes inside a thermal cycler. The thermal cycler should be maintained at the desired temperature. In this step the double strand helix shaped DNA will be beaked down into two separate strands of DNA.

   ![Figure 1: denaturation process](image)

2. Extension/Elongation

   From the target that primers had bind, polymerise will start to add the complimentary molecule to the molecule present in the DNA strand causing the replication of the DNA.