ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Shobhavan Campus, Mijar, Moodbidri - 574225

(Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE, New Delhi & Recognized by Government of Karnataka)

A Report on

Activities Under MOU at "Indian Institute of Information Technology, Allahabad" 2018-19

Indian Institute of Information Technology, Allahabad(IIITA)

Devghat, Jhalwa, Prayagraj-211015, U. P. INDIA
Phone: 91-532-2922000, Fax: 91-532-2922125, Email: contact@iiita.ac.in

Contents

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MoU) is made and executed on August 06, 2018 (Monday) at IIIT Allahabad.

BY AND BETWEEN

ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY (AIET), MOODBIDRE-MANGALURU having their Office at Shobhavana Campus, Mijar, Moodbidri, Mangaluru-574225, (Karnataka)

AND

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY (IIITA), ALLAHABD having their office at Deoghat, Jhalwa, Allahabad-211015 (U.P.).

1. **Objectives of the MOU**
   The objectives of the MOU are:

   a) To promote education and scholarly exchange; collaboration and technical interchange between the parties involved as educational partners.
   b) Utilization of Facilities and Resources on payment basis as decided by the host institute.
   c) Visits between Institutes by academic, technical staff for R&D work, where the cost will be borne by the host institute.
   d) Exchange of materials in education and research, publications and academic information on payment basis as decided by both the institutes.
   e) Facilitate and conclude the articulation of courses at or between the two Institutes on mutually agreed scheme
   f) Joint organization of conferences, seminars, short courses on Developing Coding Skills, Technical Training, invited talks on Latest research topics and Faculty development Programs, as decided by both the Institutes.
   g) Joint development and delivery of courses and programs.
   h) Faculty exchange between the parties involved, where the cost will be borne by the host Institute.
   i) Facilitating internship opportunities for students.
   j) M.Tech/Ph.D. Joint Research Program on mutual agreement
   k) Assisting in conduction of Coding and Hackathon contests at AIET.

2. **Terms and Conditions**

   a) The cost of development of infrastructure at participating establishment should be borne by participating establishment only.
   b) For continuing education to participating establishment teachers and students, the financial arrangements will be made on mutually agreed terms and conditions.
   c) For the visits related to advice and consultancy, travel and other expenses of IIITA Faculty and Staff shall be reimbursed on mutually agreed terms.
   d) The faculty members and students of participating establishment can use the library facility of IIITA for short-time free of cost.

e) Usage of IIITA academic infrastructure can be allowed for limited period subject to its availability, approval of Head of the facility/department as per Institutions norms.
f) Both institutions agree to help, identify and invite the faculty members and researchers from the other institution to participate in conferences/seminars/symposia, workshops and short-term courses.
g) This MOU may be amended, renewed and terminated by mutual written agreement of the institutions at any time.
h) Either Institution shall have the right to terminate this MOU upon 60 days prior written notice to the other Institution.

3. Confidentiality

a) The IIITA and the participating establishment agree to hold in confidence all information/data designated by the institutions as being confidential which is obtained from either institute or created during the performance of the MOU and will not disclose the same to any third party without written consent of the other institution.
b) The above confidential clause under this MOU excludes the information/data possessed by either institution before entering into this MOU or independently developed and/or information already available through public domain.

4. Duration of MOU

This MOU, unless extended by mutual written consent of the institutions, shall expire in **THREE** years after the effective date specified in the opening paragraph. However, on review, the MOU shall be extended for another ONE year by mutual consent.

5. Coordinators

Both Institutions will designate persons who will have responsibility for co-ordination and implementation of this agreement.

6. Intellectual Property Rights

The intellectual property rights (IPR) that arise as a result of joint research and collaborative activity under the agreement will be worked out on a case to case basis and will be consistent with officially laid down IPR policies of the two institutions.

7. Signed in Duplicate

This MOU is executed in duplicate with each copy being an official version and having equal legal validity. By signing below, the institutions, acting by their duly authorized officers, have caused this Memorandum of Understanding to be executed, effective as of the day and year first above written.

1) Contact: – Dattathreya S Gujjar from AIET and Mohammed Javed from IIIT Allahabad, will be the point of contact, for this program, on behalf of AIET and IIIT Allahabad respectively.

IN WITNESS WHEREOF, the Parties have executed this MOU by their duly authorized representatives on the date first set forth above.

For and on behalf of IAN:

Name: Vivek Alva
Designation: Managing Trustee, Alva's Education Foundation (AEF)

6/8/18

For and on behalf of IIIT Allahabad

Name: Shirshu Varma
Designation: Associate Professor and Registrar, IIIT Allahabad

6/8/18

Witnesses:

1.

2.

Witnesses:

1. Dr. Dattathreya

2.

6/8/18

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

Date: 10/01/2019

From,

Head of the Department

Department of Computer Science and Engineering

Alva's Institute of Engineering and Technology

Mijar

To,

The Principal

Alva's Institute of Engineering and Technology

Shobavana Campus

Mijar

Dear Sir,

Subject: Request for permission to conduct a "Internship on data Analytics & Machine Learning"

With respect to the above subject, the Department of Computer Science and Engineering is conducting a "Internship on data Analytics & Machine Learning" dated on 15th Jan 2019 to 29th Jan 2019 at AIET. So I kindly request you to provide permission and do the needful.

Yours Sincerely

HOD, CSE

H.O.D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

Date: 10/01/2019

To,

Director

IIIT Allahabad

Prayagraj, U.P

Dear Sir,

Sub: Invitation Letter for deputing resource persons for the Internship

With reference to above cited subject and continuation of telephonic conversation regarding conducting Internship on Data Analytics & Machine Learning for AIET students, I request you to depute suitable resource persons for the period 15th Jan,2019 to 29th Jan,2019. As a part of MoU activities we are conducting this program for AIET students.

Kindly accept our request and do the needful.

Thanking You

With warm regards

HoD CSE

H.O.D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

Date: 14/01/2019

CIRCULAR

Department of Computer Science & Engineering organized a Internship on Data Analytics and Machine Learning from 15th Jan to 29th Jan,2019 . This program is organized as a part of MoU activity with IIIT Allahabad. Dr. Mohammed Javed, and various speakers of IIITA, will be the Resource Person of the program. In this regard, all the registered students are informed to attend the same and interact with resource persons.

HoD/CSE.

Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

CC to:
Class Rooms
Notice Board

Activity Report - 2018-19

1. Internship on Data Analytics & Machine Learning

Dates: 15th Jan 2019 to 29th Jan 2019

A 15 days Internship Program on 'Data Analytics and Machine Learning' organized by the Department of Computer Science Engineering, Electronics and Communication Engineering and Information Science Engineering at Alva's Institute of Engineering and Technology. The internship was conducted from 15th Jan-29th Jan,2019.

The inaugural ceremony commenced on Jan 15th, 2019 at 9:00am with a formal introduction of the dignitaries in the Internet Lab, AIET. Dr. Manjunath Kotari, HOD, Department of Computer Science Engineering, AIET welcomed the gathering and Dr. Praveen J, Dean Academics, Department of Electronics and Communication Engineering introduced the resource persons Dr. Satish Kumar Singh and Dr. Mohammed Javed.

Mr. Vivek Alva, Managing Trustee AIET, Dr. Dattatreya G, Dean Research and Mr. Jayanth Kumar Rathod, HOD, Department of Information Science Engineering was also present at the inaugural function. Mr. Vivek Alva shared his experience about the visit to Indian Institute of Information

Technology - Allahabad and briefed about the applications of machine learning and big data analytics and how it has gained its popularity in the recent times.

Dr. Satish Kumar Singh delivered his address by stating that machine learning and Artificial Intelligence concepts have been in existence since the 1960's but has only recently gained popularity due to advancements in computing and hardware technologies.

Dr. Mohammed Javed, an alumini of Alva's College shared his experience he had at Alva's as a student and also expressed his gratitude to Dr. Mohan Alva, the Chairman of Alva's Education Foundation. He expressed his views on Big Data Analytics concluding the inaugural session.

Dr. Satish Kumar Singh started session for the day with explaining how images were formed, the types of images and briefed on digital images and biometrics. Dr. Mohd Javed briefed on Data Analytics and diff types of tools used in big data. He assisted the students with installing different tools used in the technology.

On Jan 16th, 2019, Dr. Satish Kumar Singh briefed on Analysis of the biometrics, biometric images and Gaussian curve analysis. Post lunch, Hands on session on Anaconda Navigator tool and Jyupter tools and their working were explained to the students.

On Jan 17th, Dr. Mohammed Javed explained Image processing with algorithms like CNN, followed by classifications of image processing. Post lunch, Hands on session using anaconda navigator and Examples on pre processing of images were done for the students.

On Jan 18th, Dr. Mohammed Javed started the session with explaining how Image Processing works in 2D and 3D. This was followed with hand on Image processing USING MATLAB). Brief understanding on Image segmentation, restoration were discussed before concluding for the day.

On Jan19th, the session started with discussion on edge detection, mathematical morphology. Followed by this, students were grouped and projects on object detection were done.

On Jan 21st, Prof. Shekhar Verma explained concepts on Deep Learning. He guided students with hands on session on TensorFlow. Post lunch, Dr. Krishna Pratap Singh took up hands on session for Training and Testing of Image procession and PytorchPackage installation. He explained the algorithm on – back propagation. He gave a project for the students on classification of gender using 100 image data set.

ON Jan 22nd, Prof. Shekhar Verma started with explaining the Concepts of Supervised learning and unsupervised learning. Dr. Krishna Pratap Singh helped the students understand the Concepts of Reinforced learning and semi supervised learning.

On Jan 23rd, Prof. Shekhar Verma explained machine learning- its classification, linear classification via hyper planes, support vector machine algorithms for the forenoon session. Afternoon the session were on feature extraction and model selection – explanation on cross validation.

On Jan 24th, The research scholars Mr. Abhishek, Mr. Upendra, Mr. Rakesh assisted the Hands on session on Matlab programs like programs to generate any random number , find dist between two data points) and also explained K nearest neighbor algorithm.

On Jan 25th, Research scholars Mr. Abhishek, Mr. Upendra, Mr. Rakesh explained Linear regression, classifications and also explained perceptron algorithm. Post lunch Prof. Verma explained Deep learning, its basics and then explained concepts of vanishing gradient.

On Jan 26th, post republic day celebrations the session started at 10:00am where in the research scholars engaged with the students on explaining convolution neural network-CNN and support vector machine – SVM. The session went on till lunch break.

On Jan 28th, the students were grouped and were asked to do projects and submit the report on the same by end of the day. The research scholars were available for the students to correspond to any doubts and providing suggestions to student groups when required.

On Jan 29th, the project group students were asked to give presentations on their work done in the project. The session had panel members comprising of research scholars who would suggest any kind of improvise and modifications in the project if required. Post lunch the valedictory function commenced.

The valedictory function of the 15 day Student Internship Program on 'Data Analytics, Machine Learning and Deep Learning' commenced with the welcome speech by Dr. Manjunath Kotari, HOD, Department of CSE. This was followed by the report of the 15 day internship which was read by Prof. Deepak Raj, Assistant Professor, Department of ECE. The chief guest of the

function Dr. Shekhar Verma, Professor, IIIT Allahabad addressed the gathering. He started with a word of gratitude and expressed his heartfelt thanks to AIET for the kind hospitality rendered to his team during their stay at AIET. He also mentioned that this internship was the first step of the MOU signed with IIIT Allahabad and that AIET was a great place for the internship. He stressed the fact that the students had taken the internship seriously and had gained a strong foundation in Machine learning. This internship had instilled in the students glimpses of theory of Data Analytics and Machine Learning and the students have to take it forward in order to evolve with the latest trends. He concluded saying “Practice without theory is useless”.

Principal of AIET, Dr. Peter Fernandes shared a few words to the students. He appreciated the 66 students for sacrificing their vacation and attending the internship. He also acknowledged and appreciated the efforts taken by the resource persons who had come all the way from Allahabad to conduct the internship and take the various sessions. He also stated that Machine Learning or any course cannot be learned in 15 days and had to be a continuous process. He highlighted the fact that 99% of learning is self learning and in order to get the actual outcome of this internship, the students must carry the learning forward in their project work and other research activities. He also asked the students to spread the knowledge gained

through this internship to their friends who had not attended the internship. He thanked Dr. P Nagabhushan, Director of IIIT, Allahabad, Dr. Satish Kumar Singh, Dr. Mohammed Javed, Dr. Shekhar Verma, Dr. Krishan Pratap Singh and the research scholars. He concluded saying "Develop an attitude to learn to do wonderful things in life."

Few students shared their feedback on the internship session. The resource persons were felicitated by the Principal of AIET, Dr. Peter Fernandes. Certificates were given to the organizer, faculty and student participants by Dr. Shekhar Verma. Dr. Praveen J, Dean Academics concluded with valedictory function by proposing the vote of thanks.

The following topics have been covered by resource persons daywise is as follows.

Date	**Resource Person**	**Topics Covered**
15/01/2019	Dr. Satish Kumar Singh	What is and image?, How images are formed? Digital images and biometrics
	Dr. Mohammed Javed	Data Analytics, Different type of tools for big data, An assignment to analyse and install different tools
16/01/2019	Dr. Satish Kumar Singh	Analysis of the biometric and biometric images, Gaussian curve analysis
	Research Scholars	Hands on session on Anaconda Navigator tool and Jyupter tools and their working
17/01/2019	Dr. Mohammed Javed	Image processing and its applications, image segmentation, filtering and others concepts
	Research Scholars	Hands on session on the numpy using Anaconda Navigator
18/01/2019	Dr. Mohammed Javed	MAT lab and image processing an Hands on session
	Research Scholars	Students done the Mini projects on the problems stated by Dr. Mohammed Javed to the various groups
19/01/2019	Research Scholars	MAT lab and image processing concepts with hands on session for segmentation, restoration, and etc.
	Research Scholars	MAT lab and image processing concepts with hands on session for,

		edge detection, object detection and etc.
21/01/2018	Prof. Shekhar Verma	Deep Learning Concepts, TensorFlowand TensorFlow library
	Dr. Krishna Pratap Singh	Training and Testing of Image procession and PytorchPackage installation and edge detections
22/01/2019	Prof. Shekhar Verma	Concepts of Supervised learning, unsupervised learning
	Dr. Krishna Pratap Singh	Concepts of Reinforced learning and semi supervised learning
23/01/2019	Prof. Shekhar Verma	Semi-supervised learning(SSL), Markov Decision Processes (MDP) Policy Future Return, Discounted Future Return , Deep Q-Network (DQN)
	Dr. Krishna Pratap Singh	Self-Training, Generative Models, S3VMs, Graph-Based Algorithms, Multi-view Algorithms
24/01/2019	Prof. Shekhar Verma	Random number generations, finding the distance programs and its executions
	Dr. Krishna Pratap Singh	K-Near and finite array , Graphical representation of KNN
25/01/2019	Prof. Shekhar Verma	Regression, Classification, Clustering, Under-fitting and OverfittingOptimization
27/01/2019	Dr. Krishna Pratap Singh	Linear Regression for Machine Learning, ReRegularizationgression Model Representation, Gradient Descent,

Registered Faculty list from AIET

1	PROF. HEMANTH KUMAR N P
2	PROF. TAHIR N H B
3	PROF. VIVEK SHARMA S
4	PROF. MERLYN MELITA
5	PROF. VANYASHREE
6	PROF. MAHENDRA H N

Registered Student list

SL NO	USN	NAME
1.	4AL14CS081	SHONE K SUNNY
2.	4AL15CS001	ACHARYA RAKSTHA KESHAV
3.	4AL15CS018	BANGERA YATHISH GOVINDA
4.	4AL15CS047	KAJARE TEJAS TUKARAM
5.	4AL15CS053	LALITH KUMAR MISHRA J
6.	4AL15CS057	MISHRA HIMANSHU UDAYNARAYAN
7.	4AL15CS067	POOJARY TUSHAR VITTAL
8.	4AL15CS110	SHARATH D S
9.	4AL15CS114	SHETTY AISHWARYA SADANAND
10.	4AL16CS003	ADARSHA N
11.	4AL16CS013	ANIX JUGAL D'CUNHA
12.	4AL16CS014	ANUSHA
13.	4AL16CS017	AKSHATHA S
14.	4AL16CS021	BHUMIKA H V
15.	4AL16CS026	DEEKSHA D POOJARY
16.	4AL16CS031	DERIL QUADRAS
17.	4AL16CS035	GAUTHAM PRABHU
18.	4AL16CS041	JAYANTH S V
19.	4AL16CS044	KARTHIK M R
20.	4AL16CS063	POOJA RAJEEV
21.	4AL16CS064	POOJASHREE T
22.	4AL16CS065	POOJASHREE
23.	4AL16CS066	PRAGATHI H D
24.	4AL16CS067	PRAJNA
25.	4AL16CS070	PRATHIKSHA
26.	4AL16CS072	RAKESH M KOTIAN
27.	4AL16CS075	RAKSHITH UMESH RAI
28.	4AL16CS076	RAVI K R
29.	4AL16CS083	SANGEETHA N A
30.	4AL16CS087	SHAIMA ABDUL KADER
31.	4AL16CS089	SHASHANK V RAO
32.	4AL16CS100	SHRUTHI K KAMATH
33.	4AL16CS101	SHWETHA
34.	4AL16CS103	SOUMYA MALLASARJA

35.	4AL16CS104	SOURABH RAJEEV KAKADE
36.	4AL16CS106	SUJAY
37.	4AL16CS118	VARSHITHA V MAKAM
38.	4AL16CS121	VLEENA MASCARENHAS
39.	4AL16CS123	SHETTY SONALI SANJEEVA
40.	4AL16EC001	AKSHATHA S PATIL
41.	4AL16EC003	ANJU THOMAS
42.	4AL16EC004	ANKITHA C C
43.	4AL16EC005	ANUPAMA J S
44.	4AL16EC016	CHAITANYA A
45.	4AL16EC020	DEEPAK R
46.	4AL16EC021	DHANALAKSHMI G
47.	4AL16EC022	GAGANA M R
48.	4AL16EC024	JALAJA G S
49.	4AL16EC053	RAJESHWARI SAVAKAR
50.	4AL16EC060	ROHINI HALLOLI
51.	4AL16EC064	SANGEETHA S V
52.	4AL16EC071	SHILPA N
53.	4AL16IS005	ANKITHA P
54.	4AL16IS012	DARSHAN P B
55.	4AL16IS013	DHEERAJ SHETTY
56.	4AL16IS018	HEGDE AKSHAY RAGHURAM
57.	4AL16IS021	K S VEDA
58.	4AL16IS042	RAKESH M R
59.	4AL16IS046	SAILEELA R
60.	4AL16IS048	SANJANA SHEKHAR SHETTY
61.	4AL16IS050	SHETTY ASHIKA CHANDRASHEKAR
62.	4AL16IS052	SHREESHA B
63.	4AL16IS053	SUSHANTH S
64.	4AL16IS054	TANAZ JAMAL SHAIKH
65.	4AL17IS400	ACHARYA SAINATH BALAKRISHNA

HOD CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Shobhavan Campus, Mijar, Moodbidri - 574225
(Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE, New Delhi & Recognized by Government of Karnataka)

ALVA'S
Education Foundation®

A Report on

Activities Under MOU at "Indian Institute of Information Technology, Allahabad"

2019-20

IIIT
ALLAHABAD
प्रज्ञानम् ब्रह्म

Indian Institute of Information Technology, Allahabad(IIITA)

Devghat, Jhalwa, Prayagraj-211015, U. P. INDIA
Phone: 91-532-2922000, Fax: 91-532-2922125, Email: contact@iiita.ac.in

Contents

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

Date: 15/07/2019

From,

Head of the Department
Department of Computer Science and Engineering
Alva's Institute of Engineering and Technology
Mijar

To,

The Principal
Alva's Institute of Engineering and Technology
Shobavana Campus
Mijar

Dear Sir,

Subject: Request for permission to conduct a "Technical Talk"

With respect to the above subject, the Department of Computer Science and Engineering is conducting a "Technical Talk" on Algorithms & Image Processing, to be held on 18th July,2019. Dr.Mohammed Javed , IIITA will be the resource person. So, I kindly request you to provide permission and do the needful.

Yours Sincerely

HOD, CSE

Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar. MOODBIDRI - 574 225, D.K.

ALVA'S
Education Foundation®

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Date:15/07/2019

To,

Dr.Mohammed Javed ,

IIIT, Allahabad

Dear Sir,

Sub: Invitation for a talk on "Algorithms & Image Processing"

With reference to above cited subject and as a part of MoU activity, Dept. of Computer Science and Engineering is organized a Technical Talk on "Algorithms & Image Processing" on 18th July 2019 at AIET, in Engineering Seminar Hall. We are glad to cordially invite you to the above mentioned talk as a Resource Person.

Kindly accept our request as a guest speaker for the above talk.

Thanking You

With warm regards

HoD CSE

H.O.D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

ALVA'S
Education Foundation

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

CIRCULAR dated 16th July,2019

Department of Computer Science & Engineering organized a Technical Talk on "Algorithms & Image Processing" on 18th July 2019 at AIET, in Engineering Seminar Hall. This talk is organized as a part of MoU activity with IIIT Allahabad. Dr. Mohammed Javed will be the Resource Person of the technical talk. In this regard, final year CSE students are hereby informed to attend the same.

H. O. D.
HoD CSE
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

CC to:

Class Rooms

Notice Board

Activity Report - 2019-20

TECHNICAL TALK on Algorithms and Image Processing

Algorithms and Image Processing Applications: Dr. Mohammed Javed, Assistant Professor, IIIT, Allahabad was a resource person for the first session on 18th July, 2019. He was addresses about the various Engineer traits and Algorithms with live examples. He also addressed about the research perspective of Image Processing Applications.

Initially Dr. Javed explained about the 10 characteristics of engineers that includes Team Player, Continuous Learning, Creativity, Problem Solving, Analytical Ability, Communication Skills, Logical Thinking, Mathematical Ability ,Attention to Detail and Leadership.

He also explained about the purposes of Image processing and its applications like:

- Visualization - Observe the objects that are not visible.
- Image sharpening and restoration - To create a better image.
- Image retrieval - Seek for the image of interest.
- Measurement of pattern – Measures various objects in an image.
- Image Recognition – Distinguish the objects in an image.

HOD CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Participants List of Technical Talk on "Algorithms & Image Processing"

Sl.No	USN	Name of the Student
1.	4AL16CS061	Pallavi IrannaSutar
2.	4AL16CS062	Pavan Kamath
3.	4AL16CS064	Poojashree T
4.	4AL16CS065	Poojashree
5.	4AL16CS066	Pragathi H D
6.	4AL16CS067	Prajna
7.	4AL16CS068	Prasanna
8.	4AL16CS069	Prashanth S
9.	4AL16CS070	Prathiksha
10.	4AL16CS071	Raghavendra S
11.	4AL16CS072	Rakesh M Kotian
12.	4AL16CS074	Rakshithgowda N
13.	4AL16CS075	RakshithUmeshRai
14.	4AL16CS076	Ravi K R
15.	4AL16CS077	Ravish B C
16.	4AL16CS079	S K Rahul
17.	4AL16CS080	Suhas Prasad Shetty
18.	4AL16CS081	Safnaaz
19.	4AL16CS082	SamrinBanu
20.	4AL16CS083	Sangeetha N A
21.	4AL16CS084	Sannidhi P
22.	4AL16CS085	Sarang V K
23.	4AL16CS086	Sathwik R Gutti
24.	4AL16CS087	Shaima Abdul Kader
25.	4AL16CS088	Shamanth M R

26.	4AL16CS089	Shashank V Rao
27.	4AL16CS090	ShashikantChavan
28.	4AL16CS091	Sheetal
29.	4AL16CS092	Shetty Akshata
30.	4AL16CS093	Shetty Rasik
31.	4AL16CS094	Shetty Sanath
32.	4AL16CS095	Shetty SheeriDinakar
33.	4AL16CS096	Shetty Suprikasha
34.	4AL16CS097	Shetty Veekshith
35.	4AL16CS099	Shriraksha
36.	4AL16CS100	Shruthi K Kamath
37.	4AL16CS101	Shwetha
38.	4AL16CS102	Sinchana S Kamath
39.	4AL16CS103	SoumyaMallasarja
40.	4AL16CS104	Sourabh Rajeev K
41.	4AL16CS105	Srushti
42.	4AL16CS106	Sujay
43.	4AL16CS107	SumanaRehman
44.	4AL16CS109	Suraj S Kashyap
45.	4AL16CS110	SushmithaShet
46.	4AL16CS111	Swathi V A
47.	4AL16CS112	Syed RabeyaAamir
48.	4AL16CS115	Vaibhavi
49.	4AL16CS116	Varada S
50.	4AL16CS117	Varsha H Shetty
51.	4AL16CS118	Varshitha V Makam
52.	4AL16CS119	VenkataChandrashekhar

53.	4AL16CS120	Vinutha
54.	4AL16CS121	VleenaMascarenha
55.	4AL16CS123	Shetty Sonali
56.	4AL16CS124	VIGNESHASHETTY
57.	4AL16CS125	Manoj L.
58.	4AL16CS126	ParikshithAdiga B
59.	4AL16CS127	AfrahSaleem
60.	4AL16CS128	ROHAN K R
61.	4AL16CS129	Jyothi Lakshmi C S
62.	4AL16CS130	Rahul J
63.	4AL16CS131	Manish B. Shriyan
64.	4AL16CS132	Javahar S. Goutam
65.	4AL16CS400	Chandan B
66.	4AL17CS401	Gouramma
67.	4AL17CS402	Shraddha
68.	4AL14CS001	Aishwarya Hosmani
69.	4AL14CS081	Shone K Sunny
70.	4AL15CS006	Ajinraj K P
71.	4AL15CS008	Anand R
72.	4AL15CS031	Dhanush V U
73.	4AL15CS041	Hemanth T
74.	4AL15CS044	Jeevith R
75.	4AL15CS058	Md. AfnanAman
76.	4AL15CS082	Sai Charan R
77.	4AL15CS103	Vandana E V
78.	4AL15CS111	Safeeq B
79.	4AL16CS001	Abdulla Zahied

80.	4AL16CS002	Acharya Vishwas
81.	4AL16CS003	Adarsha N
82.	4AL16CS004	Ainab
83.	4AL16CS005	Aishwarya J
84.	4AL16CS006	Akash Kumar S
85.	4AL16CS007	Akshatha S
86.	4AL16CS008	Albin Francis
87.	4AL16CS009	AmeenAhamed
88.	4AL16CS010	Amogha U
89.	4AL16CS011	AnaghaIyengar S
90.	4AL16CS012	Anitha Lakshmi T N
91.	4AL16CS013	AnixJugalD'Cunha
92.	4AL16CS014	Anusha
93.	4AL16CS016	AnvitaKeni
94.	4AL16CS017	Apoorva U
95.	4AL16CS018	ArunaKumari V
96.	4AL16CS019	Ashwith Pinto
97.	4AL16CS020	Banish M G
98.	4AL16CS021	Bhumika
99.	4AL16CS022	Bhuvana S
100.	4AL16CS023	Brindashree B V
101.	4AL16CS024	ChaitanyaTejas
102.	4AL16CS025	Charanraj N
103.	4AL16CS026	Deeksha D Poojary
104.	4AL16CS027	Deekshith T R
105.	4AL16CS028	Deena Muthappa B
106.	4AL16CS029	Deepa

107.	4AL16CS030	Deepika K V
108.	4AL16CS031	DerilQuadras
109.	4AL16CS032	Dhanush Shetty
110.	4AL16CS033	Divya C H
111.	4AL16CS034	DivyashreeNaik
112.	4AL16CS035	GauthamPrabhu
113.	4AL16CS036	Hanishree M S
114.	4AL16CS038	Harshitha M
115.	4AL16CS039	Huda Sultana
116.	4AL16CS040	Imran Khan
117.	4AL16CS041	Jayanth S V
118.	4AL16CS042	Jobin Benny
119.	4AL16CS043	K Manasa
120.	4AL16CS044	Karthik M R

HoD CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Shobhavan Campus, Mijar, Moodbidri - 574225
(Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE, New Delhi & Recognized by Government of Karnataka)

ALVA'S
Education Foundation®

A Report on

Activities Under MOU at "Indian Institute of Information Technology, Allahabad"

2020-21

IIIT
ALLAHABAD
प्रज्ञानम् ब्रह्म

Indian Institute of Information Technology, Allahabad(IIITA)

Devghat, Jhalwa, Prayagraj-211015, U. P. INDIA
Phone: 91-532-2922000, Fax: 91-532-2922125, Email: contact@iiita.ac.in

Contents

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

Date: 25/09/2020

From,

Head of the Department
Department of Computer Science and Engineering
Alva's Institute of Engineering and Technology
Mijar

To,

The Principal
Alva's Institute of Engineering and Technology
Shobavana Campus
Mijar

Dear Sir,

Subject: Request for permission to conduct a "Online FDP with IIITA"

With respect to the above subject, the Department of Computer Science and Engineering is conducting a "Online FDP on How to improve the quality in Teaching Learning Process" dated on 2nd & 3rd Oct,2020 for AIET faculty members. So, I kindly request you to provide permission and do the needful.

Yours Sincerely
HOD, CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

ALVA'S
Education Foundation®

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Date:25/09/2020

To,

Director,

IIIT, Allahabad

Dear Sir,

Sub: Invitation for deputing resource persons for a Online FDP

With reference to above cited subject and as a part of MoU activity, Dept. of Computer Science and Engineering is organized a Online FDP on "**How to Improve the Quality in Teaching Learning Process** " on 2nd & 3rd October,2020. We request you to depute suitable resource persons for the above said Online FDP. All the AIET faculty members will be a target audience.

Kindly accept our request and do the needful.

Thanking You

With warm regards

HoD CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

ALVA'S
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Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Date: 27/09/2020

CIRCULAR

Department of Computer Science & Engineering organized Online FDP on "**How to Improve the Quality in Teaching Learning Process** " on 2nd & 3rd October,2020. This online FDP is organized as a part of MoU activity with IIIT Allahabad. Prof.(Dr.).P Nagabhushan, Director, IIITA will be the Chief Guest & Key note Speaker, Dr. Mohammed Javed, Dr.Syed Zhakir Ali, and Dr.Vrijecndra Singh will be the Resource Person of the online FDP. I request all the faculty members to participate online and interact with resource persons.

HoD CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

CC to:

All HoDs, Deans,

Principal Office

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Shobhavana Campus, Mijar – 574225, Moodbidri.
Dakshina Kannada Karnataka, India.
(Affiliated to VTU, Belagavi , Accredited by NBA, New Delhi)

A Report on Faculty Development Program

on

"How to improve quality in Teaching Learning Process"

In association with

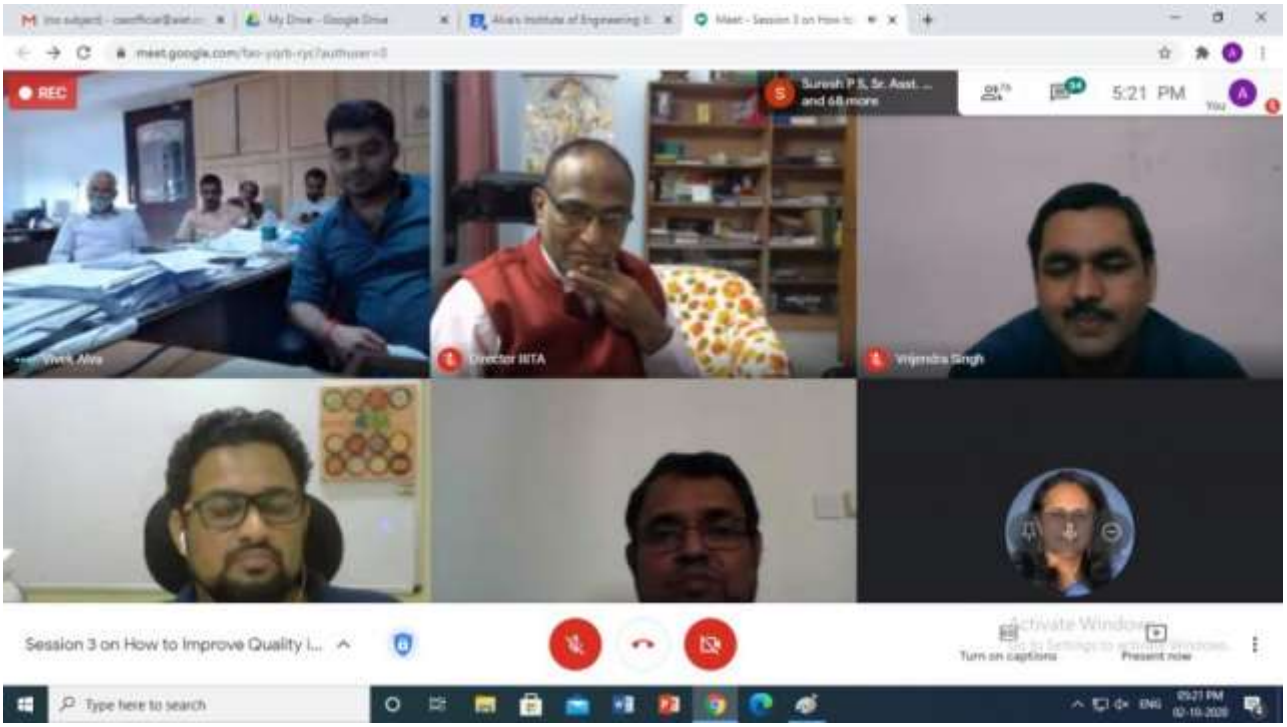
INDIAN INSTITUTE OF INFORMATION TECHNOLOGY – ALLAHABAD

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

2020

How to improve quality in Teaching Learning Process

Department of Computer Science and Engineering in Association with IIIT Allahabad had organized a 2 days online FDP on “How to Improve Quality in Teaching Learning Process” on 02nd October 2020 and 3rd October 2020for **all AIET internal faculties of various departments**. The workshop was inaugurated by Mr. Vivek Alva, Managing Trustee, Alva’s Institute of Engineering and Technology, Dr. P Nagabhushan, Director, IIIT, Allahabad and Dr.Peter Fernandes, Principal , AIET, Moodbidri. For the inaugural session all the HODs of various departments, all staff members and Resource persons were present.



First session was by Dr. P Nagabhushan, Director, IIIT, Allahabad. He address the gathering by his motivational talk and explained about some thoughts for better teaching learning process under affiliated constraints. He suggested that teacher should always give equal importance to all the topics while teaching. Teacher should be clear about the topic which he/she is going to teach in the particular class. And must make student understand where this topic will be used and why this topic is needed to be learnt. How experience in

learning is most important factor in teaching learning process. He concluded the session by saying that lecturer hour should be minimized and tutorial hour (students learning on their own process) must be maximized by giving more practical sessions.

Second session was by Dr. Syed Zakir Ali, Middle East College, Oman, Muscat. He explained about Continuous Assessment –Some Experience to Improve Quality in Teaching Learning Process. He also explained about Preamble to assessments in affiliated Engineering Colleges, Challenges and problems associated with such assessments, What happens in the Continuous Assessment, how it will happened and What learning process will help in Continuous Assessment, Concept of Knowledge obtained from learning and how to store and apply the knowledge in further stages for learning. He concluded the session by explaining how teachers need to proactive in building up the career of their students.

Third session was by Dr. Mohammed Javed, IIIT, Allahabad. He explained about Teaching-Learning-Assessment Best Practices in CS/ IT, A case Study with two related Courses- Computer Programming and Design and Analysis of Algorithms. He also explained How to motivate the students for doing the projects and also programming assessment. He also suggested that it's a good practice one should follow to submit the assignment in the IEEE format i.e the professional report. He concluded the session by giving awareness about what is a problem and what are the steps to be taken in order to solve that problem in terms of computer science.

Fourth and final session was by Dr. Vrijendra Singh, Associate Professor, IIIT Allahabad. He explained about Paradigms for Augmenting Quality in Teaching, Learning and Assessment Process, Quality can be achieved by Adopting best practices for quality assurances, Feedback mechanism for Quality control, Academic pillars like Curriculum design, Content delivery and Learning material, Continuous assessment and Academic freedom to choose the course in which students are interested. He took an example of Neural network concept and related the Augmenting Quality in TLP. Dr. Vrijendra

Singh concluded the session by explaining about factors influencing quality teaching.

All the sessions were concluded by Queries and answers. A feedback session was conducted at the end of the online FDP, were most of the participants expressed their opinions in a positive way. Finally a 2 days FDP was concluded by giving Vote of thanks to all the Resources persons and participants.

HOD CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Two days faculty development program on
"How to Improve the Quality in Teaching Learning Process"

Date :2nd and 3 rd October 2020

Participants List

Sl. No		Name	Designation
1.	CHEM	DR.BASAVARAJU B	PROFESSOR
2.		DR.RAVI KUMAR C	ASST. PROFESSOR &HOD
3.		MR.RAJKUMAR BHAT D	ASSO. PROFESSOR
4.		DR.PAVITHRA G.P	ASST. PROFESSOR
5.		DR.MOHAN REDDY R	ASST. PROFESSOR
6.		MRS. SAKSHI S KAMATH	ASST. PROFESSOR
1.	MATHS	DR. PRAMEELA KOLAKE	ASSOCIATE PROFESSOR & HOD
2.		DR. PRASHANTHI K S	SR.ASST. PROFESSOR
3.		MRS. KAVITHA B	ASST. PROFESSOR
4.		MRS. RASHMI R	ASST. PROFESSOR
5.		MRS. NISHA KUMARI	ASST. PROFESSOR
6.		MS. SOWMYA	ASST. PROFESSOR
1.	PHY	DR RAMAPRASAD A T	ASSOCIATE PROFESSOR & HOD
2.		MR RAJESH KUMAR P	ASSOCIATE PROFESSOR
3.		DR SHASHIKUMAR K	ASSOCIATE PROFESSOR
4.		DR.JAYARAMA A	PROFESSOR
1.	CV	DR. H AJITH HEBBAR	ASSOCIATE PROFESSOR & HOD
2.		DR.H G UMESHCHANDRA	ASSOCIATE PROFESSOR
3.		MR.B DURGAPRASAD BALIGA	SR.ASSOCIATE PROFESSOR
4.		MR. ARUN KUMAR G S	SR.ASSISTANTPROFESSOR

5.		MR B E GURURAJA	ASSISTANT PROFESSOR
6.		MRS.VEENA D SAVANTH	ASSISTANT PROFESSOR
7.		MR.SURENDRA P	ASSISTANT PROFESSOR
8.		MR.SHANKARGIRI K S	ASSISTANT PROFESSOR
9.		MR.RAMESH RAO B	ASSISTANT PROFESSOR
10.		MR.SANTHOSH K	ASSISTANT PROFESSOR
11.		MR SANDEEPKUMAR D S	ASSISTANT PROFESSOR
12.		MS ANUSHA B RAO	ASSISTANT PROFESSOR
13.		MS TANVI RAI A	ASSISTANT PROFESSOR
14.		MS KAVYASHREE ARADHYA	ASSISTANT PROFESSOR
15.		MR ASHISH SHETTY	ASSISTANT PROFESSOR
16.		MR BILLIGRAHAM M KURIAN	ASSISTANT PROFESSOR
17.		MR. VARADARAJA K S	ASSISTANT PROFESSOR
18.		MS KAVYASHREE S	ASSISTANT PROFESSOR
1.	**CSE**	DR. MANJUNATH KOTARI	PROFESSORAND HOD
2.		DR. MOHIDEEN BADHUSHA S.	PROFESSOR
3.		MR. VENKATESH	ASSOCIATE PROFESSOR
4.		MR. VASUDEV S SHAHAPUR	ASSOCIATE PROFESSOR
5.		MR. HARISH KUNDER	ASSISTANT PROFESSOR
6.		MR. SAYEESH	ASSISTANT PROFESSOR
7.		MR. MADHUSUDAN	ASSISTANT PROFESSOR
8.		MR. HEMANTH KUMAR N P	ASSISTANT PROFESSOR

9.		MRS. VIDYA	ASSISTANT PROFESSOR
10.		MR. KONANKI SURENDRA	ASSISTANT PROFESSOR
11.		MRS. DEEKSHA M	ASSISTANT PROFESSOR
12.		MS. SHRUTHI SHETTY J	ASSISTANT PROFESSOR
13.		MRS. MERLYN MELITA	ASSISTANT PROFESSOR
14.		MRS.VEENA M	ASSISTANT PROFESSOR
15.		MR. PARTHA SARATHI PATI	ASSISTANT PROFESSOR
16.		MS. ANKITHA SHETTY	ASSISTANT PROFESSOR
17.		MS. MEGHA D HEGDE	ASSISTANT PROFESSOR
18.		MS. SHILPA	ASSISTANT PROFESSOR
19.		MRS. REENA LOBO	ASSISTANT PROFESSOR
20.		MR. ABDUL KHADER	ASSISTANT PROFESSOR
21.		MS. PRANITHA	ASSISTANT PROFESSOR
1.	**ECE**	DR. D V MANJUNATHA	HOD AND PROFESSOR
2.		DR. DATTATHREYA	PROFESSOR AND DEAN PLANNING
3.		DR. RICHARD PINTO	PROFESSORAND DEAN RESEARCH
4.		DR. MRINMOY MISHRA	ASSOCIATE PROFESSOR
5.		MR. SUDHAKARA H.M	ASSOCIATE PROFESSOR
6.		MR. PARVEEZ SHARIFF B. G	ASSOCIATE PROFESSOR
7.		MRS. VIJETHA. T. S	ASSISTANT PROFESSOR
8.		MR. SANTHOSHA. S	ASSISTANT PROFESSOR

9.		MR. YUVARAJU. T	ASSISTANT PROFESSOR
10.		MR. ANEESH JAIN M V	ASSISTANT PROFESSOR
11.		MRS. KUMARI SHRUTHI	ASSISTANT PROFESSOR
12.		MR. DEEPAK RAJ	ASSISTANT PROFESSOR
13.		MR. SUSHANTH ANIL LOBO	ASSISTANT PROFESSOR
14.		MRS. NISHMA	ASSISTANT PROFESSOR
15.		MR. SACHIN. K	ASSISTANT PROFESSOR
16.		MRS. BHARGAVI K V	ASSISTANT PROFESSOR
17.		MR. SREESANKAR	ASSISTANT PROFESSOR
18.		MRS. DIANA D SOUZA	ASSISTANT PROFESSOR
1.	**ISE**	DR. KIRAN MALAGI	PROFESSOR
2.		MR. SUDHEER SHETTY	ASSOCIATE PROFESSOR &H O D
3.		MR. JAYANTKUMAR RATHOD	ASSOCIATE PROFESSOR
4.		MR. MANJUNATH H R	ASSISTANT P ROFESSOR
5.		MR. NAGESH U B	ASSISTANT P ROFESSOR
6.		MR. SHARAN LIONAL PAIS	ASSISTANT P ROFESSOR
7.		MRS. JAISHMA KUMARI B	ASSISTANT P ROFESSOR
8.		MR. PRADEEP NAYAK	ASSISTANT P ROFESSOR
1.		DR. PETER FERNANDES	PRINCIPAL & PROFESSOR
2.		PROF. K V SURESH	PROFESSOR
3.		DR. SATYANARAYAN	PROFESSOR & HOD
4.		DR. MANOJ KUMAR A P	ASSOCIATE PROFESSOR

5.	ME	MR. VEERENDRA KUMAR	ASSOCIATE PROFESSOR
6.		MR. SHARATHCHANDRA PRABHU	ASSOCIATE PROFESSOR
7.		MR. YOGISH S. RAO	ASSISTANT PROFESSOR
8.		MR. GURUSHANTH B. VAGGAR	ASSISTANT PROFESSOR
9.		MR. HEMANTH SUVARNA	ASSISTANT PROFESSOR
10.		MR. SURESH P S	ASSISTANT PROFESSOR
11.		MR. SADASHIV BELLUBBI	ASSISTANT PROFESSOR
12.		MR. KIRAN C H	ASSISTANT PROFESSOR
13.		MR. PRAMOD BADYANKAL	ASSISTANT PROFESSOR
14.		MR. M R GANESH	ASSISTANT PROFESSOR
15.		MR. GOPAL KRISHNA U B	ASSISTANT PROFESSOR
16.		MR. KUMAR SWAMY M C	ASSISTANT PROFESSOR
17.		MR. DEEPAK KOTHARI	ASSISTANT PROFESSOR
18.		MR. SRINIVASA C S	ASSISTANT PROFESSOR
19.		MR. PRAMOD KUMAR N	ASSISTANT PROFESSOR
20.		MR. PRAVEEN K C	ASSISTANT PROFESSOR
21.		MR. ABHIJITH S	ASSISTANT PROFESSOR
22.		MR. SUDHEER P N	ASSISTANT PROFESSOR
1.	MBA	DR. CLARET MENDONCA	HOD & PROFESSOR
2.		DR. VISHNU PRASANNA K N	PROFESSOR
3.		DR. NAGENDRA SANOOR	SR. ASST. PROFESSOR
4.		DR. KAMALAKKANAN A	ASST. PROFESSOR
5.		MR. JOHNSON FERNANDES	ASST. PROFESSOR
6.		PRIYA JYOTHI SEQUEIRA	ASST. PROFESSOR
7.		GURUPRASAD PAI	ASST. PROFESSOR

8.		NEERAJ SUDHAKAR RAI	ASST. PROFESSOR
9.		AVINASH	ASST. PROFESSOR
10.		PRAKHYATH SHETTY	ASST. PROFESSOR
11.		AKASH DEEP PAI	ASST. PROFESSOR
12.		ARUN DSOUZA	ASST. PROFESSOR
13.		NIKHIL ALVA	ASST. PROFESSOR

HoD CSE

H. O. D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

Date: 16/10/2020

From,

Head of the Department
Department of Computer Science and Engineering
Alva's Institute of Engineering and Technology
Mijar

To,

The Principal
Alva's Institute of Engineering and Technology
Shobavana Campus
Mijar

Dear Sir,

Subject: Request for permission to conduct a "Alva's Technothon-2020"

With respect to the above subject, the Department of Computer Science and Engineering is conducting a "Alva's Technothon-2020" dated on 23rd October 2020 to 12th November 2020 at AIET. So, I kindly request you to provide permission and do the needful.

Yours Sincerely

HOD, CSE

Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

PRINCIPAL
Alva's Institute of Engg. & Technology,
Mijar, MOODBIDRI - 574 225, D.K

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Date:16/10/2020

To,

Director,

IIIT, Allahabad

Dear Sir,

Sub: Invitation for deputing resource persons for Alva's Technothon-2020

With reference to above cited subject and as a part of MoU activity, Dept. of Computer Science and Engineering is organized a 21 days Alva's Technothon-2020 for the AIET students from 23rd Oct,2020 to 12th Nov,2020 in online mode. We request you to depute suitable resource persons for the 21 days Alva's Technothon -2020.

Kindly accept our request and do the needful.

Thanking You

With warm regards

HoD CSE

H.O.D.
Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

Alva's Institute of Engineering & Technology

Shobhavana Campus, Mijar, Moodbidri, D.K – 574225

Phone: 08258-262725, Fax: 08258-262726

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Date: 20/10/2020

CIRCULAR

Department of Computer Science & Engineering organized Online "Alva's Technothon-2020" from 23rd October,2020 to 12th Nov,2020. This online program is organized as a part of MoU activity with IIIT Allahabad. Prof.(Dr.).P Nagabhushan, Director, IIITA will be the Chief Guest & Key note Speaker, Dr. Mohammed Javed, and various speakers of IIITA, IIIT Sricity, Mangalore University, University of Mysore will be the Resource Person of the online Alva's Technothon-2020. In this regard, all the students in the campus are informed to attend the same and interact with resource persons.

HoD CSE

Dept. Of Computer Science & Engineering
Alva's Institute of Engg. & Technology
Mijar, MOODBIDRI - 574 225

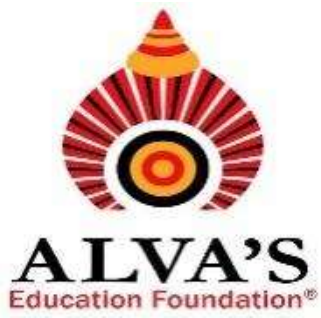
CC to:

Class Rooms,

Principal Office

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Shobhavana Campus, Mijar – 574225, Moodbidri.
Dakshina Kannada Karnataka, India.
(Affiliated to VTU, Belagavi , Accredited by NBA, New Delhi)



A Report on 3-Weeks

ALVA'S TECHNOTHON-2020

in association with

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY – ALLAHABAD

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

2020

OBJECTIVES OF ALVA'S TECHNOTHON-2020

Problem Solving Skills need to be developed in Engineering students to get a thorough knowledge about particular subject. Alva's Technothon-2020 is the one platform for the students should develop their presentation and problem solving skills.

The Objective of this program is to

1. Inculcate best practices of premier organizations
2. Improve Problem Solving Skills
3. Improve presentation Skills of various subjects
4. Solve Industry related problems
5. Use of modern tools & techniques in various subjects

DAY- 01

Inaugural Function of Alva's TECHNOTHON-2020

Alva's Institute of Engineering & Technology (AIET), Moodbidri, has organized a 21 Days Alva's TECHNOTON-2020 - An initiative to educate the students of AIET in the Latest trends in Computer Science and Engineering. The formal Inauguration of 3 weeks "Alva's TECHNOTHON-2020" in association with IIIT Allahabad was held on 23rd October @4.30 PM to 5.00 PM. Dr. P.Nagabhushan, Director, IIITA was the chief guest of the program.

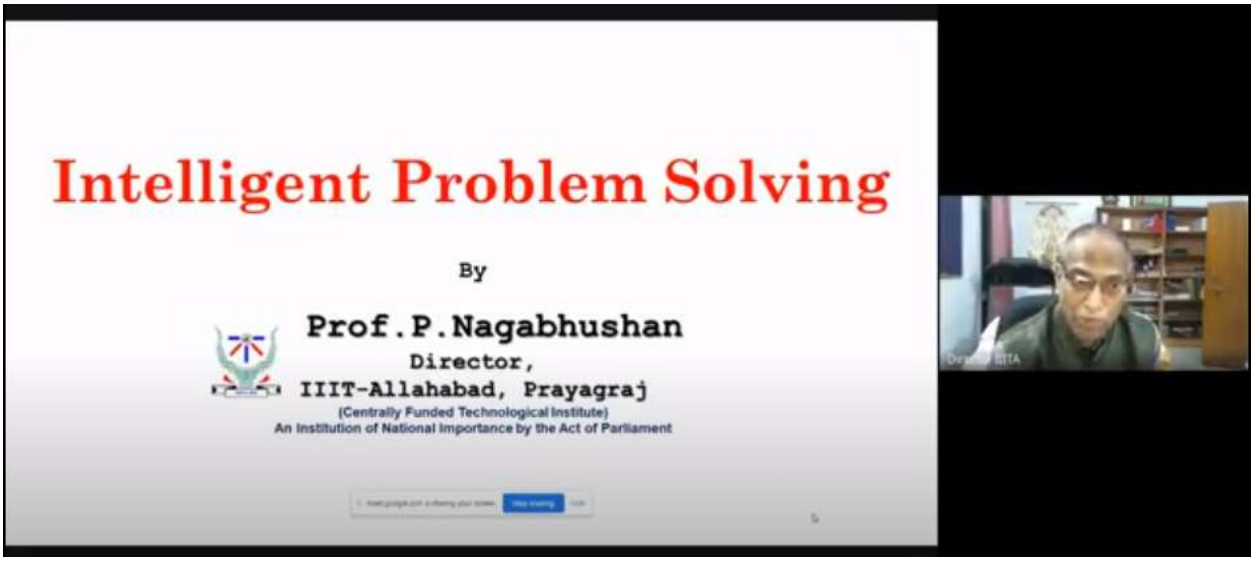
In his key note address of the inaugural function, Dr. P. Nagabhushan, spoke about the requirements that enhance the current education system. The present systems of selecting the students for HEIs are purely based on an entrance test. Students prepare for the exams from previous year questions and get a rank and also the ranking with 2 Lakh also!. The questions in the entrance exam will be from what a student has learnt in his previous years. On the evidence of students' past we check the ability student in his future, which is partially correct. But examinations should focus more on Aptitude skills and test on prior knowledge of the student in the area in which he wants to build his career. To summarize his views, "The HEIs should not be

the training institution rather they have to build the overall personality of an individual".

Dr. Mohammed Javed, SPoC-IIITA-AIET, Mr. Vivek Alva, Managing Trustee of AEF, Dr. Peter Fernandes, Principal-AIET, Dr.Manjunath Kotari, HOD –CSE, Prof. Jathkumar Rathod, HOD –ISE, All the resource persons(21 days Alva's TECHNOTHON), Faculty & Students of CSE/ISE department were present during the inaugural function.

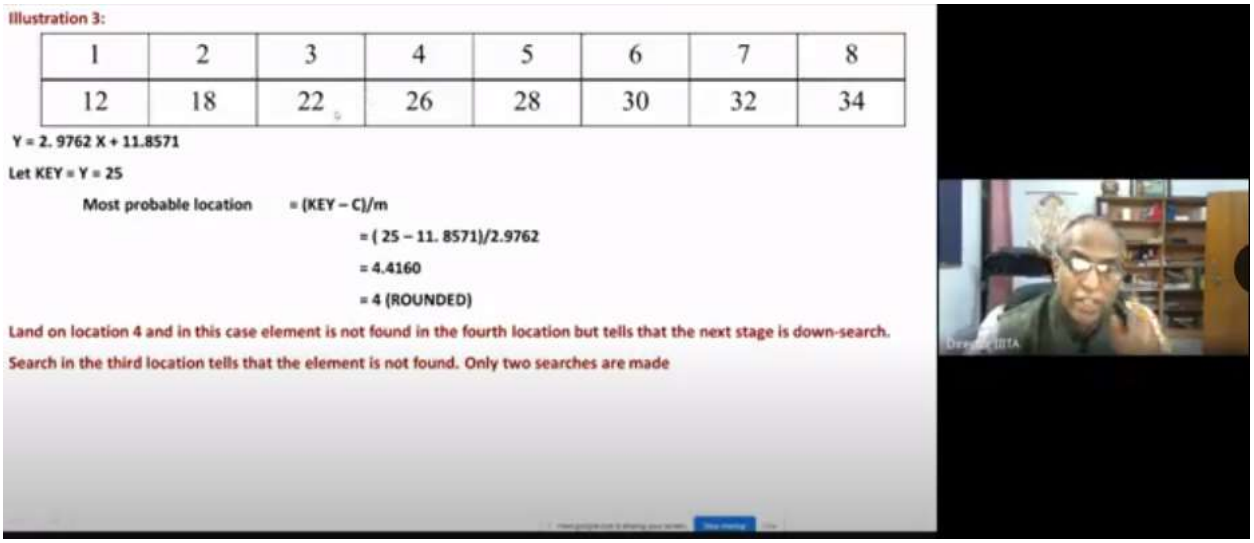
Problem Solving with Intelligent Algorithms

After the inauguration Dr. P. Nagabhushan addressed students on efficient human learning in making make machine learn. Human problem solving involves search. Therefore, to simulate human problem solving in a computer we need to develop algorithms for search.



Dr. P. Nagubhushan, Director, IIIT, Allahabad, a personage in Computer Science and Engineering, threw light on the topic - "Problem solving with Intelligent Algorithms" to the final year students of Computer Science and Engineering and Information Science and Engineering on 23-10-2020.

The concept of computation, as well as the related concepts algorithm, computability, and computational complexity, correspond to a specific mode of using computers to solve problems. This computational mode assumes the sufficiency of knowledge and resources with respect to the problem to be solved. From the view point of Artificial Intelligence, an intelligent mode of problem solving was introduced, where the problem solving process cannot be seen as computation anymore.



Usually, an algorithm is defined on a problem class, which has more than one concrete instance. Each time the algorithm is applied on a problem instance. A problem (class) is computable if there is an algorithm that generates correct result in finite steps for each instance of the class. In that case, the algorithm is referred to as the solution of the problem. The amount of time or space used by an algorithm is called the (time or space) complexity of the algorithm, and is represented as a function of the "size" of the problem instance. Using a computer to solve a problem usually follows a certain procedure:

1. To define the problem by accurately specifying the valid inputs, and for each of them, specifying the required output.
2. To design an algorithm that correctly generates output for each valid input.
3. To analyze the complexity of the algorithm, and to select the most efficient one if there are multiple algorithms for the problem.
4. To code the algorithm in a programming language, and to save the executable code in a computer system.

If the algorithm is correct and the program is efficient enough, the problem is considered as solved — for each instance of the problem, the program will produce an answer using constant time and space.

With this theoretical Background, It was decided to give the assignments to the students. General instructions were given which included:

a. For each problem, you are supposed to do the best, average and worst-case analysis.

b. The proposed algorithm must be clearly explained and neatly written.

c. Try to show and compare the experimental results with the help of tables and suitable graphs.

The assignments that students had to attempt were coined around the concepts like

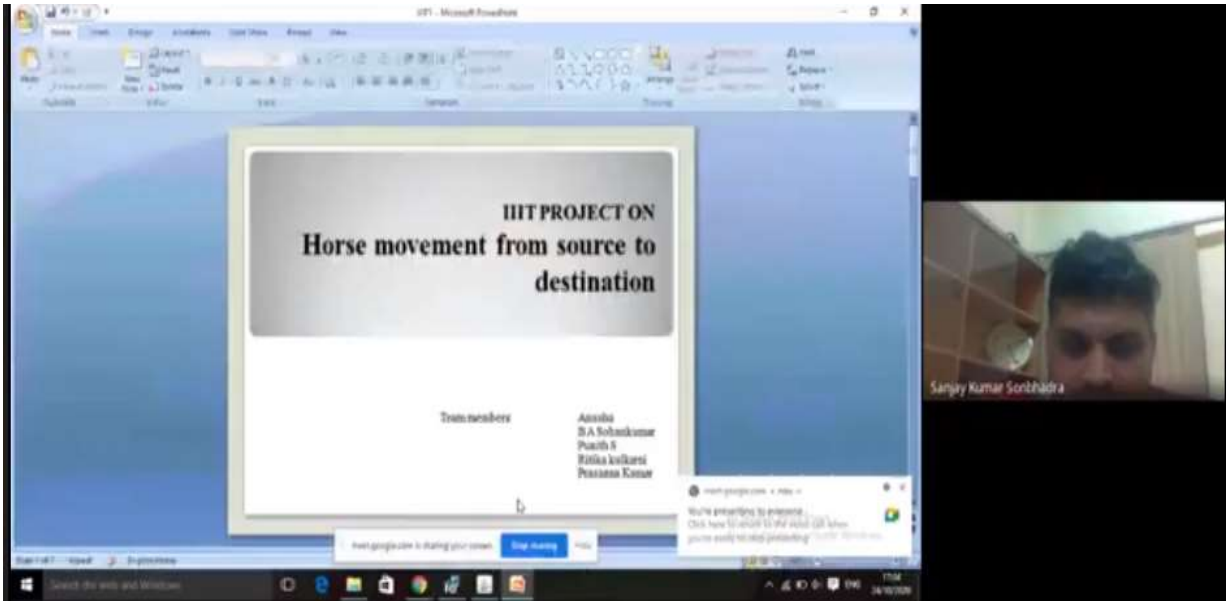
- Multiply two complex numbers without using multiplication operator,
- Divide two complex numbers without using division or mod operator.
- Design and implement a faster search algorithm using regression analysis,
- Sort a sequence and arrange, chessboard composition problem,
- Travelling Sales person problem etc…

Mr. Sanjay Kumar Sonbadhra, Research Scholar, IIIT Allahabad distributed the 8 problems to 21 groups of AIET students on 23rd Oct,2020.

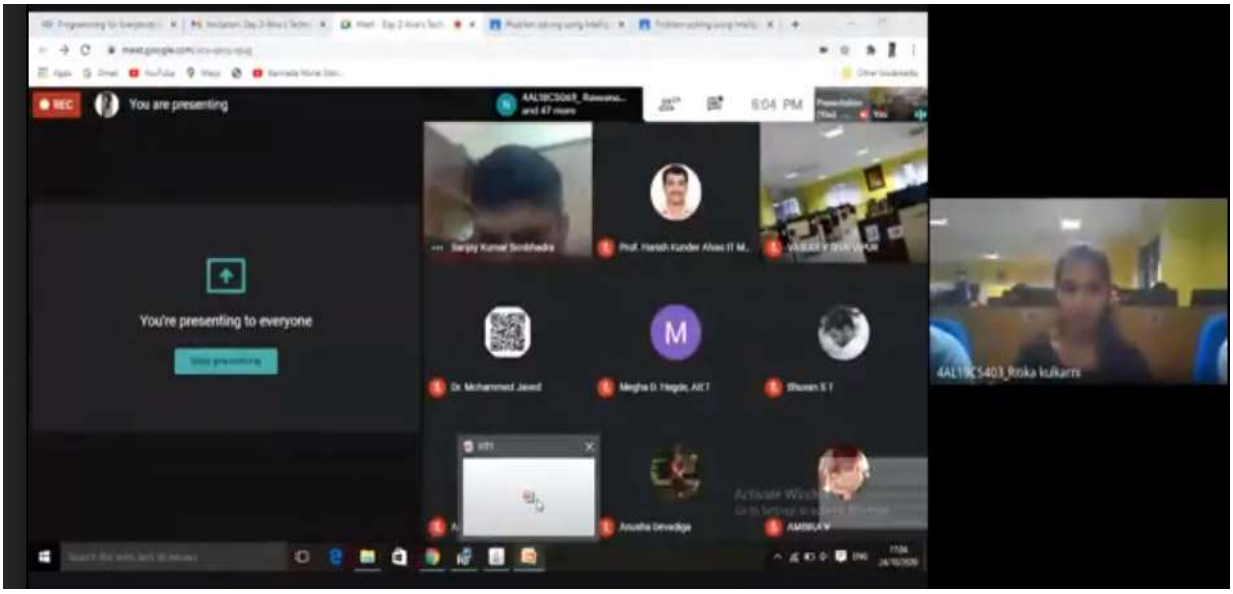
DAY- 02

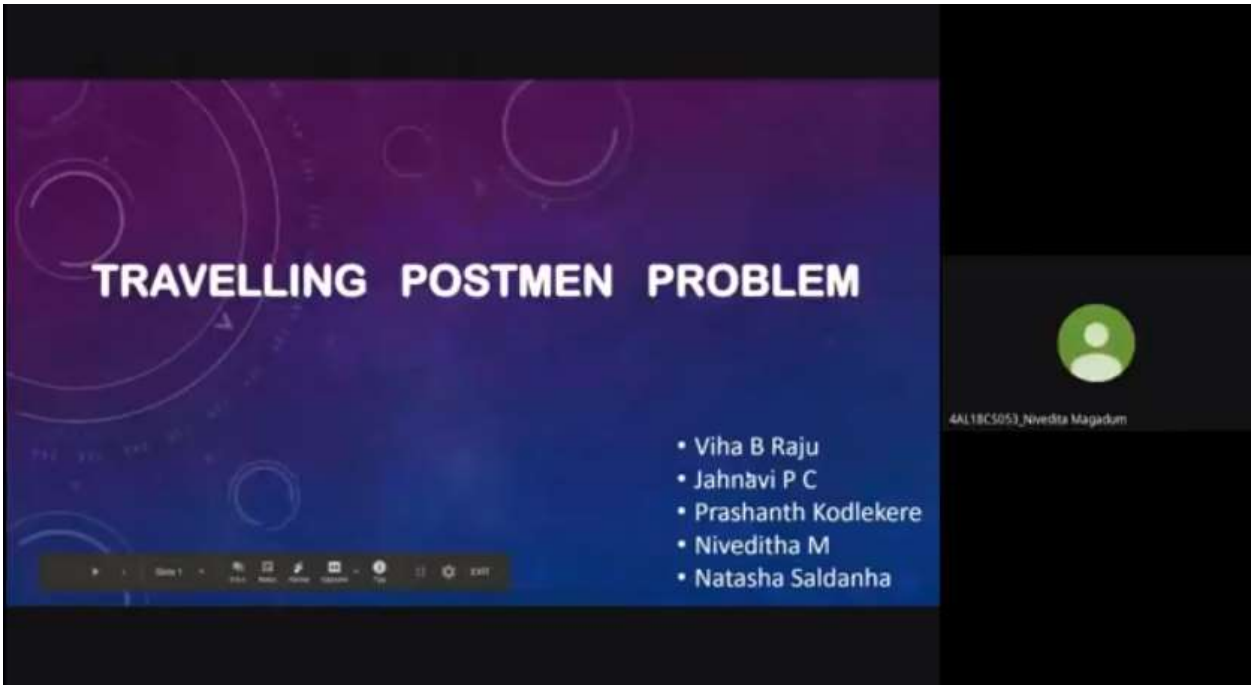
Presentation Session by AIET Students

On day 02 of the Alva's Techothon-2020, the students presented the solutions of the assignments given on Day-01. Mr. Sanjay Kumar Sonbhadra was the incharge of the session and listened to all presentations patiently and clarified the doubts and suggested corrections in the presentation.



All the 21 teams presented their solutions on Day-02. All the students were very much enthusiastic as it was an innovative and new approach of teaching and learning from AIET in association with eminent personalities from IIIT, Allahabad.





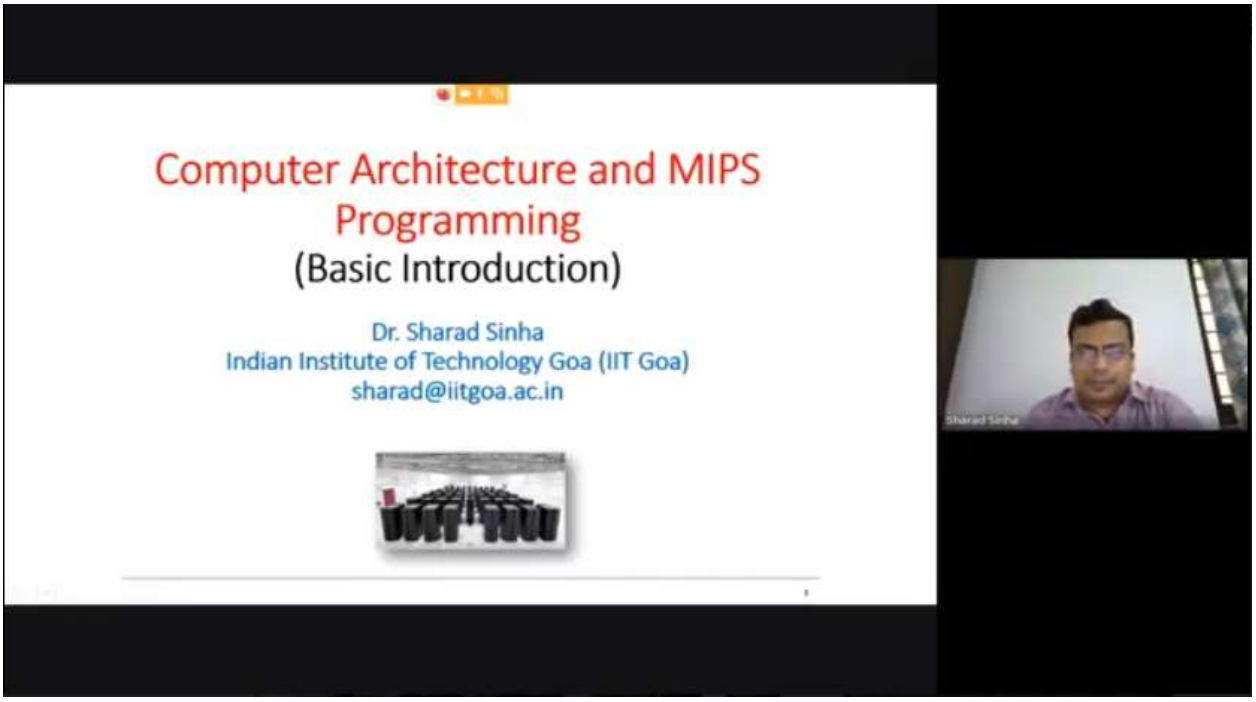
On Day 03 all students incorporated the suggestions, feedbacks given by Mr.Sanjay on day 02, and submitted the presentations. Mr. Sanjay evaluated all problems and awarded the marks teamwise.

DAY- 03

Computer Architecture and Programming

On day-03 of Alva's Technothon-2020, Dr. Sharad Sinha, Indian Institute of Technology, Goa started a lecture on "Computer Architecture & Programming". In the first session, Overview of Computer Architecture and some MIPS assembly programs were discussed. He explained about the single processor performance and multiple processor performance and how semiconductor industry related to processor has evolved, there is phenomenal growth from 1985 to 2010 in terms of speed and size of the processors

Computer architecture, Microprocessor without interlocked pipeline stages(MIPS) a widely used architecture, processor register specification, instruction encoding and how instructions are executed, single cycle datapath, multi cycle data path and pipeline data path were discussed.



In second session Dr. Sharad Sinha explained the difference between RISC and CISC machines and about arm processors which are widely used for smartphones, MIPS registers usage, MIPS data path, interlocked pipelines, classification of instructions based on instruction format i,e R-type, i-type and j-type with few addressing modes. Discussed some MIPS assembly programs, challenges in instruction pipelining realization, data dependencies like RAW dependencies, WAR dependencies and so on and executed a sample program using qtspim simulator

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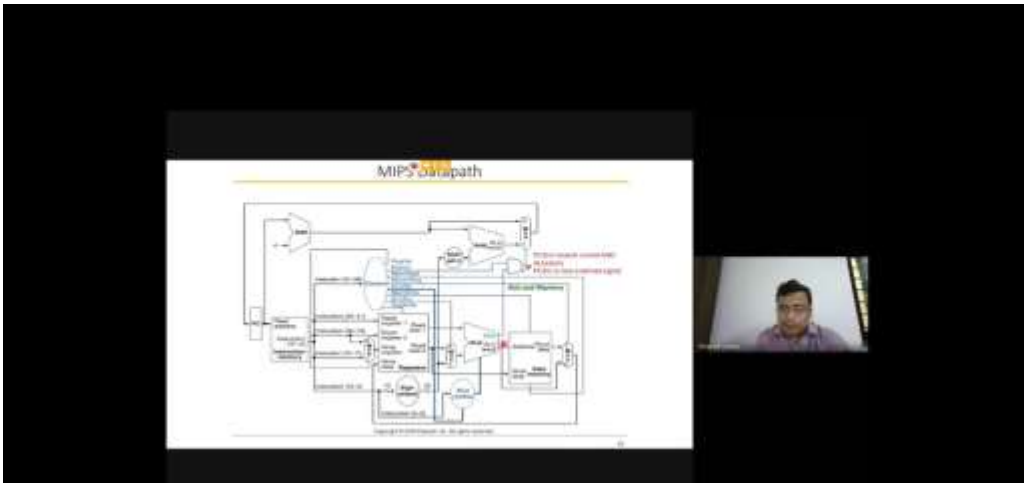


The entire session was very effective and interactive to the students and staff. Around 105 students of CSE and ISE and about 35 faculty members attended the session. After the session assignment questions was given to 21 teams just to understand how students have understood all the topics which was covered in the session.

DAY- 04

Presentation Session by AIET Students

On Day 04, the following Part-A & Part-B assignment questions solutions were presented by students to the evaluator Ms. Pavitra Bhade, Research Scholar,IIT Goa.

PART A

The following is a list of programming questions in the language "C". Students should add the necessary header files, where needed, in order to run the code.

1) Consider the following code snippets and answer the questions (*Hint: you may have use some function and struct from time.h header file.)*

a)
```
void copyij (int src[2048][2048], int dst[2048][2048])
{
int i, j;
for (i = 0; i < 2048; i++)
for (j = 0; j < 2048; j++)
dst[i][j] = src[i][j];
}
```

b)
```
void copyji (int src[2048][2048], int dst[2048][2048])
{
int i, j;
for (j = 0; j < 2048; j++)
for (i = 0; i < 2048; i++)
dst[i][j] = src[i][j];
}
```

i) Would both these programs need the same execution time?
ii) If not, why? By how much?
ii) Run the two programs and find the execution times.

2) Consider the following code, what is the output of the printf? Explain the result.

```
int main(){
int x = 0x15213F10 >> 4;
char y = (char) x;
unsigned char z = (unsigned char) x;
```

```
printf ("%d, %u", y, z);
}
```

Run this program to find out values. Submit the screenshot of the program and the output.

3) Consider the following program. Assuming the user correctly types an integer into stdin, what will be the program output in the end?

```
#include <stdio.h>
int main(){
int x = 0;
printf("Please input an integer:");
scanf("%d",&x);
printf("%d", (!!x)<<31);
}
```

Execute this program and give the screenshot of the result.

PART B

For the following exercises, you will need to use QtSPIM simulator. You can download and install using the link: https://sourceforge.net/projects/spimsimulator/files/

You can install QtSPIM on either Windows or Linux systems.

A tutorial for QtSPIM is available here:
https://ecs-network.serv.pacific.edu/ecpe-170/tutorials/qtspim-tutorial

1) Introduction to MIPS Processor Architecture using QtSpim simulator:

a) Store FFFF in $8. Left shift it 2 times and store the result in memory location 0x10000000.

b) Evaluate the expression $(2x+3)^2$ where x is the content in register $10 . Store the result in register $13.

You should check whether the results of the above exercises reflect correctly in the appropriate registers and the memory locations. Take the screenshot of the results.

2)

(a)

Complete the following code snippet to add 10 numbers stored consecutively in data memory. Print the result on console.

```
.data
array : .word 10 12 15 -10 13 82 -9 4 3 -7 #array={10,12,15,-10,13,82,-
9,4,3,-7}
length: .word 10                    #load the length of the array as 10
sum: .word 0                        #initialise sum to 0
.text
main:
la $t3, array                       # load base address of the
array
# $t3 has the base address of data. All the subsequent data can be
accessed using respective offset values.
#Add your code here
```

Count the total number of machine instructions written and executed to complete this task.

(b)

Include the following numbers in the array data segment of question 2(a).

10,20,30,40,50,77

Now you have 16 numbers residing in the array (data memory). Add these numbers and display the result.

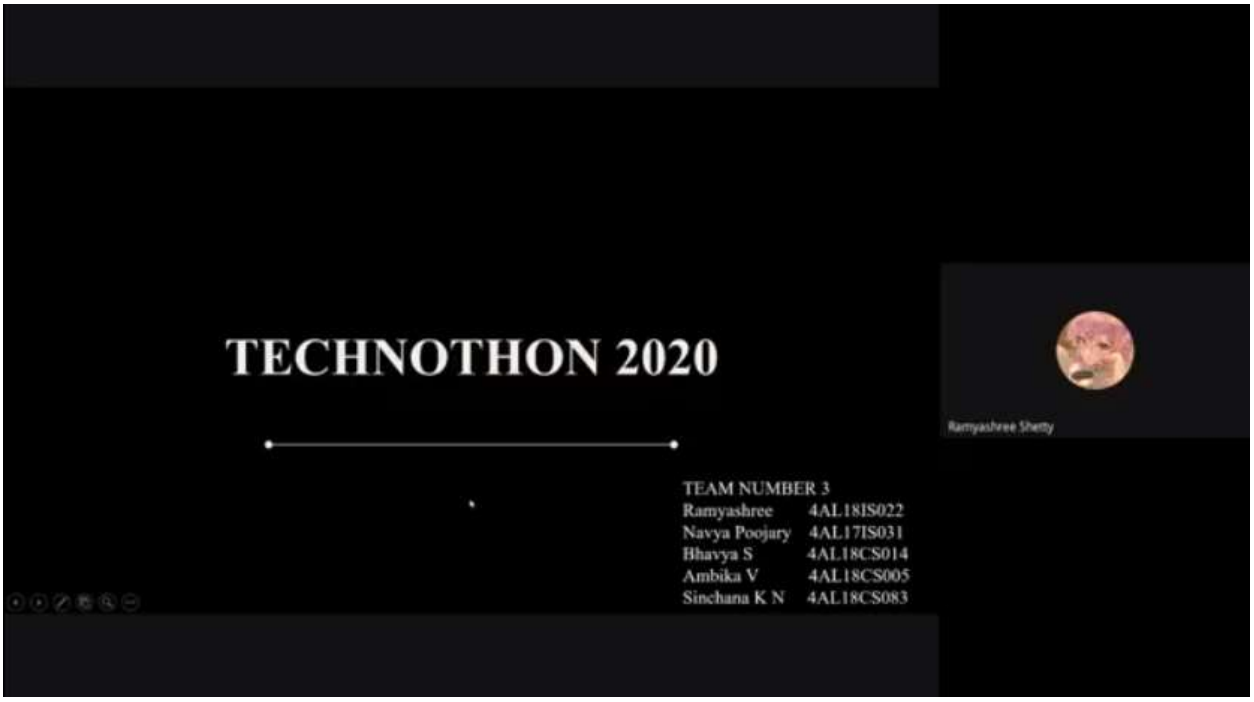
Count the total number of instructions written and executed.

Compare and analyze the relation between the number of data elements and total number of machine instructions executed and written.

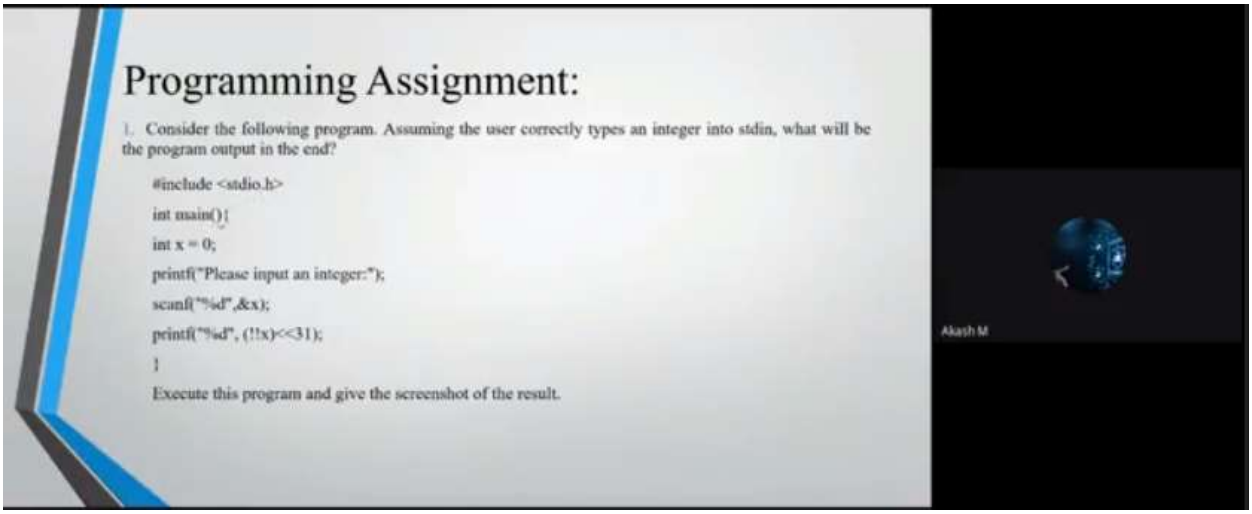
3) Use lb $t1, 5($zero) to cause an exception when attempting to load a byte from address 5. What is the address of the lb instruction in your program? What is the value of the cause register, the exception code, the vaddr, and the epc when the exception occurs?

4) Evaluate the expression 'ab-10a+20b+16'. Consider that only $t0 and $t1 are available to store temporary values. Store a=10 and b=20 in the data section. Use stack for other memory requirements. Display the sum.

5) Create a linked list of integers entered by user using the MIPS Assembly Language. Sort the list. You may take user input for the number of nodes initially. Print the numbers before and after sorting.



On 26/10/2020 prof. Pavithra research scholar IIIT Allahabad was actively involved in clearing the various doubts of students.



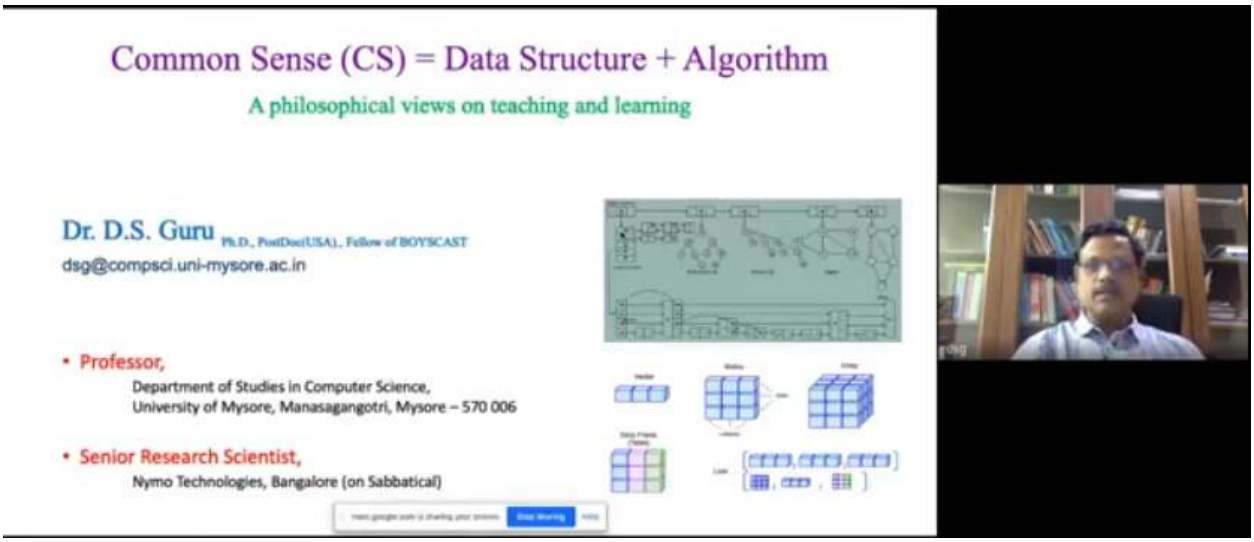
Each team has given with two problems one from part-A and one from part-B. Students solved the assigned tasks with their teams and successfully presented.

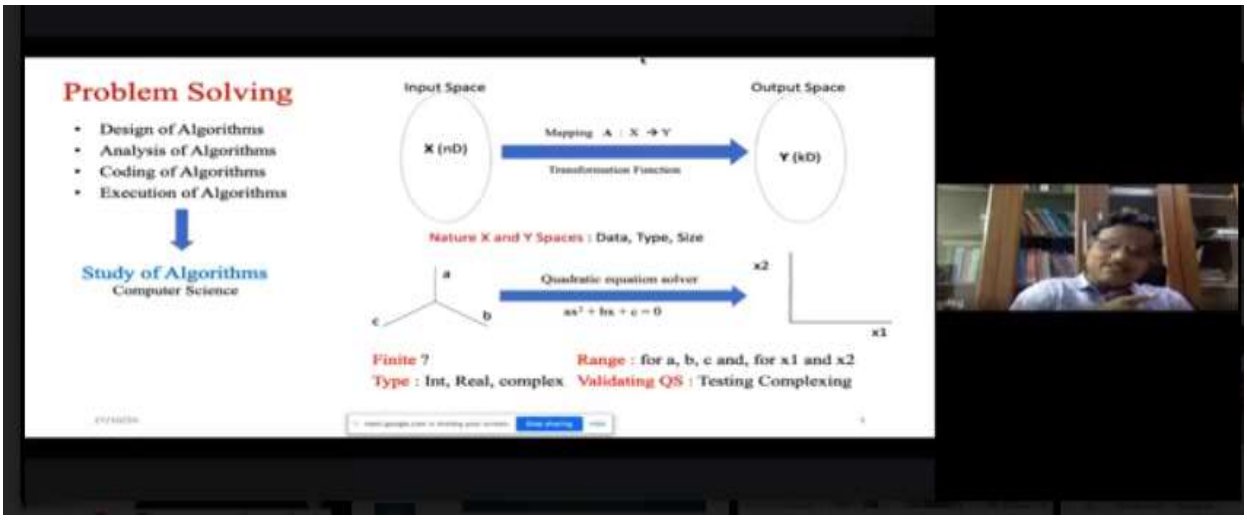
DAY- 05

PROBLEM SOLVING WITH DATA STRUCTURES

On Day-05, Dr. D.S. GURU, UNIVERSITY OF MYSORE has presented the Problem Solving with Structures to all the students. He initially quoted that, **"NEITHER Algorithm nor Data Structure alone has meaning without the other."**

Prof. Guru started the session with what is the problem, how to solve it and understanding the data: Design of algorithm, Analysis of algorithm, coding of algorithm and execution of algorithm, explained about data structures and data model, domains.

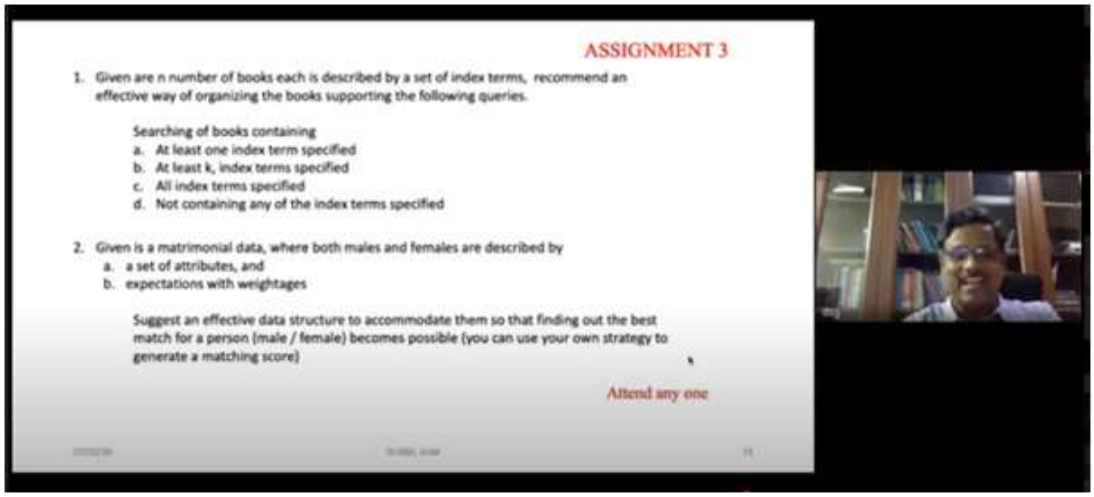




1. **Stack:** Explained in detail stack and its operations
   Explained push and pop logics
   Storage structure: sequence allocation and linked allocation

Applications of stack
Searching techniques

2. **Queue**: Explained in detail queue and its operations
   Explained insertion and deletion on queue element
   Explained circular queue dequeue
3. **Linked list**: Explained Linked list its types
   Implementation of linked list
   Operations that can be done on linked list
   Application of linked list
4. **Graph** : Explained in detail graph and its operations
5. **Heap**: explained in details heap data structures , its operations , its applications
6. **Finite Automata**: explained about how to construct FA model
7. **Explained about sorting and searching algorithms**
8. **Data base management:** Explained about Data Models, study of data, explore relationships(many-many, many-one, one-one), Representation (graph, tree Representation) Relational data base design , normal forms (1NF,2NF,3NF,4NF,5NF), Explained about function dependency, also explained data decompositions
9. **Machine Learning:** classification(Decision Tree Ensemble, Support Vector Machine, Least Square Regression, Convolution Neural Network)

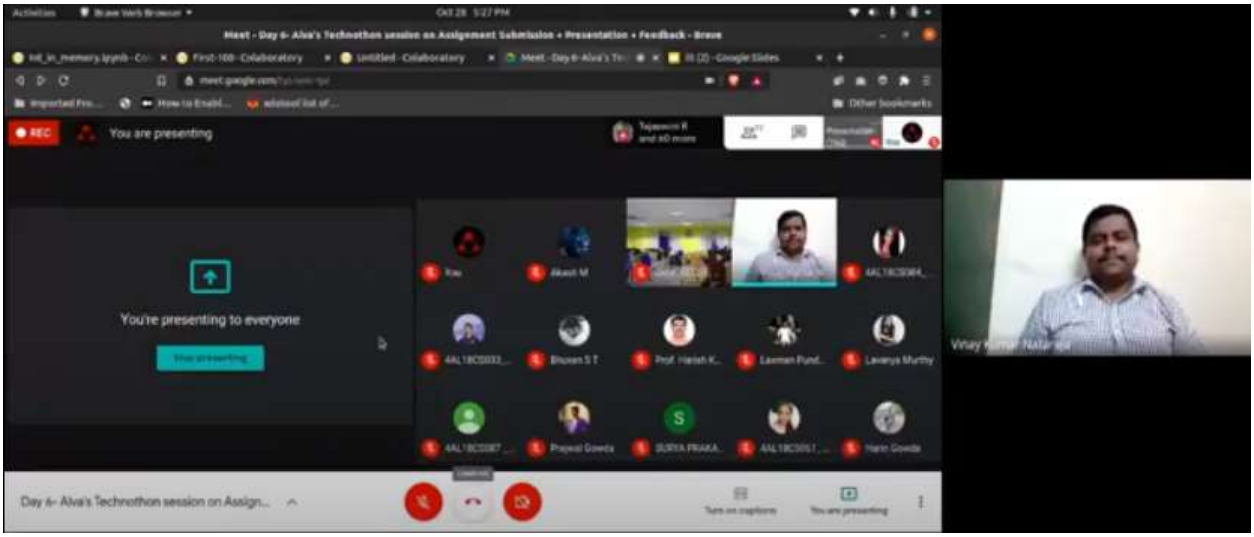


He finally quoted that, “COMMON SENSE = DATA STRUCTURE + ALGORITHM =COMPUTER SCIENCE”. Dr. D.S Guru has distributed 7 Assignment questions to students.

DAY- 06

Presentation by AIET Students

On Day-06, Dr.Vinay Kumar N, Project Manager, Samsung Pvt. Ltd, Bangalore was the evaluator for the presentation session of students. All the 21 teams were presented their solutions to Dr.Vinay.



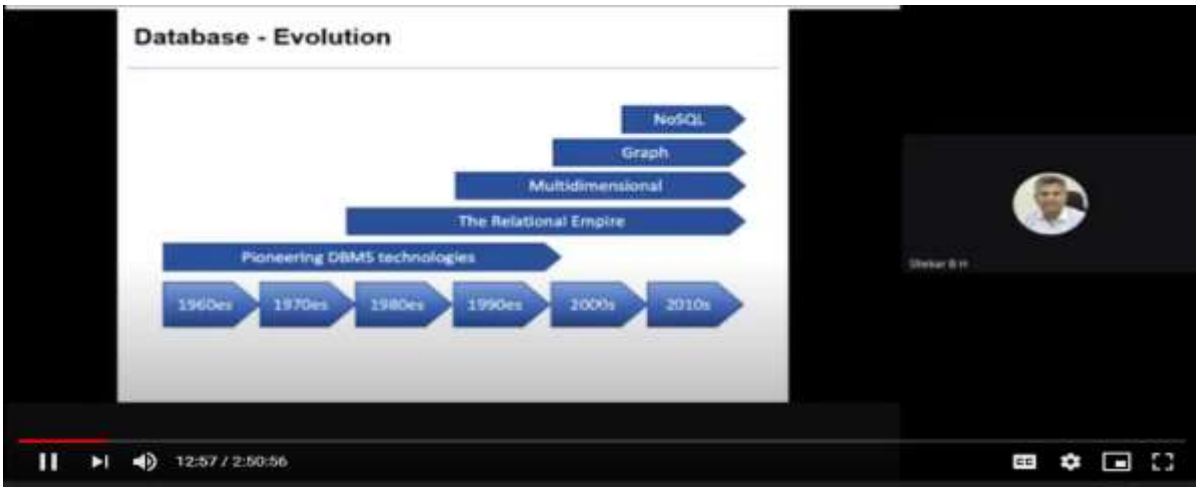
For every presentation, Dr. Vinay had given 5 minutes of feedback and suggestions. Students were completed and presented their assignment solutions to Dr.Vinay.

DAY- 07

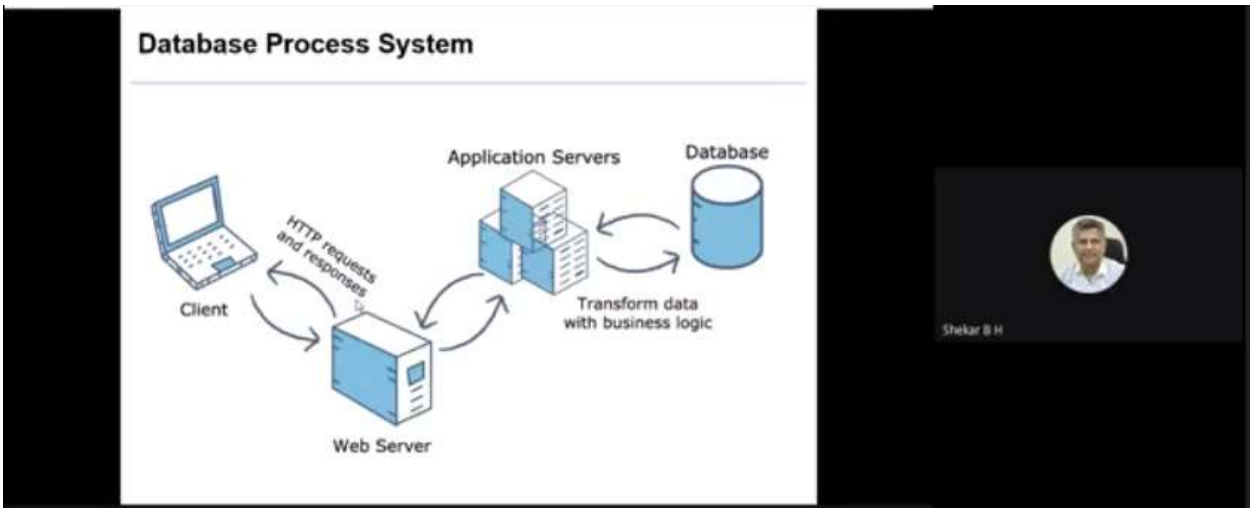
Philosophy behind Database Management Systems (DBMS)

Prof. B H Shekar, Mangalore University has handled the session on "Philosophy behind Database Management Systems (DBMS)" on 7th Day of Alva's Technothon-2020.

In the session different topics of DBMS was discussed such as Brief Introduction on DBMS, Characteristics and Advantages of DBMS, Entity Relationship, Schema, Relational Schema, Types of Attributes, ER diagram, Enhanced Entity Relationship Model, Data Definition Languages, Data Manipulation Languages, Insert, Delete, Update operations, Structured Query Language and Normalization along with real time examples.



The database management system (DBMS) is the software that interacts with end users, applications, and the database itself to capture and analyze the data. The DBMS software additionally encompasses the core facilities provided to administer the database. The sum total of the database, the DBMS and the associated applications can be referred to as a "database system". Often the term "database" is also used to loosely refer to any of the DBMS, the database system or an application associated with the database.



Computer scientists may classify database-management systems according to the database models that they support. Relational databases became dominant in the 1980s. These model data as rows and columns in a series of tables, and the vast majority use SQL for writing and querying data. In the 2000s, non-relational databases became popular, referred to as NoSQL because they use different query languages.

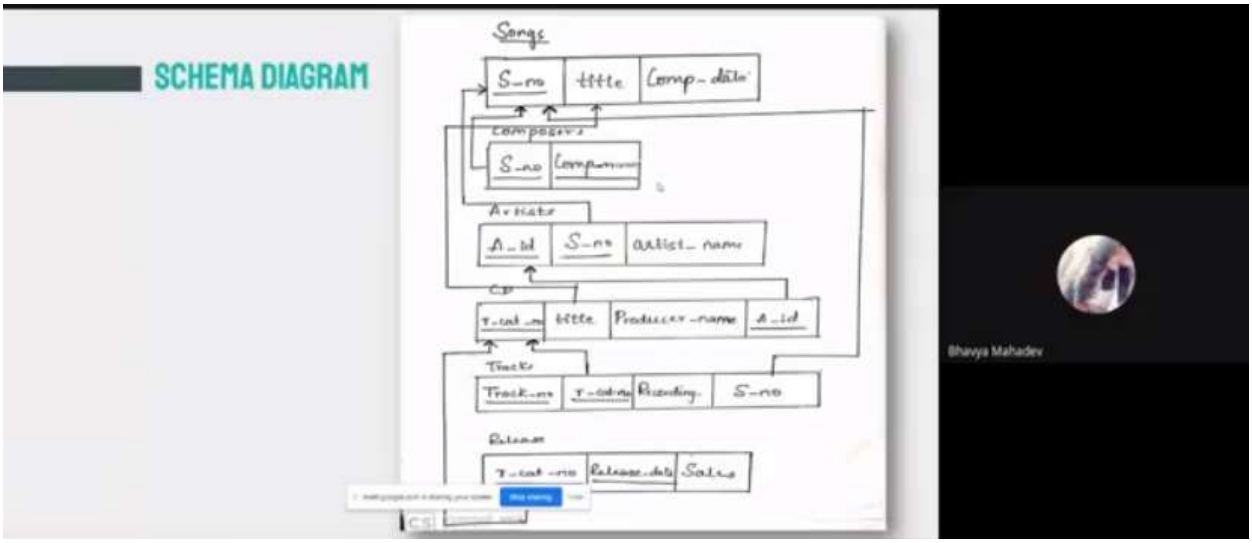
Dr. Shekar B H finally distributed 17 assignment questions to 21 groups of Alva's Technothon-2020 students. Prof. Shekar was actively involved in clearing the various doubts which students and staffs had. The entire session was very effective and interactive to the students and staffs. Around 104 students of CSE and ISE attended the session.

DAY- 08

Presentation Session by AIET Students

On Day 08, all the 21 teams were solved the problems and started their presentation to Dr. Shekar. Students were initially explained the problem solution and later explained their ER & Schema diagrams of all the assignments.

Dr. Shekar has evaluated 17 assignment questions was given to 21 teams on previous day. He had appreciated the 2nd & 3rd years effort towards the problem solutions. He expressed the very good feedback about students understanding capacity.



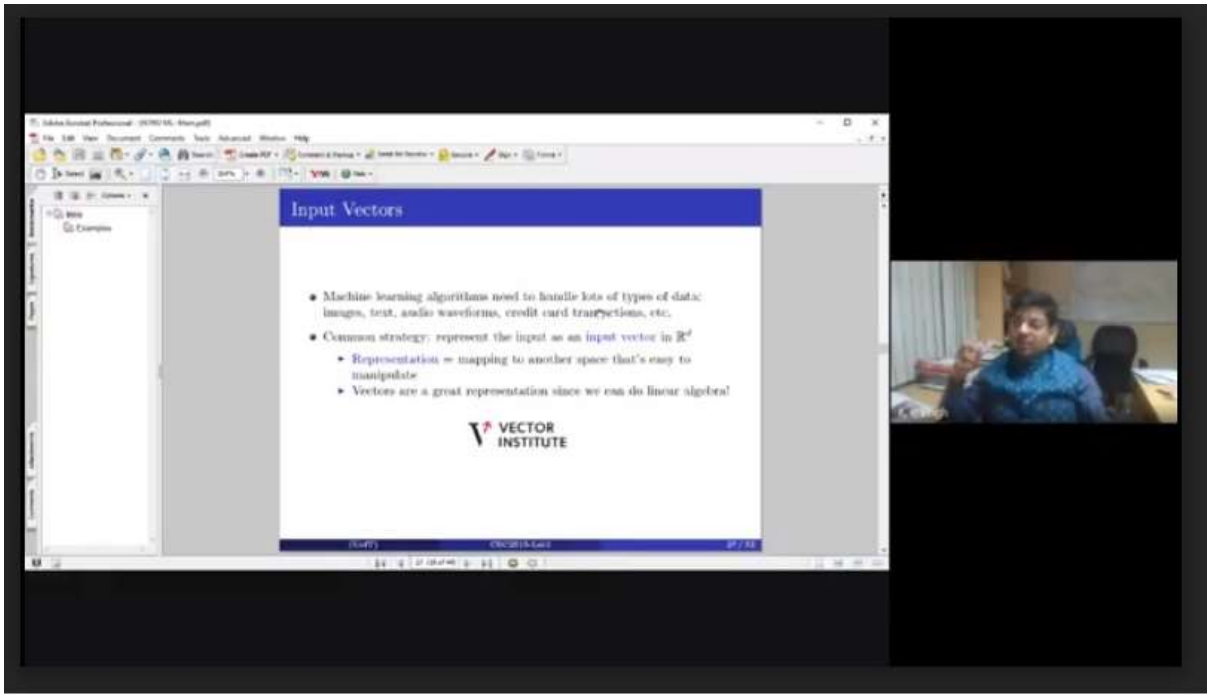
Students solved the assigned tasks by their own and Dr. B H Shekar provided some corrections and suggestions to all the teams. All the 21 teams have incorporated the corrections and submitted to Dr. Shakar on next day.

DAY- 09

Introduction to Machine Learning

On Day 09, Dr. K.P.Singh, IIITA and his research scholars Mr. Lal Upendra Pratap Singh, , IIITA handled a session on “Introduction to Machine Learning”. The session was begin with Introduction to Machine Learning by **Dr. K.P. Singh**, IIITA. He started with basic concepts and history of machine learning along with machine learning workflow. He explained about supervised and unsupervised learning with examples. Then he covered the topics of nearest neighbour along with KNN concept.

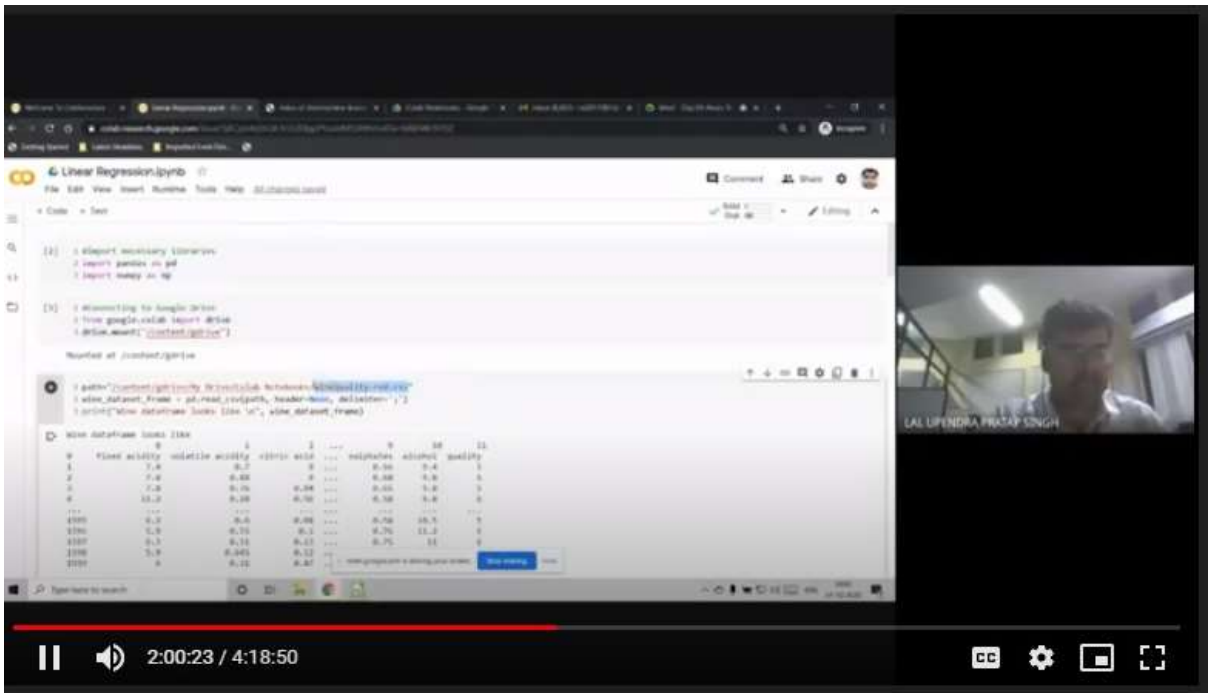
Dr. K.P Singh gave the detailed explanation along with suitable problem for Validation and test sets, Pitfalls: Normalization, Vectorization, Feature Mappings, Fitting Polynomials, Regularization, Generalization, and Linear classification. Also he interacted with students and answered their queries.



The next session was hands on session conducted by **Mr. Lal Upendra Pratap Singh**, Research Scholar, IITA. First he explained about how to use google colab and also shared wine quality data set for hands on session.

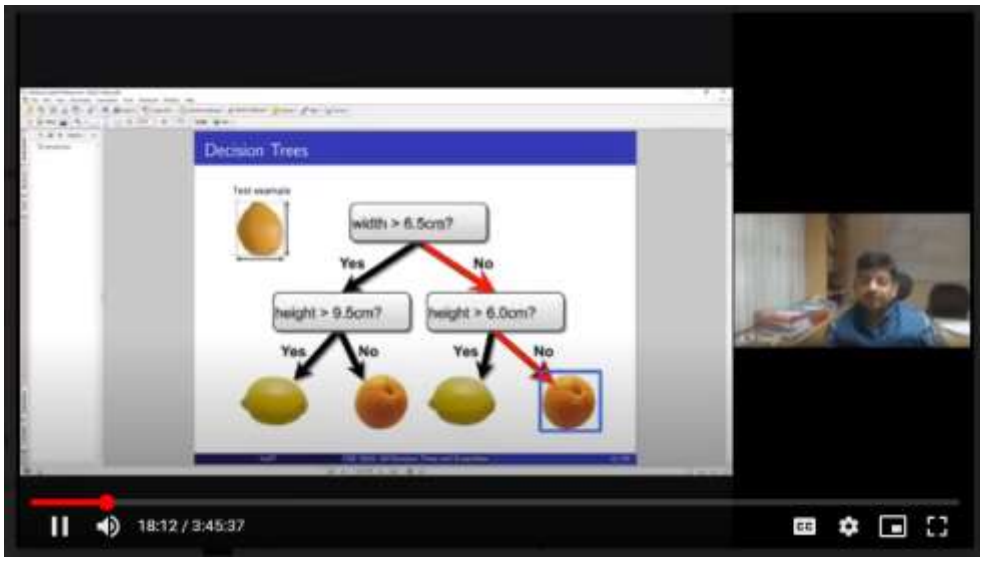
Later Mr. Upendra has explained step by step code along with data set for KNN algorithm. He took overall session practically and explained about how KNN algorithm used for classification along with score value using data set.

Also he interacted with students and answered their queries. The hands-on session of the Mr. Upendra was interactive.



DAY- 10

On 10th Day Dr. K.P.Singh once again continued his lecture on Introduction to Machine Learning. The research scholar Mr. Aniket Paul also accompanied along with his hands-on session. The session was begin with Decision Trees by **Dr. K.P. Singh**, IIITA. He started with basic concepts decision trees with examples. Then he covered the topics of decision trees like how to use discrete inputs, Quantifying Uncertainty, Entropy, Low Entropy, High Entropy, Information Gain, Classification and Regression using data set.



Dr. K.P Singh has explained advantages of decision trees over KNN with examples. Next he covered the topics like Bias, Variance, Bagging, Binary linear classification, Linear Regression, Logistic Activation function for the given problem. Also he interacted with students and answered their queries.

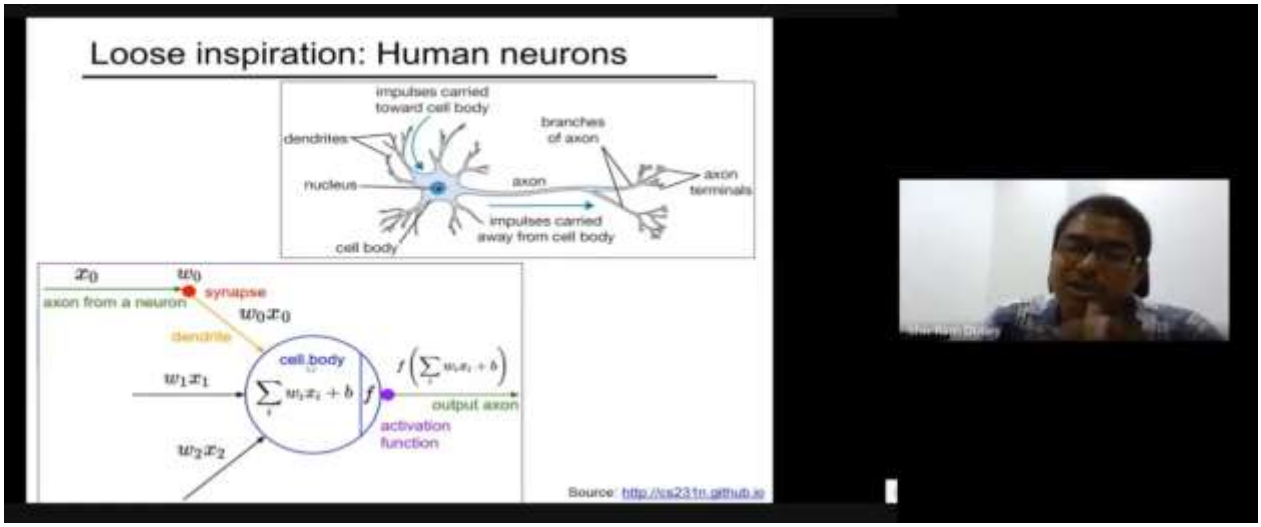
The next session was hands on session conducted by **Mr. Aniket Paul**, Research Scholar, IITA. First he shared iris data set for hands on session. Later he explained step by step code along with data set for Decision trees algorithm. He took overall session practically and explained about how decision trees algorithm used for classification using data set. He also explained about SVM with examples. Also he interacted with students and answered their queries.

DAY- 11

Neural Network and Deep Learning Foundations

As part of Technothon 2020-21, Dr. Shivram Dubey, IIIT Sri City, A.P, handled a session on “Neural Network and Deep Learning Foundations”. Dr. Shivram Dubey, having served in various capacities in Computer Science and Engineering, threw light on the topic - “Neural Network and Deep Learning Foundations” to the students of Computer Science and Engineering and Information Science and Engineering from 02-11-2020 to 03-11-202.

In the first session he laid the foundation by giving the introduction to basics of machine learning to make students understand the concepts of neural network by discussing about the various classifiers, gradient descent function

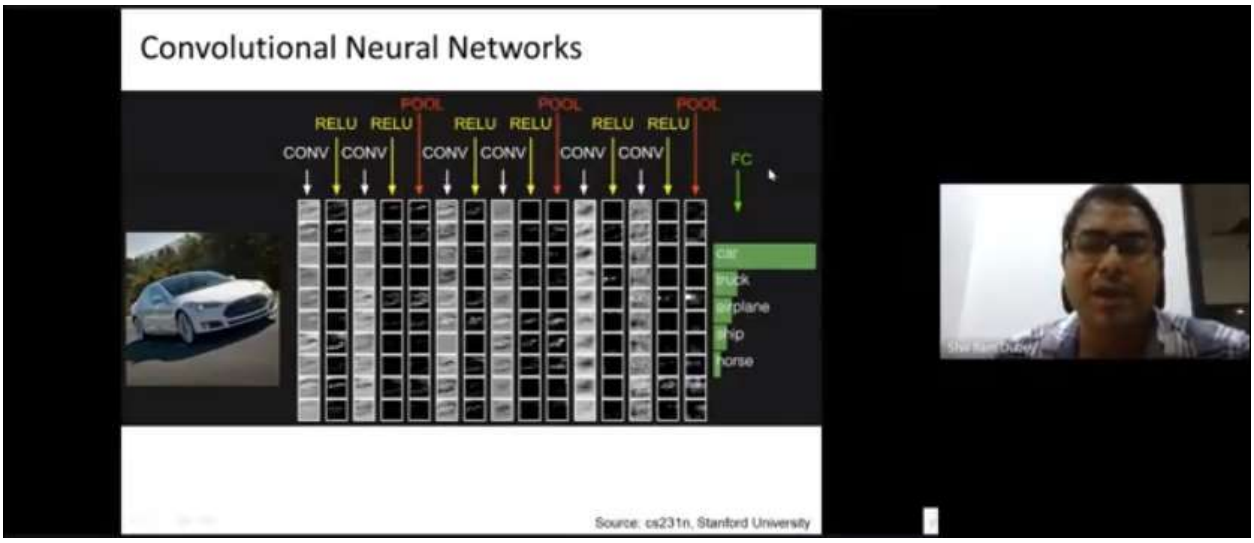


for optimization.

The Neural Networks (NN) concepts, as a class of machine learning algorithms, were discussed. NN are used to model complex patterns in datasets using multiple hidden layers and non-linear activation functions. A neural network takes an input, passes it through multiple layers of hidden neurons to evaluate the model and then it classifies the given data. In this regard the concepts like chain rule algorithm, how to use it effectively in training the neural network and neural network with back propagation algorithm to adjust weights as a model parameter was explained to students.

An Multilayer Perceptron (MLP) is a typical example of a feed forward artificial neural network was explained by Dr. Shivram Dubey. The number of layers

and the number of neurons is referred to as hyper parameters of a neural network, and these need tuning. Cross-validation techniques are used to tune the perceptron. He also discussed the pros and cons of neural network

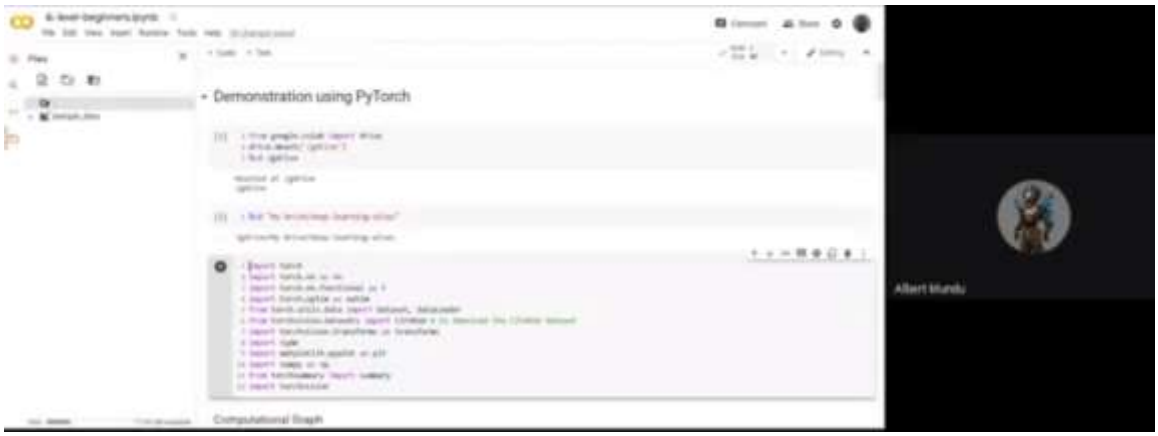


Dr.Dubey gave brief introduction to deep learning concepts which leads to vanishing gradient problem. Special algorithms are required to solve this issue. He also addressed the problems related to multilayer neural networks such as, High dimensionality, Local Relationship, solution for such problems is Convolutional Neural Network (CNN). CNN takes an input image, assign weights and biases to various objects in the image and classifies the given object; provided it should be a pre-processed data was clarified to the students. He explained various nonlinearity functions like tanh, sigmoid, ReLU, Maxout etc. among these functions ReLU is preferred by programmers. Application of neural networks were explained well to motivate students, to take initiative to work in the areas of neural network & deep learning and ended by assigning two assignments for the students to write a code for image classification using NN and CNN with some constraints.

DAY- 12

Hands-on session Neural Network and Deep Learning Foundations

On 03-11-2020, Mr. Albert Mundo, PhD Scholar, IIITA with Nanda Kumar Yadav, IIIT Allahabad, gave hands on experience to students to carry out the assignments given on previous day.



The session started with explanation of importing packages and uploading datasets in Google-Co-Lab by research scholar Albert Mundo. He demonstrated how to use various pytorch libraries in co-lab. Previous day assignment was revisited in his demonstrations by explaining the computational graph concept. He gave a hands-on training in preparing the dataset for training and validation of the model, visualizing the data. He explained how to define a model by visualizing the structure and computational graph of the neural network with the help of ReLU as an activation function, in order to create different fully connected perceptrons and its hidden layers. Mr. Albert explained the need to define hyper parameters and loss function.

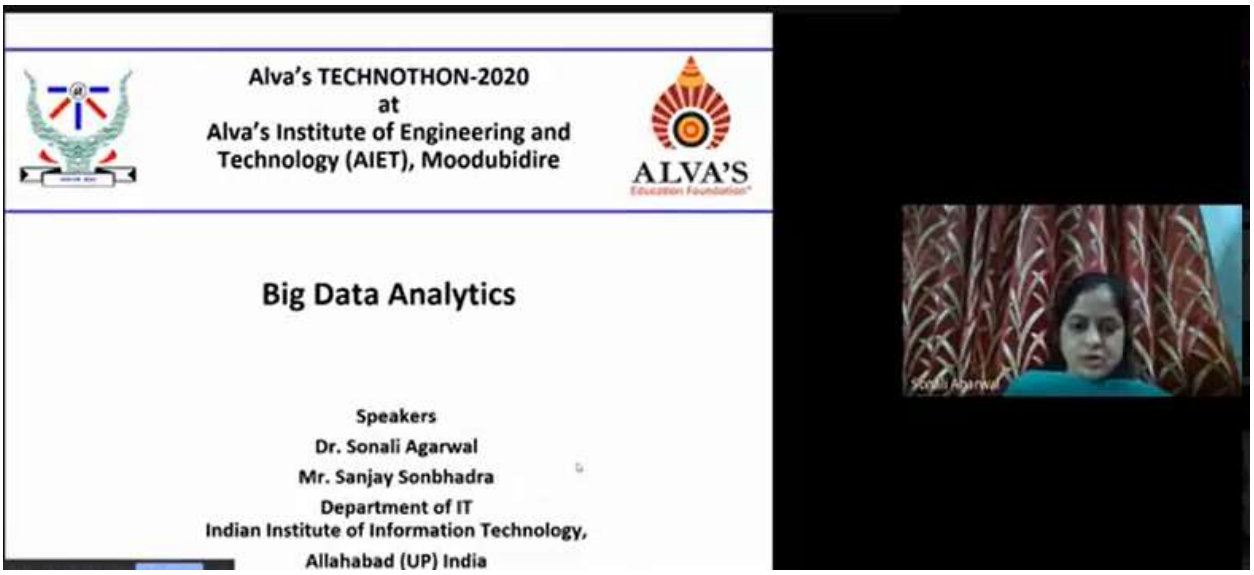
Mr. Nand Yadav a PhD Scholar from IIITA explained supervised learning and unsupervised learning concepts. He explained unsupervised learning briefly with the help of autoencoder example. He also explained generative model for training the data and to generate new realistic samples for artwork, colorization and super-resolution, which belong to latest machine learning algorithms. Applications of these generative models were also discussed. With

the help of various algorithms associated with CNN, generator and discriminator networks discriminates with real and fake images.

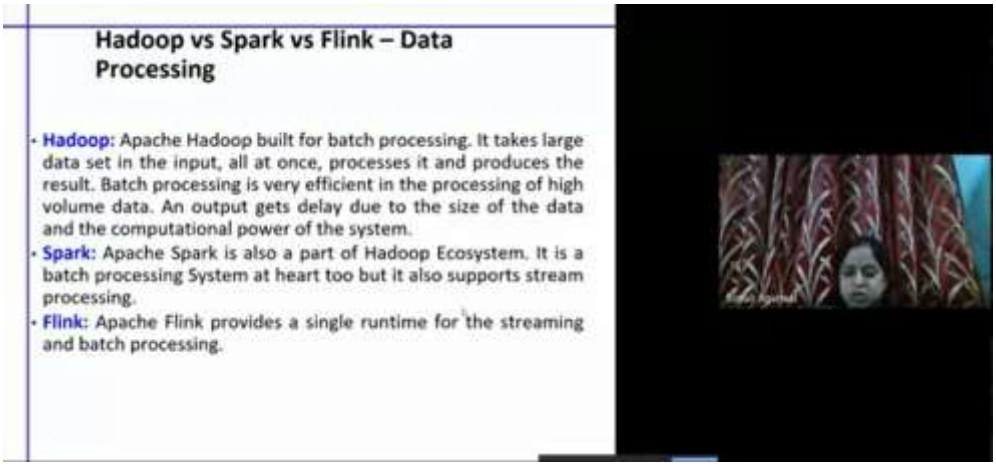
DAY- 13

Big data Analytics

On Day 13, A technical session on the topic **'Big Data Analytics'** was presented by the IIIT- A professors Dr. Sonali Agarwal and Dr. Manish Kumar on 4.11.2020 through on-line to the students of Alva's of Engineering and Technology, Mijar, Mangalore. The lecture-1 was conducted by **Dr. Sonali Agarwal** from 5.00 pm to 6.15 pm and lecture 2 was conducted by **Dr. Manish Kumar** from 6.45 PM - 8.00 PM.



After the lectures were over, the assignments on the lectures were given to the participants to solve them and present on the next day. The whole session of presentation was engaged by **Mr. Sanjay Kumar**, research scholar, IIIT-A on 5.11.2020. The students were allowed to present on the day.



Big data analytics is the often complex process of examining big data to uncover information such as hidden patterns, correlations, market trends and

customer preferences. Big data is the next natural resource. Big data analytics is a form of advanced analytics, which involve complex applications with elements such as predictive models, statistical algorithms and what-if analysis powered by analytics systems. Generally 4Vs namely involved in Big data analytics namely Volume, Velocity, Variety, Veracity.

Characteristic of Big data(4Vs)

Volume of Big Data

The volume of data refers to the size of the data sets that need to be analyzed and processed, which are now frequently larger than terabytes and petabytes. The sheer volume of the data requires distinct and different processing technologies than traditional storage and processing capabilities. In other words, this means that the data sets in Big Data are too large to process with a regular laptop or desktop processor. An example of a high-volume data set would be all credit card transactions on a day within Europe.

Velocity of Big Data

Velocity refers to the speed with which data is generated. High velocity data is generated with such a pace that it requires distinct (distributed) processing techniques. An example of a data that is generated with high velocity would be Twitter messages or Facebook posts.

Variety of Big Data

Variety makes Big Data really big. Big Data comes from a great variety of sources and generally is one out of three types: structured, semi structured and unstructured data. The variety in data types frequently requires distinct processing capabilities and specialist algorithms. An example of high variety data sets would be the CCTV audio and video files that are generated at various locations in a city.

Veracity of Big Data

Veracity refers to the quality of the data that is being analyzed. High veracity data has many records that are valuable to analyze and that contribute in a meaningful way to the overall results. Low veracity data, on

the other hand, contains a high percentage of meaningless data. The non-valuable in these data sets is referred to as noise. An example of a high veracity data set would be data from a medical experiment or trial.

Data that is high volume, high velocity and high variety must be processed with advanced tools (analytics and algorithms) to reveal meaningful information. Because of these characteristics of the data, the knowledge domain that deals with the storage, processing, and analysis of these data sets has been labeled Big Data. Big data is the better data analytics in a broad spectrum and it provides the differentiation among industry peers. The sources of big data are social media, RF id systems, mobile devices and cyber physical systems.

Other Vs

Visibility : how to make the data visible and available for access

Value : how to convert data into knowledge and worthy to be processed

Variability : data is not constant . It is also changing and dynamic

Viscosity : extracting the data in right time is most important. Time is the most critical entity in dealing the data which needs to be given complete attention. The data received at t seconds will be more useful than it received at t+1 seconds

Virality : how does data spread?. How to control this virality ?

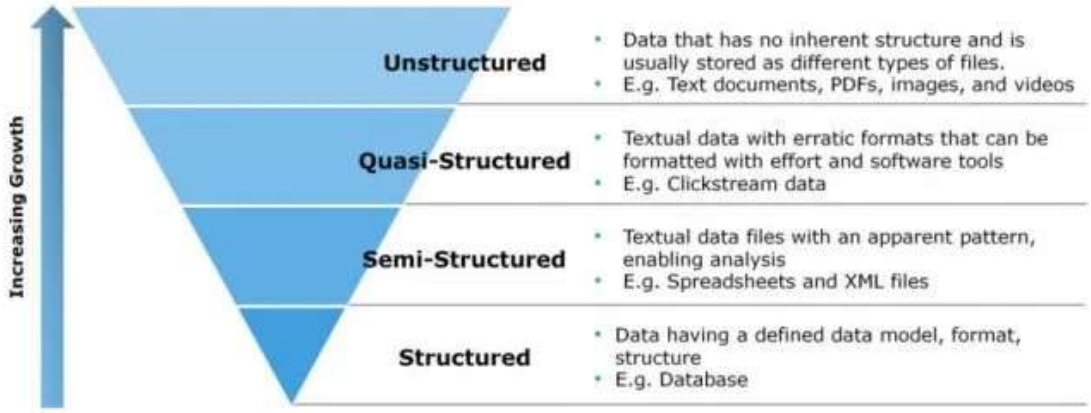
Volatility : How long the data may be valid. The period of time within which data can be dealt and used in the various applications

More Vs may be in future

Types of Data

Structured data : RDBMS , Unstructured data : data from social media PDF files and so on., ,

Semi structured data : XML and json data



Cyber Physical System (CPS) : It is a computer based system in which a mechanism is controlled completely by computer based algorithms. Examples : autonomous auto mobile robotics, automatic avionic system, medical monitoring system and smart grid. Every day data are being generated enormously in various fields.

Data stream : It is an ordered potentially infinite sequences of data points. It is represented in Tuples (y1,y2,y3 …..). Example : real time control system database

Windows of data :

Tumbling windows : a fixed non-overlapping of data sets

Sliding windows : A overlapping of data sets

Hybriding system of above

Data Streaming: it is more challenging. It is time based and very critical

Concept drift: it is the problem of handling the hyperplanes when the dynamic and ever changing data is dealt with. Say ., positive instances and negative instances are determined on a particular data . It will not be constant. The hyperplane will be always drifting here and there.

Batch processing : it can be processed in non real time fashion as batch of process. Time is not critical . It is used for high latency applications. It is **process and store category**. It is disk based

Stream processing : It is time constrained one . It is used for time critical applications. It is **sense and respond** category. Memory based

Hadoop : It is static data handling. The data is for batch processing . It stores in disk space

Apache Spark : It deals dynamic data . It stores in main memory. Mahat is an example

Hadoop : opensource data storage system. It is used for distributed system. We share the processors capability of the computer sytem. We need not have any basic infrastructures for this . Large data with high speed.

Types : Distributed and standalone and suedo distributed system

Map reduce : paralysing the different tasks to work upon various areas of certain domain so as to reduce the time and effort of dealing the different data . Spiliting, shuffling, mapping and reducing. Divide and conquer technique is used. Map-reduce problem is given

HDFS (java based file system hadoop Distributed File system) : Distributeed and parallel computation. Fault tolerent and reliable

Scalablity : vertical scalability |(single computers) Horizontal scalability (next system) master node and name node can be used in HDFS

Apache hive : It has query processing engine to process the dynamic data It is meddle ware to process the data in HDFS. It works local mode and hadoop mode

Benefits of HADOOP :

- Easy to use Accelerated insertion of data, superior scalability flexibility and cost effectiveness
- Streamlined security, low overhead, Exceptional working capabilities(huge data sets and query processing)

Elastic search : It is open source text search and analytic engine

Kibana : Visualization tool and analytical tool to work with elastic search(interactive Chart, filtering applications and dashboard for searching appliations)

Some exercises on Kibana is given in Apache websites

Apache Zookeeper, Apahce Spark (cluster computing ML based) memory based fast **Hadoop spark -** delay tolerant, disk based and slower than Spark

Apache Spark RDD (Resilient Distributed data)

Advantages of Hadoop

Fast: In HDFS the data distributed over the cluster and are mapped which helps in faster retrieval. Even the tools to process the data are often on the same servers, thus reducing the processing time. It is able to process terabytes of data in minutes and Peta bytes in hours.

Scalable: Hadoop cluster can be extended by just adding nodes in the cluster.

Cost Effective: Hadoop is open source and uses commodity hardware to store data so it really cost effective as compared to traditional relational database management system.

Resilient to failure: HDFS has the property with which it can replicate data over the network, so if one node is down or some other network failure happens, then Hadoop takes the other copy of data and use it. Normally, data are replicated thrice but the replication factor is configurable.

Various Transformation and filtering operations are available in Apache Spark RDD

Reduce operations is reduce operation also available

ML library tools are available in Spark

Apache Flink (kappa arhcitecture) is more powerful thant Apache spark(10 times faster than apche spark)(100 times Apache spark is faster than Apache Hadoop)

Hadoop, Spark and Splink architectures

Hadoop and spark – batch processing Spark for batch and some support for stream processing. It is not real time based system

Splink – single run time supporting both batch and streaming applications. It is completely real time system.

Hadoop is map reduce paradigm and not fit for streaming (delay)- disk computation-Fault tolerant- scalabiliy-fast

Spark works on micro batches and supports streaming (some delay) – memory computation-Fault tolerant- scalability- faster

Splink works on real time without any delay – memory computation-Fault tolerant- more scalable – latency is very less – fastest

All are lightweight platforms

How does Elasticsearch work?

Raw data flows into Elasticsearch from a variety of sources, including logs, system metrics, and web applications. *Data ingestion* is the process by which this raw data is parsed, normalized, and enriched before it is *indexed* in Elasticsearch. Once indexed in Elasticsearch, users can run complex queries against their data and use aggregations to retrieve complex summaries of their data. From Kibana, users can create powerful visualizations of their data, share dashboards, and manage the Elastic Stack.

Clustering for Big data

conducted by Dr. ManishKumar, IIIT -A

Vs in Big data :

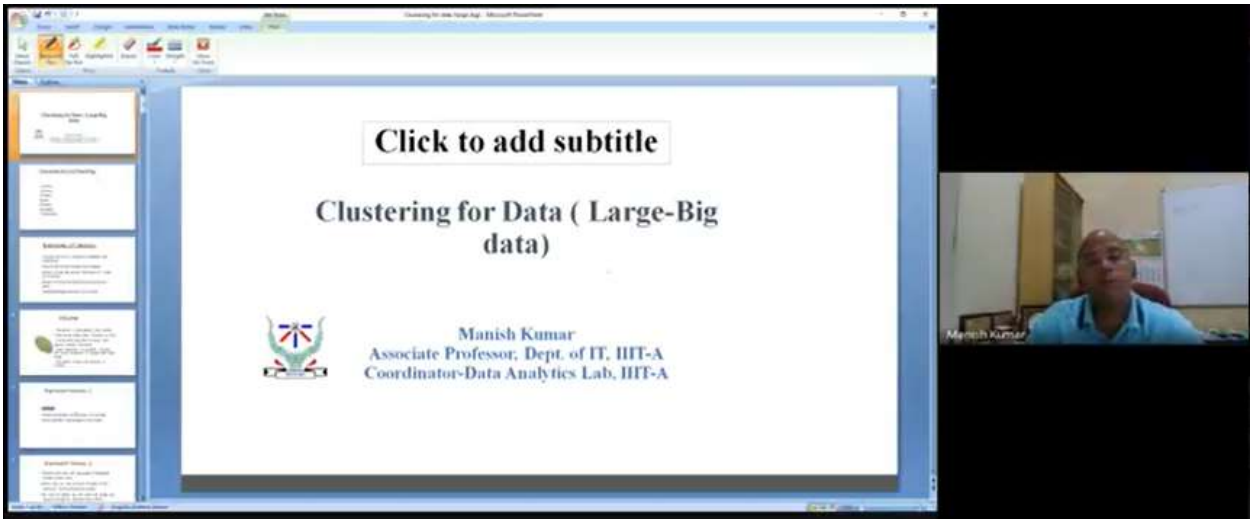
Volume : 2 penta of data is required for self driving car per year

Variety of data : email,pdf, photos and other images . Structured and unstructured data

Visualization : how easily the data is presented with large database

Variability : same data may produce differently for different day

Spark is found to be **100 times** and **10 times** faster than **Map reduce** in memory and disk accesses respectively.



Spark is **10 times faster than Hadoop Map-reduce** in sorting **100 TB** of data

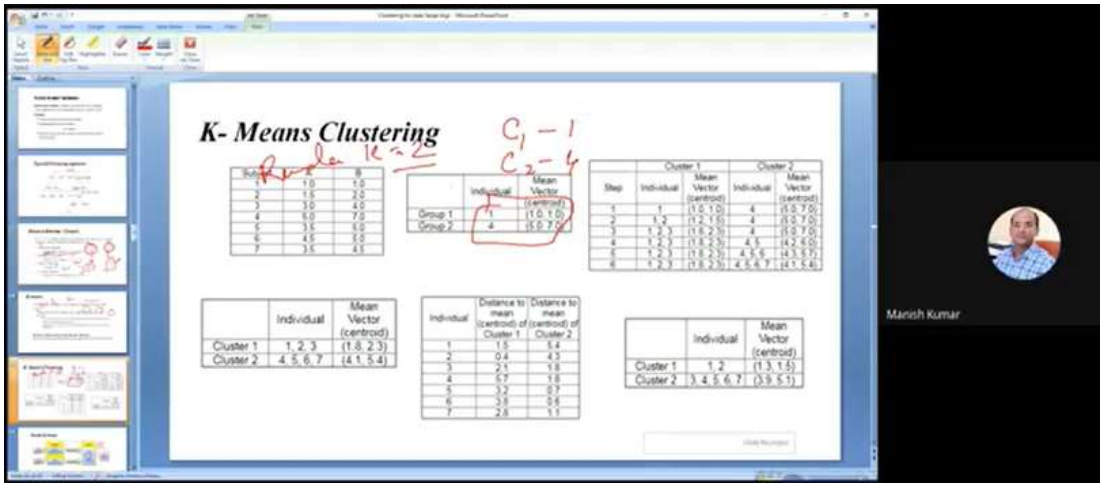
It is better in executing **Naive bayes** and **K means algorithms**

Still **Spark will not replace Hadoop Map-reduce as it performs better only on certain data size with some offset whereas Hadoop Map-reduce will deal a huge amount of data**

Clustering : dividing goup of abstract data into classes of similar objects(unsupervised technique)

maximizing the inter cluster distance and minimizing the intra cluster distance are the objectives of clustering.

Clustering is a Machine Learning technique that involves the grouping of data points. Given a set of data points, we can use a clustering algorithm to classify each data point into a specific group. In theory, data points that are in the same group should have similar properties and/or features, while data points in different groups should have highly dissimilar properties and/or features. Clustering is a method of unsupervised learning and is a common technique for statistical data analysis used in many fields.



There are many different clustering models:

- Connectivity models based on connectivity distance.
- Centroid models based on central individuals and distance.
- Density models based on connected and dense regions in space.
- Graph-based models based on cliques and their relaxations.

In this article, I will walk through 3 models: k-means (centroid), hierarchical (graph), and DBSCAN (density).

Distance Matrix

c1,c2,c3... row and column . Diagonal of the matrix is zero in dissimilarity matrix. Many clustering algorithms work on dissimilarity matrix

variables : binary, nominal, ratio scaled and ordinal

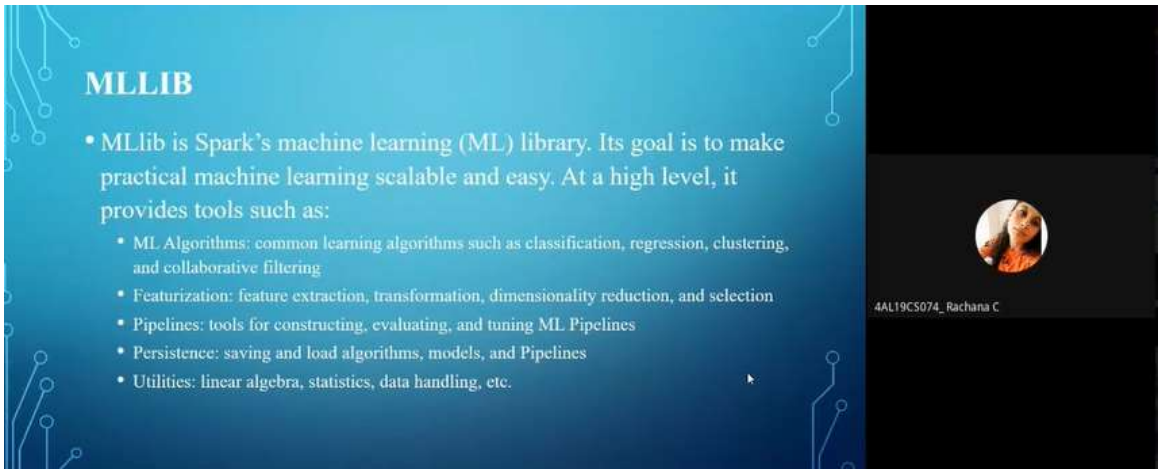
Kmeans clustering will not be useful for big data applications

DAY- 14

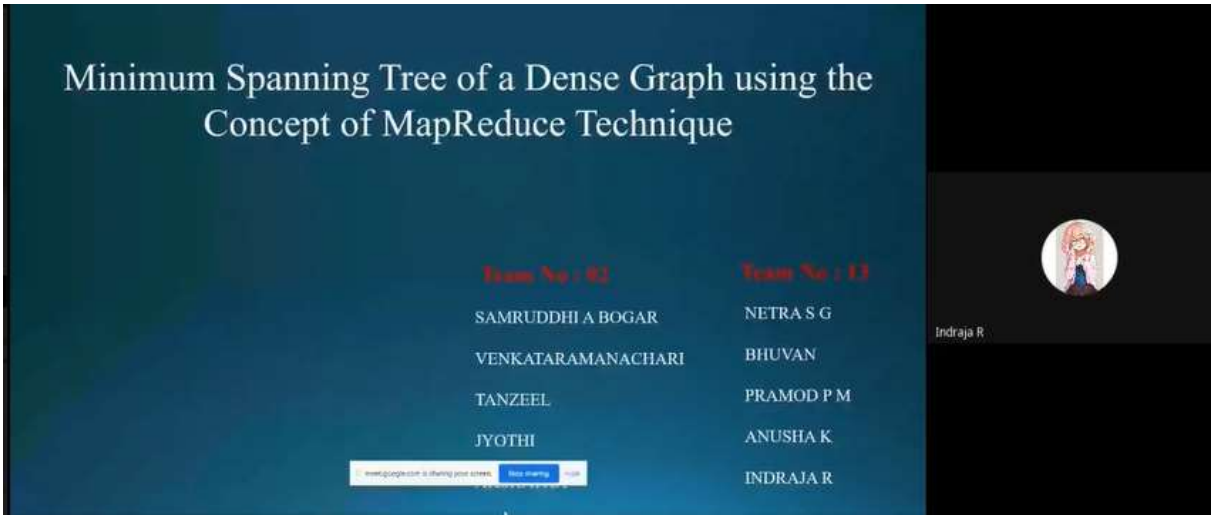
Assignment Presentation session by AIET students

conducted by Sanjay Kumar research scholar IIIT-A
on 5.11.2020 from 5.00 pm to 8.00 pm

The following assignments on Big data analytics have been given to the students. The students have presented the solutions with demo. If there is any correction, it is corrected by the scholar and asked to resubmit before 4.00 pm the next day (i.e., 6.11.20)



- Linux commands to install Hadoop and commands used for handling files in HDFS
- Establish the environment for Elastic Search and kibana and demonstrate applications of them
- Establish HIVE and PIG environments and demo the query based operations
- Establish Hadoop and Flume environments and demo console and file system
- Demonstrate Spark architecture and its applications
- Establish Hadoop Architecture and develop a code to find the shortest path between two nodes of a graph using Map-reduce
- Establish Flink Platform and Cluster . Apply SVM CocoA classification algorithm to fashion MNIST data set



Conclusion

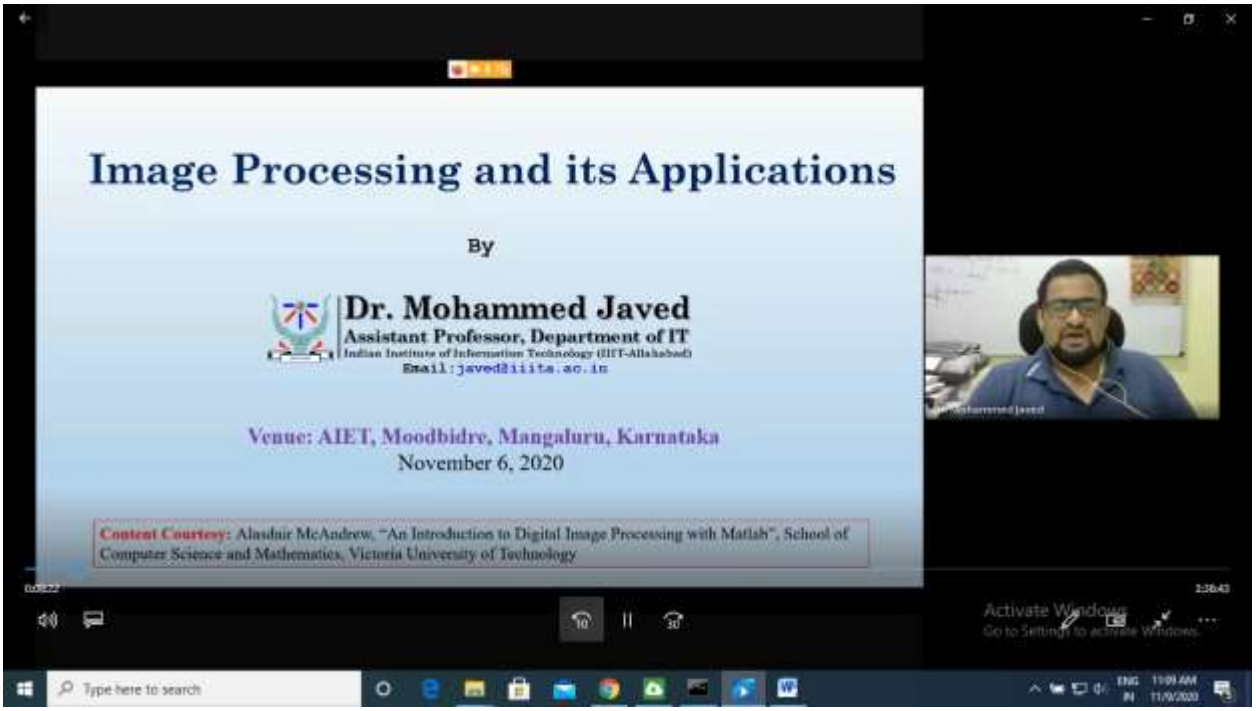
The students have virtually gained the knowledge of using different big data analytics tool such as Hadoop, kibana, HIVE, PIG, Spark and Flink. The research scholar has helped the students to work out the problem and solve them

DAY- 15

Image Processing

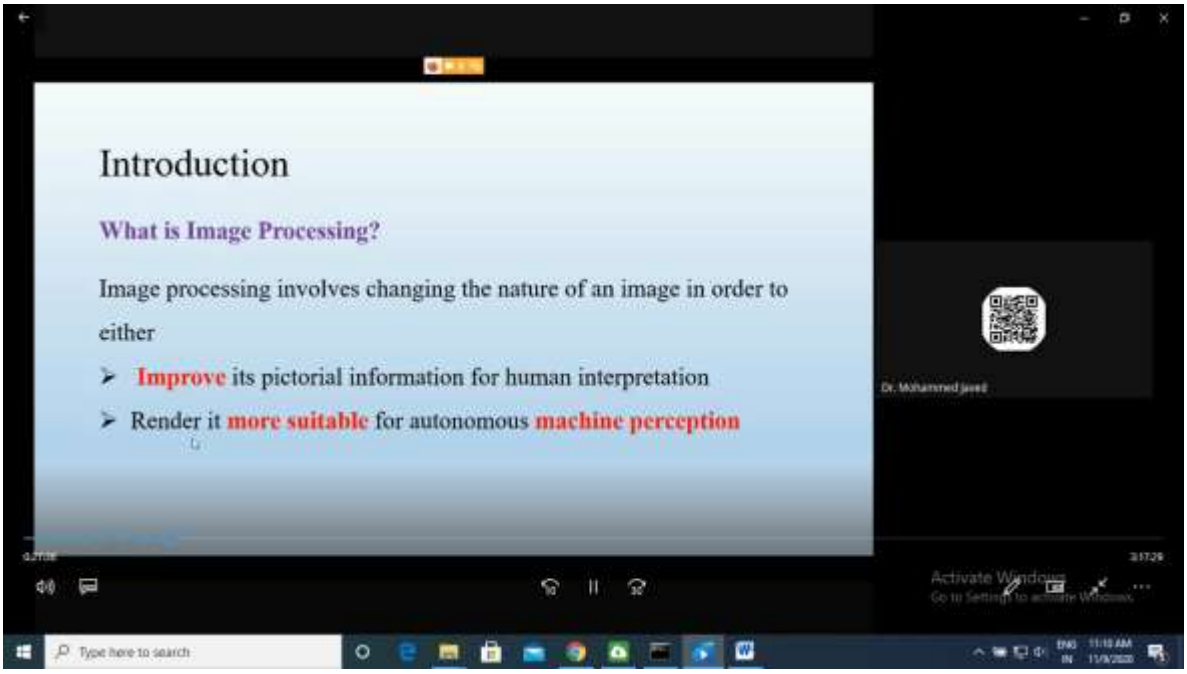
On day 15, Dr. Mohammed Javed, Assistant Professor, IIITA and Mr. Bulla Rajesh, Research Scholar, IIITA handled a session on Image processing.

The main theme of the session was to learn the philosophy behind image processing. **Dr. Mohammed Javed** enlightened the students with explaining how powerful the picture is and also the advantage of the image processing in real life. The challenges associated with identifying the information from the image. **Mr. Bulla Rajesh** gave demonstration on how to use MATLAB software and also hands on session were conducted successful by briefing the concepts with example in MATLAB software.

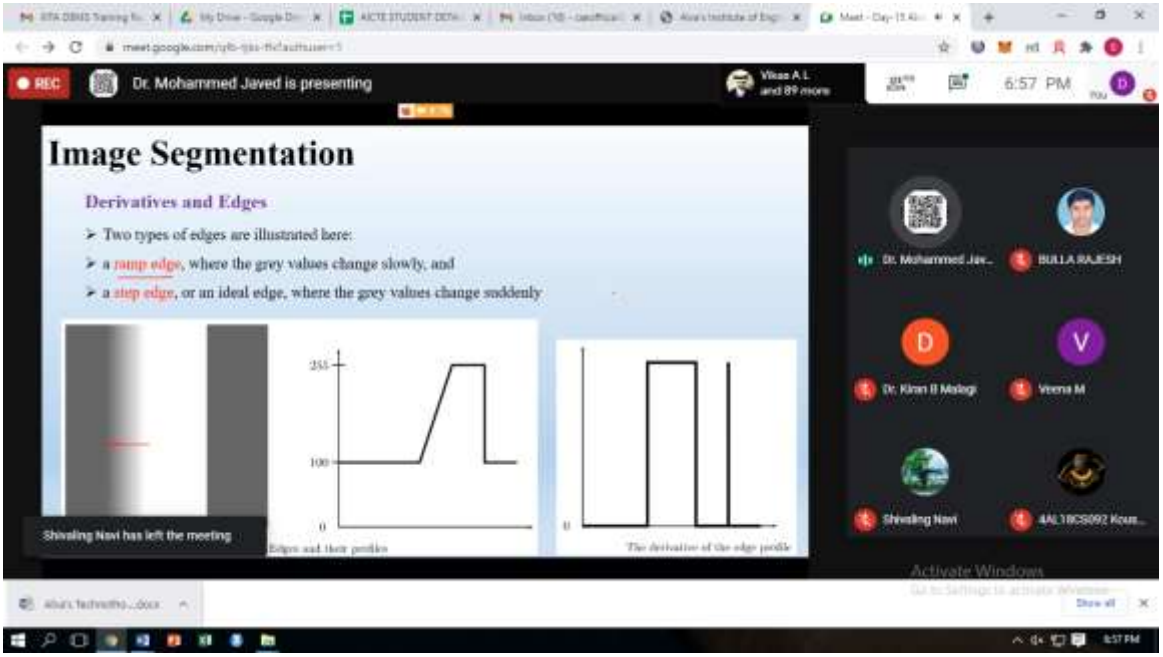


The following are the content delivered and demonstrated both the resource persons.

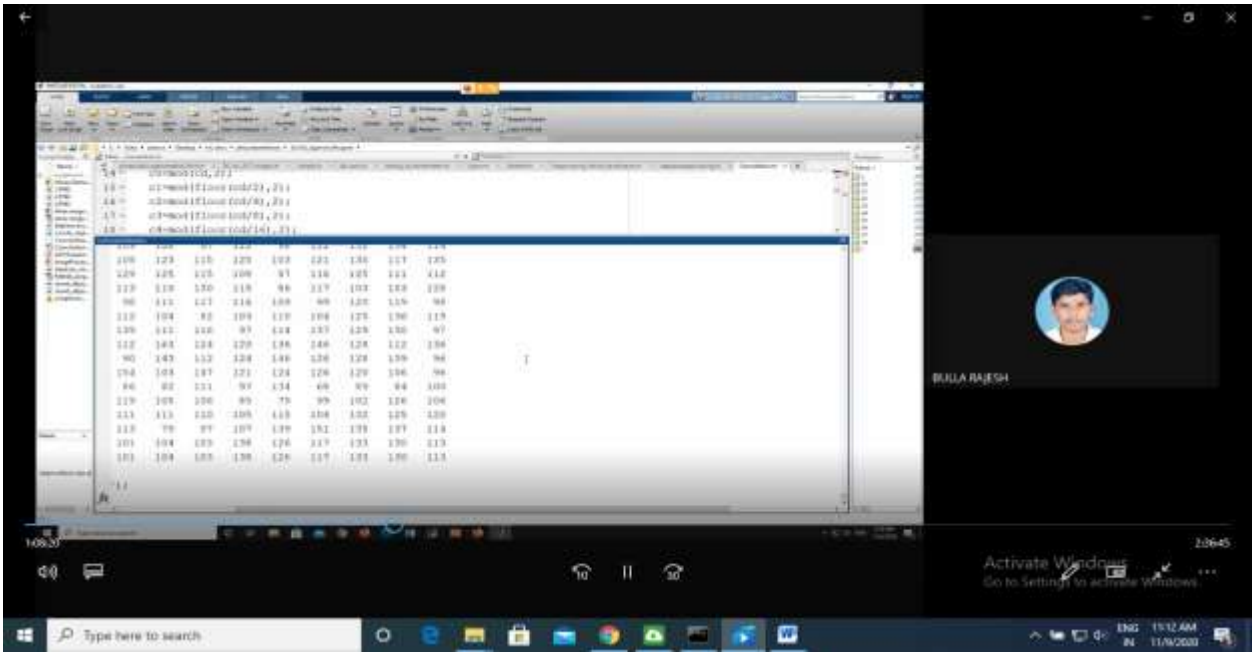
The concept of what is image processing, importance of image processing and usage of MATLAB Programming fundamentals using command line interface and scripting interface were explained, Later he explained about Point processing techniques such as Arithmetic Operators [imadd(), imsubtract(), imdivide()]. Historgram [imhist()], Histogram Equalization, Neighbourhood Processing based on mask. He also briefed about how to move a mask, a rectangle or other shapes over a given image. Linear function and linear filters with examples were also included in the explanation. Image restoration which deals with removing the noise from the image and restore the original image. He explained various noise removal techniques available in image processing with example.



Later Dr. Javed once again started with session by explaining few important aspect of image processing techniques such as Image segmentation techniques, single thresholding with programming example and also explained about double thresholding which is one way of image segmentation. Drawback of single and double threshold. Adaptive thresholding method and how it works, what are the advantages of this method. Edge detection process which is the most powerful image segmentation technique, Edge detection filters, sobel filter, prewitt filter. He also give brief idea about second order filters. Mathematical Morphological operations. Application of Image processing in Machine Learning and Pattern Recognition.



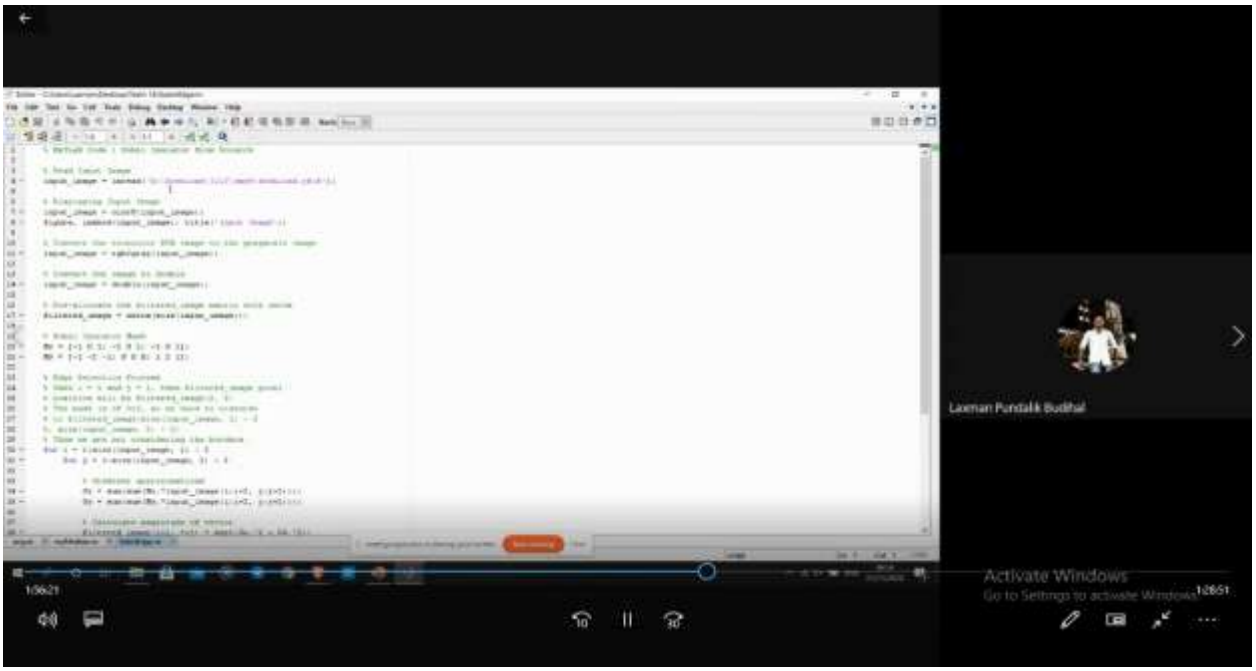
Mr. Bulla Rajesh demonstrated the students about how to use MATLAB software and all the concepts which were explained by Dr. Javed. He made students to execute and check the output of each code snippet and clarified the doubts of the students with great patience. They both together had given 10 Questions which were based on Image Processing and Video Processing.



DAY- 16

Presentation Session by AIET Students

On the second day of the Alva's Technothon session on Image Processing, the students presented the solutions to the assignments given. **Mr. Bulla Rajesh** was the in-charge for the session and listened to all presentations patiently and clarified the doubts and suggested corrections in the presentation.



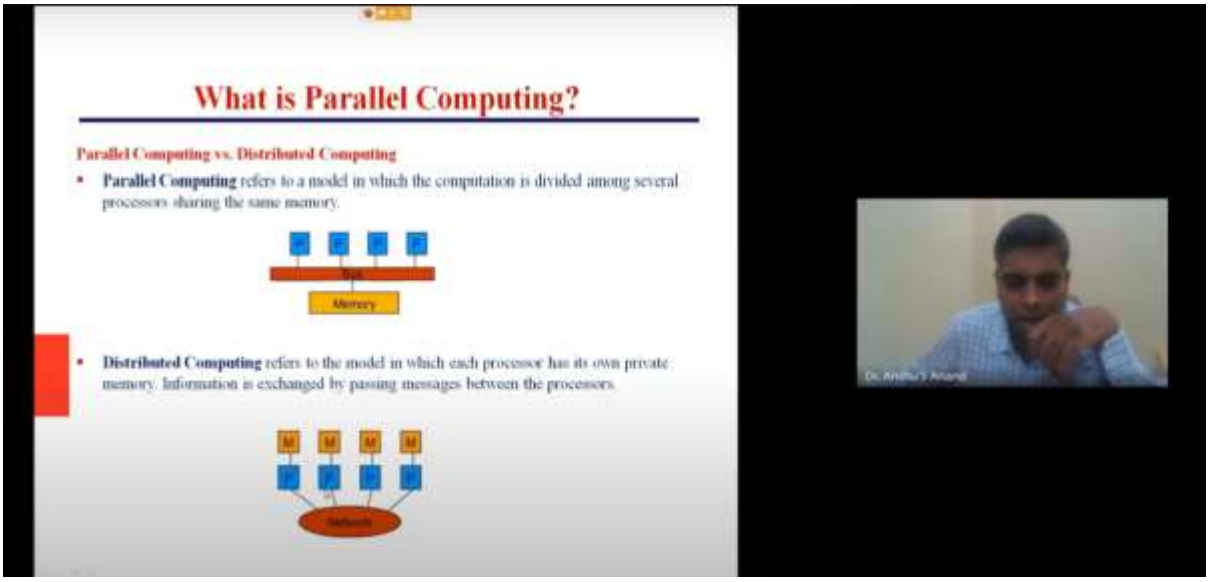
All the students were very much enthusiastic as it was an innovative and new approach of teaching and learning. On the next day all students incorporated the corrections suggested by the Mr. Bulla Rajesh and submitted the presentations in Google classroom.

DAY- 17

INTRODUCTION TO PARALLEL COMPUTING

On Day-17, Dr. ANSHU S ANAND, IIITA has handled a session on Introduction to Parallel Computing as a part of Alva's Technothon-2020.

The session started with what is parallel computing, it's brief history, Application, Comparison between latency and bandwidth, Process of harvesting multi-core, why parallel program is difficult and its challenges.



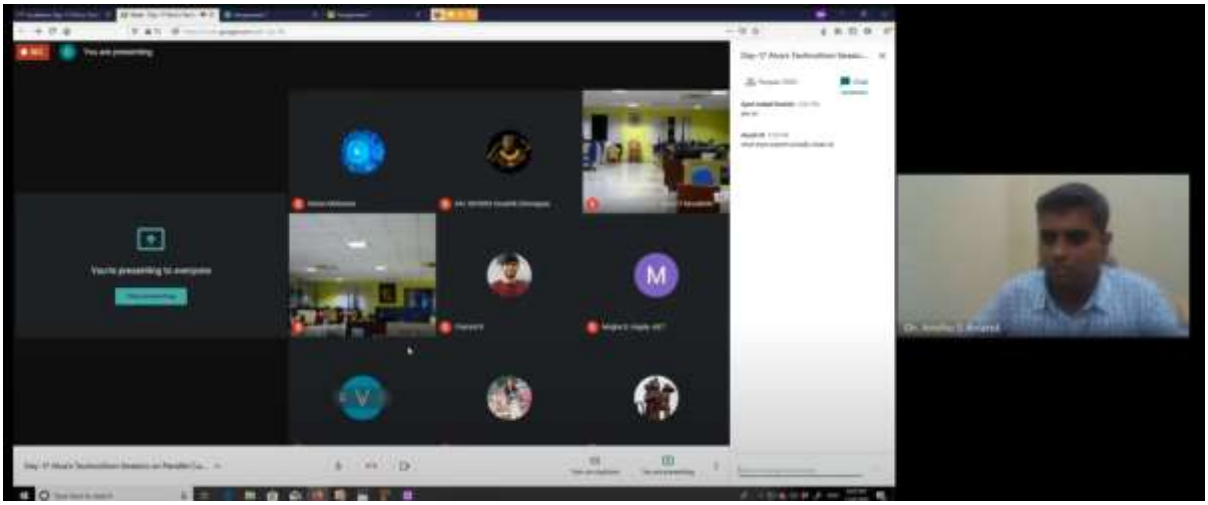
History of parallel computing: The interest in parallel computing dates back to the late 1950's, with advancements surfacing in the form of supercomputers throughout the 60's and 70's. These were shared memory multiprocessors, with multiple processors working side-by-side on shared data. Today, parallel computing is becoming mainstream based on multi-core processors. The reason is that increasing performance through parallel processing can be far more energy-efficient than increasing microprocessor clock frequencies.

Parallel computing refers to "the process of breaking down larger problems into smaller, independent, often similar parts that can be executed simultaneously by multiple processors communicating via shared memory,

the results of which are combined upon completion as part of an overall algorithm".

CLASSIFICATION OF PARALLEL SYSTEM: Explained about 4 possible classifications and they are Single Instruction Single Data (SISD), Single Instruction, Multiple Data (SIMD), Multiple Instruction, Multiple Data (MIMD), Multiple Instruction and Single Data (MISD).

Dr. Anshu S Anand discussed about Bandwidth Vs Latency, where Latency is the amount of time it takes for data to travel from one point to another. Bandwidth is the rate of data transfer for a fixed period of time. He also discussed about "Harvesting of Multi-cores".



CHALLENGES OF PARALLEL COMPUTING: Listed and explained about different challenges which should address by designer and they are Amount of Parallelizable CPU-Bound Work, Task Granularity, Load Balancing, Memory Allocations and Garbage Collection, False Cache-Line Sharing, Locality Issues and many more.

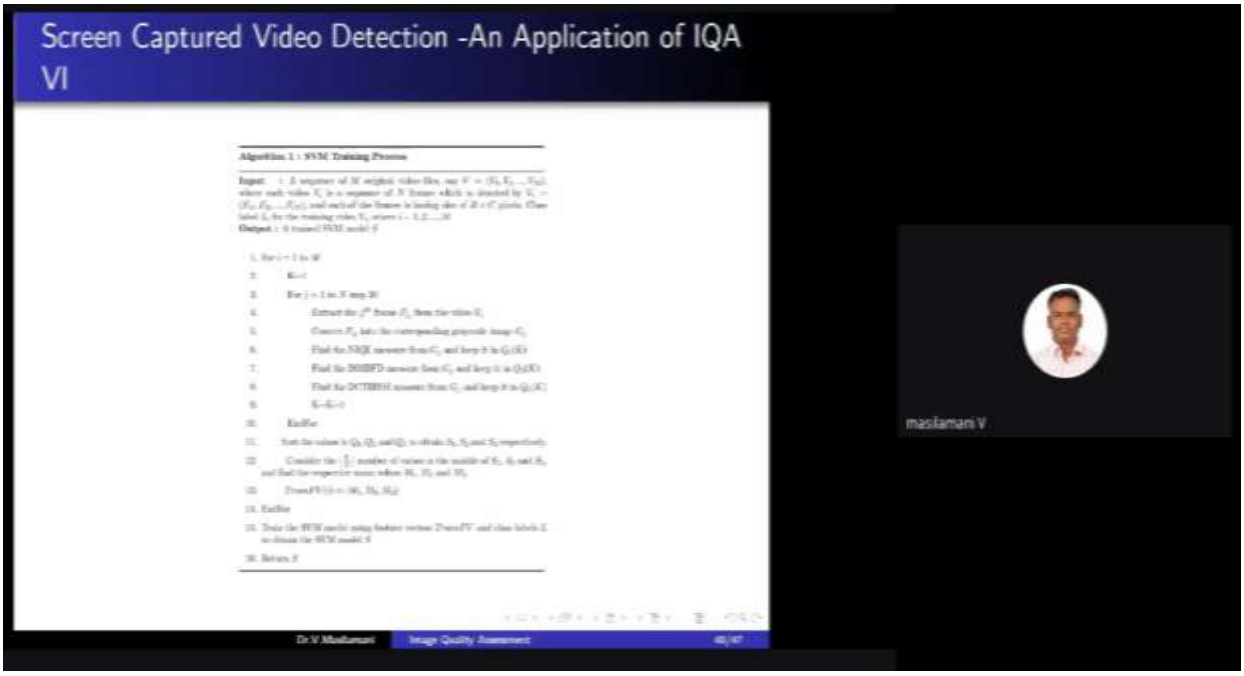
Session concluded with application of parallel computing, with the help of suitable examples resource person explained about Key areas which uses parallel computing and they are Data bases, Data mining, Networked videos and Multimedia technologies, Medical imaging and diagnosis, Advanced graphics and virtual reality, Collaborative work environments.

DAY- 18

IMAGE QUALITY AND APPLICATIONS

On Day 18, Dr. V MASILAMANI, Associate Professor, Department of CSE, IIIT, Design and Manufacturing, Kancheepuram has given a lecture on Image Quality and Applications as a part of Alva's Technothon-2020.

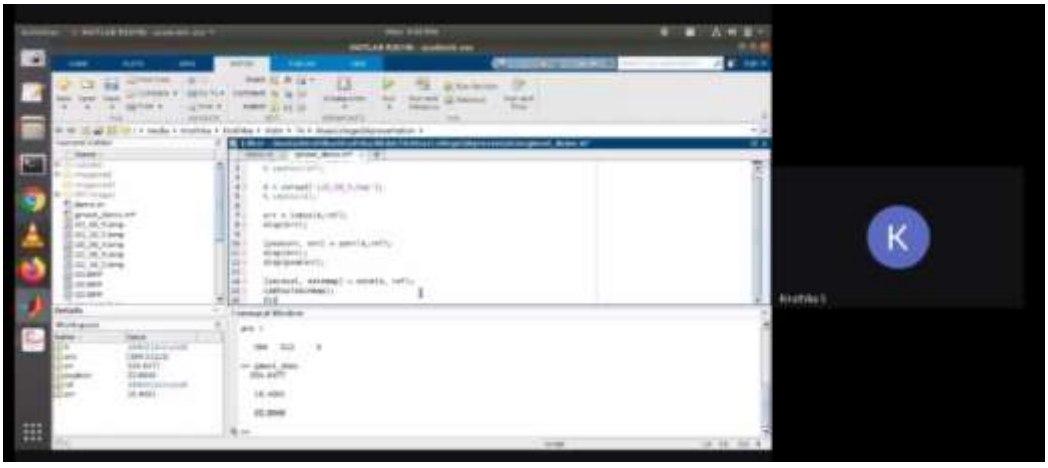
The session started with introduction to image quality assessment and also covered most of the topics of Image quality enhancement. Dr. Masilamani explained the need of Image Quality Assessment and Applications of Image Quality Assessment with various examples.



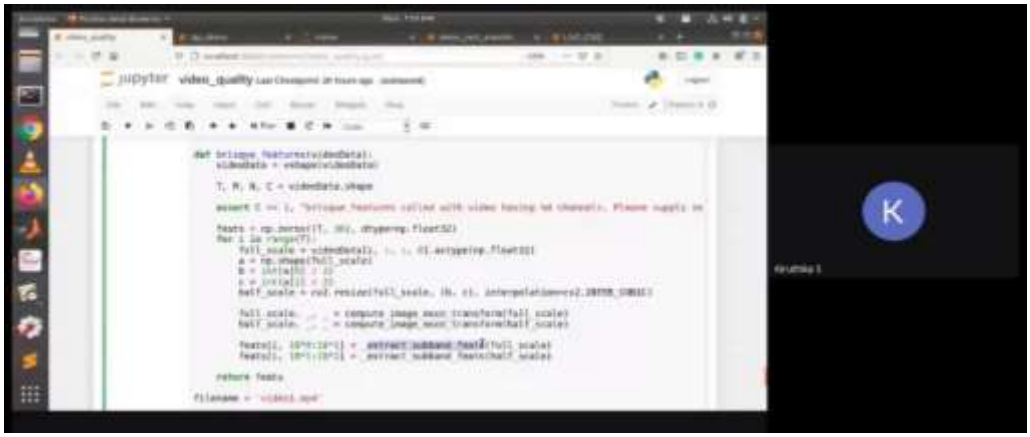
Prof. Masilamani also explained the Factors affecting Image Quality and various attributes considered for Image Quality Assessment. He has covered the following types of Image Quality Assessment and standards involved in it.

- Types of Image Quality Assessment
    i. Full reference IQA-RMSE,PSNR,SSIM
    ii. No reference IQA-BRISQUE,NIQE,PIQE
- NRIQA using Wavelet and NSCT
- Screen Captured video detection-An application of IQA

Practical session was conducted by Kiruthika S, Research Scholar of IIIT, Kancheepuram for processing the image in MATLAB and Python. Read, write and predefined image quality measures available in MATLAB was explained by her.



Websites for laboratory for image and video engineering is given to students if they interested to work in image quality assessments.

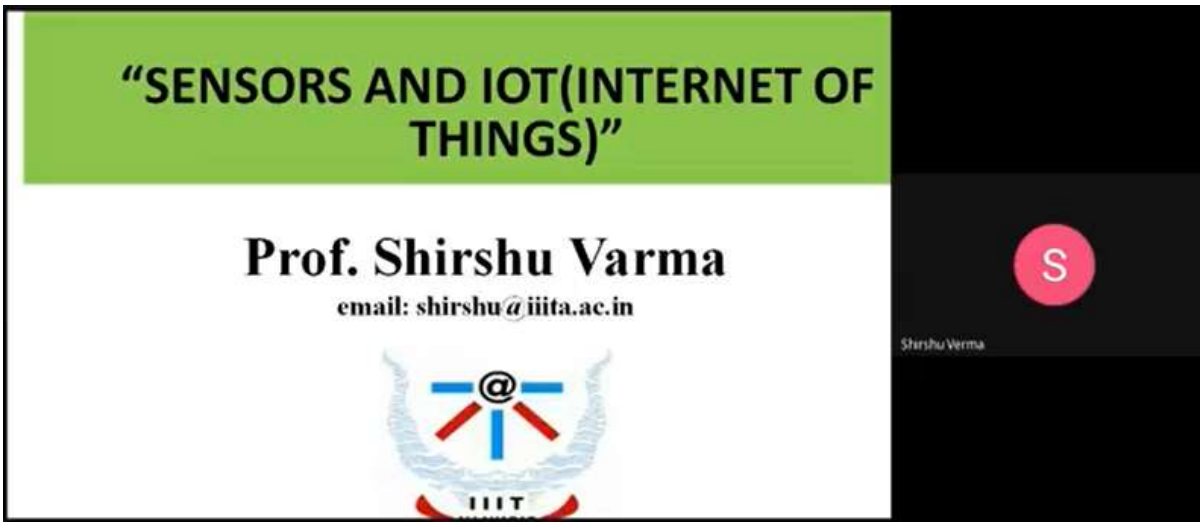


Dr.V Masilamani and Research Scholar Kiruthika S were actively involved in clearing the various doubts which students and staffs had. The entire session was very effective and interactive to the students and staffs. Around 104 students of CSE and ISE attended the session.

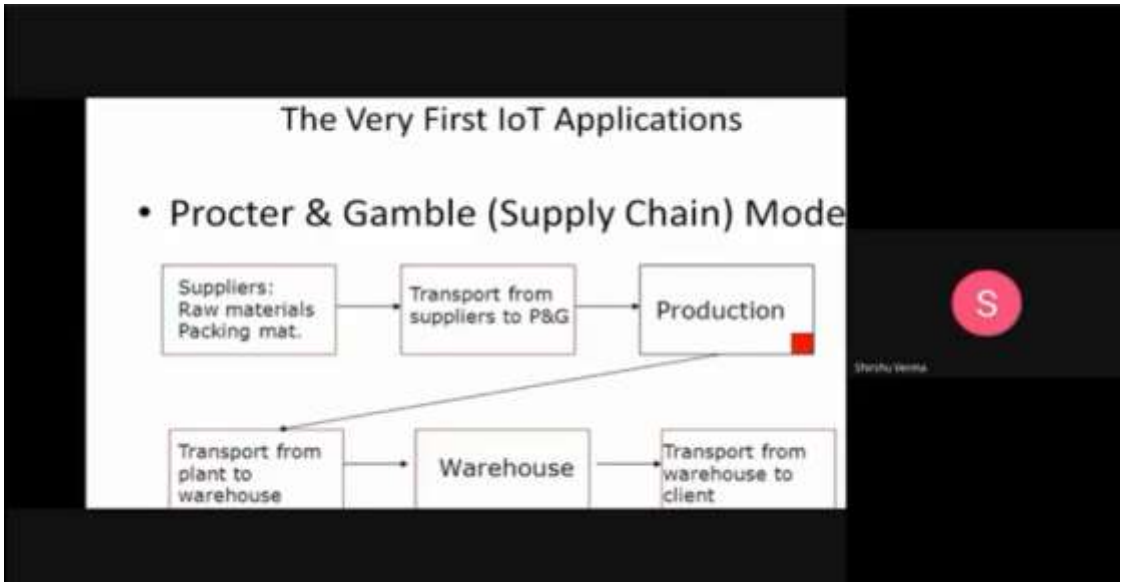
DAY- 19

Sensors and IoT

On Day 19th of Alva's Technothon-2020 session was on Sensors and IoT. The resource person Dr. Shirshu Verma ,IIITA , has explained about IoT basics and challenges encountered while using IoT. He has started the session with introduction to concept and path to IOT, where he has given brief introduction about sensor network, elements of sensor network and about WSN.

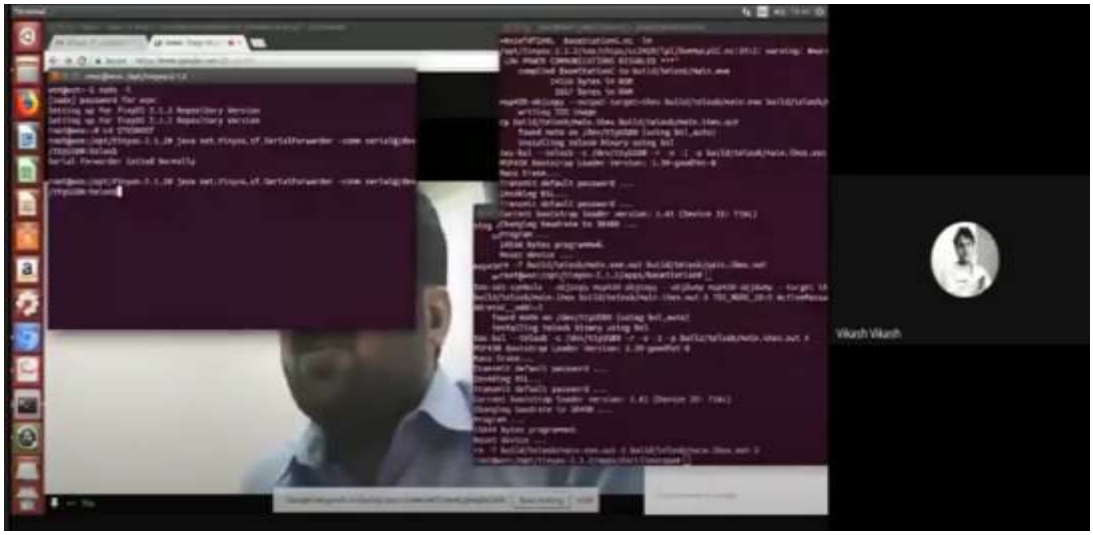


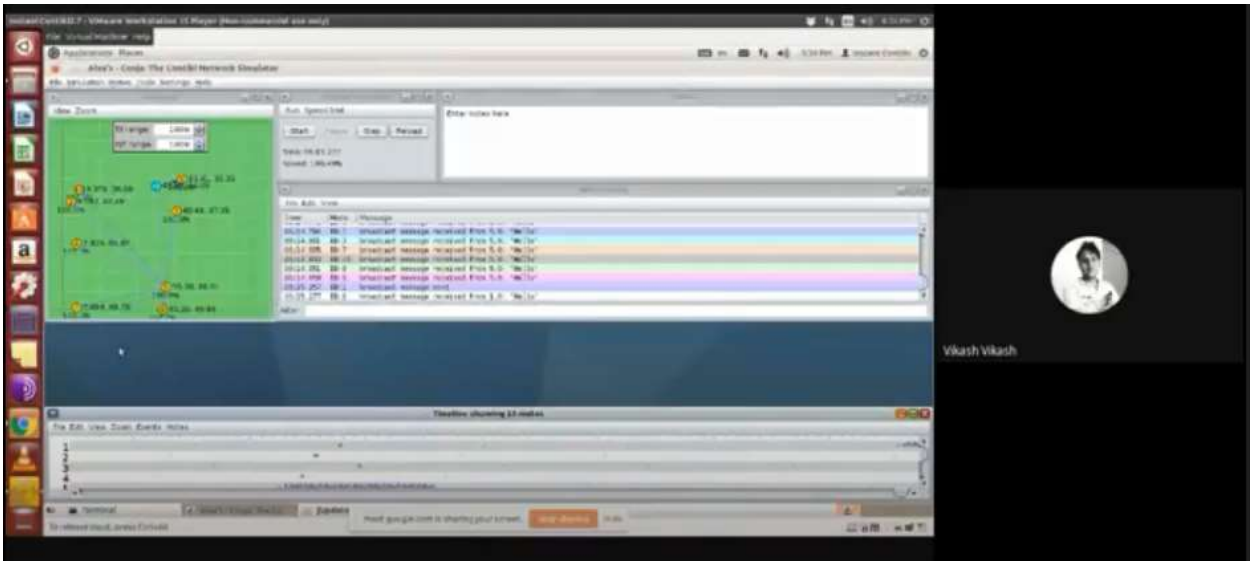
During the session students have learned about different layers of IOT, models of IoT like reference model, domain model, information model, functional model etc. Dr. shirshu Verma also covered some of the IoT applications.



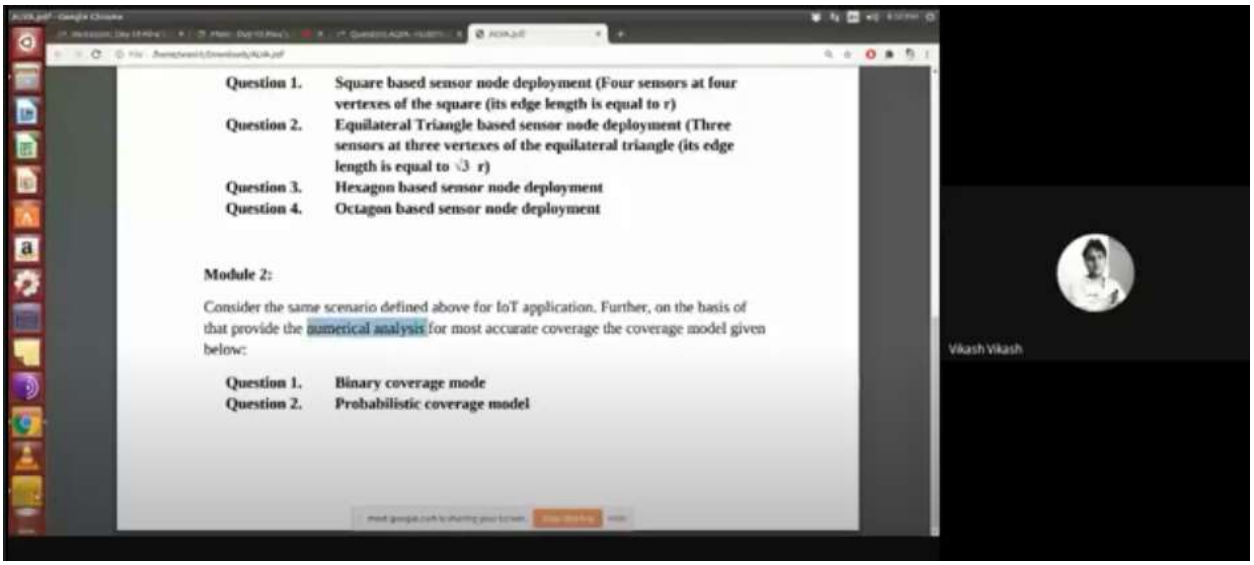
Dr. Shirshu Verma explained about How IoT helps in covid 19. Especially things such as Sensor based doors at entry and exit, automatic sanitizer dispenser, wearable, contact lens attendance marking, contact less payment etc. He has shown various experimental results and also its analysis. From the analysis he has explained degree of irregularity calculation and factor on degree of irregularity.

Laboratory session carried out by Mr. Vikash, Research Scholar, IIITA. Mr. Vikash has demonstrated Tiny os program , temperature sensing application etc.. Also he gave demonstration of virtual node deployment.





Finally each team was assigned with few assignment questions.



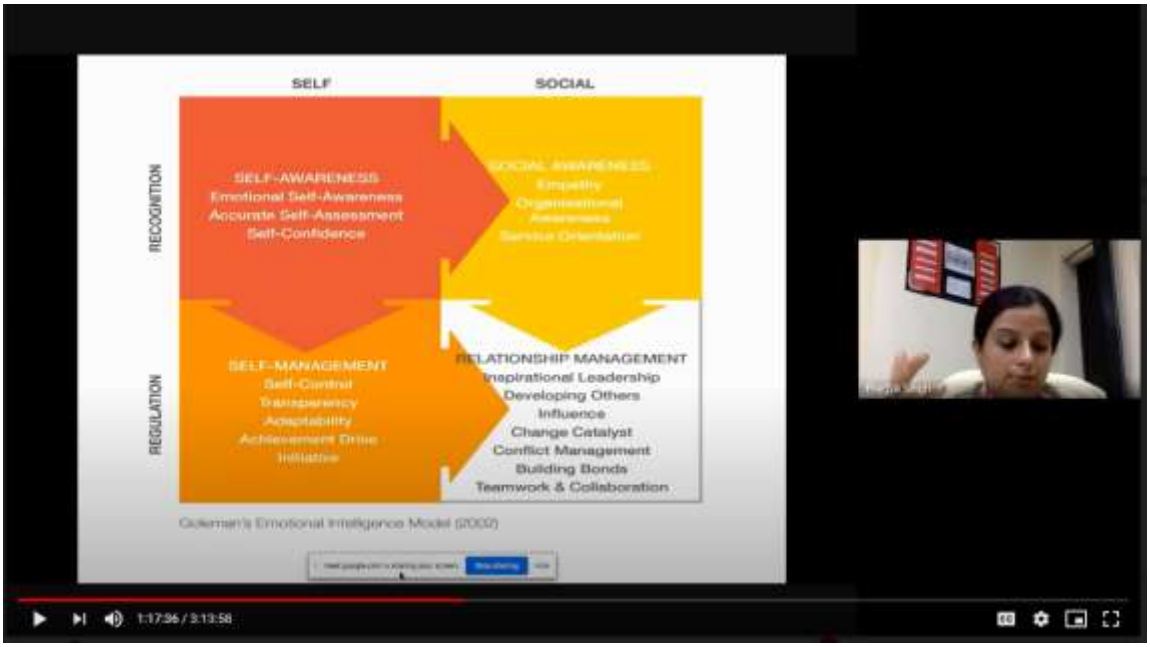
DAY- 20

EMOTIONAL INTELLIGENCE & INTELLIGENCE QUOTIENT

Resource Person: Dr. Pragya Singh, Assistant Professor, Department of Management Studies

Date and Time: 11.11.2020, 5.00 pm to 8.00 pm

After all the technical session, a non-technical session was a cherry on ice cream. The session started by explaining about emotions, which is derivations of five core feelings- happiness, sadness, anger, fear & shame, emotional awareness & understanding are not taught in school. Emotional intelligence is the ability to recognise and understand emotions in ourselves and others, and also ability to use this awareness to manage behaviours and relationships. Emotional intelligence is something in each of us that is bit tangible. It affects how we manage behaviours; navigate social complexities and personal decisions. EQ is a flexible skill while personality does not change. IQ, EQ and personality assessed together are the best way to get a picture of the whole person.



Dr.Pragya Singh further dealt with:

- Employers value EI over IQ in order of importance as-
    - Usually remain calm under pressure
    - Resolve conflicts effectively

    - Empathetic to their colleagues or act as such
    - Lead by example
    - May put more consideration into business decisions
- Session then continued by explained about
    - How much impact does EQ have on your Professional success?
    - EQ is the Foundation for a host of Critical skills.
    - EQ is so critical to success that it accounts for 58% of Performance in all types of Jobs. It is the single biggest Predictor of Performance in the workplace and the strongest driver of leadership and Personal excellence.
- Understanding emotional intelligence requires four skills
    - Self-awareness: emotional self-awareness, accurate self-assessment, self confidence
    - Self-management: self-control, transparency, adaptability, achievement drive, initiatives
    - Social awareness: empathy, organisational, awareness, social orientation.
    - Relationship management: inspirational leadership, developing others, influence, change catalyst, conflict management, building bonds, teamwork and collaborations
- Session also included various assessments like
    - Identification on various challenges in relationship management
    - Plan on EQ Intelligence
    - Steps on how to finding out your self-manager
    - Steps to control your self-talk.
    - How to clean up your sleep hygiene
    - Strategies of social awareness
    - Strategies of relationship management
- Assessment Question given to solve

- Q.1 What are the Physical symptoms you experience with emotion? Please specify. An example might be your face turns red when you're angry.
- Q.2 What are the few fundamental changes you might Like to Make now that you know change can happen at a Physical level? What would you like to train your brain to do?
- Q.3 What's one Experience that stands out for you in learning to recognize or manage your emotions? What about learning to recognize what other people are feeling?
- Q. 4 In your College/Institution, How are emotions dealt with? Is there anything covered in discussions/talks that will help you in the next six months at work?
- Q.5 What will make practicing EQ Skills most challenging for you?

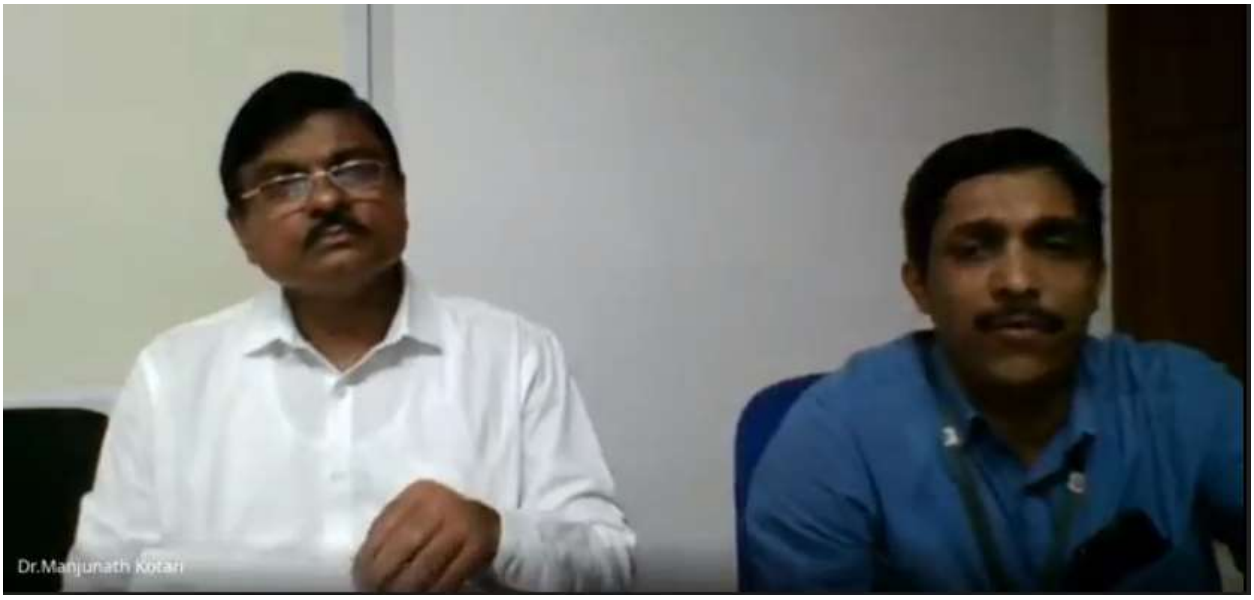
Link to test our EQ and IQ

https://www.evansconsulting.com/article/2019/09/emotional-intelligence-vs-intelligence-quotient/

DAY- 21

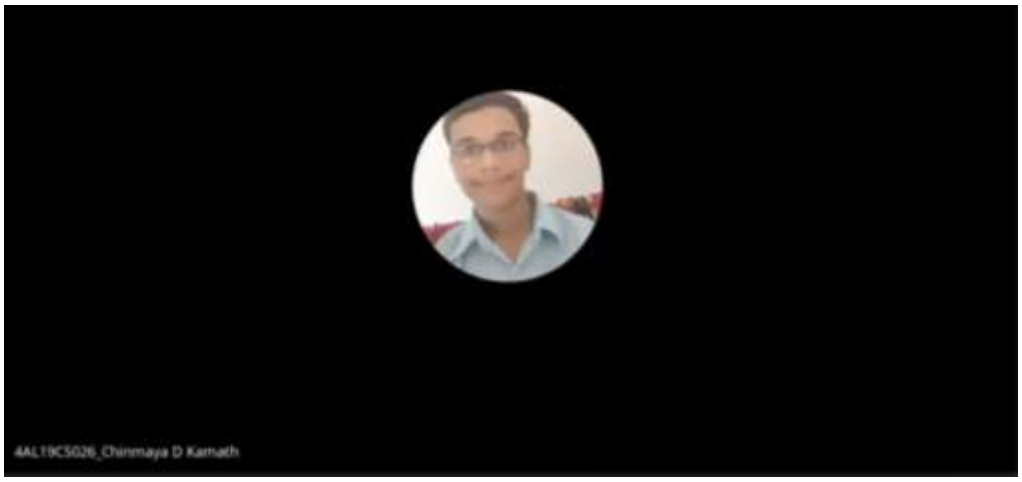
Valedictory Program of Alva's Technothon-2020

On day 21st of Alva's Technothon-2020, AIET organized a valedictory program of the entire 21 days program on 12th Nov,2020. Dr. P.Nagabhushan, Director IIITA was the chief guest of the program. In his valedictory speech Dr. P. Nagabhushan spoke about Confident of AIET students regarding Problem solving skills and suggested to continue this kind of work in future for the benefit of the students' knowledge"

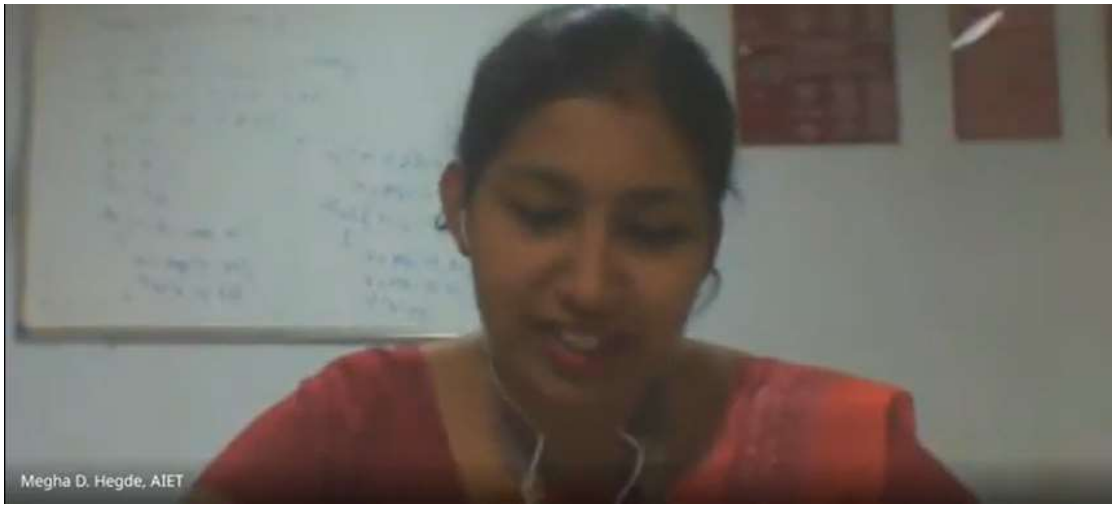


Dr.Peter Fernades, Principal AIET, Moodbidri presided over the program and spoke about effort of various resource persons involved in the Alva's Technothon-2020. He also heighted that, the effort of various people should

not be wasted if students should utilize it properly. Dr.Manjunath Kotari, HOD-CSE, Prof.Jayanthkumar Rathod A, HOD-ISE, Faculty of CSE/ISE, Resource Persons of Alva's Technothon-2020, and all the 21 students teams were present during the program.



The resource persons Dr. Mohammed Javed, Dr. Pragya Singh, Dr. Shirshu Verma, and Dr.Sharad Sinha shared their views and feedback about the Alva's Technothon-2020.



Ms.Megha D Hegde welcomed the gathering and Dr. Manjunath Kotari summarized the entire 21 days proceedings to the gathering. The students representatives Chinmayee Dayanad, Spoorthy V V, Samrudhi, Viha B Raju, Priyanka, Vinod, Ramayashree and Akash gave the feedback about the 21 days program.

Team	**Total Marks**	**Place**
Team1	82.5	
Team2	73.5	
Team3	81.5	
Team4	83.5	
Team5	69.5	
Team6	74.5	
Team7	73	
Team8	73.5	
Team9	81	
Team10	**85**	**I**
Team11	77.5	
Team12	**84.5**	**II**
Team13	71	
Team14	73	
Team15	76.5	
Team16	82	
Team17	75.5	
Team18	74	
Team19	84	
Team20	73	
Team21	69.5	

Finally Ms. Megha D Hegde announced the top 2 highest scored teams by considering all the assignments evaluation. First place is bagged by Team 10 scored 85 Marks and Second place is bagged by Team 12 scored 84.5 Marks.

4AL17CS062	**Pranav L M**	**I**
4AL19CS404	Swapna M D	
4AL18CS077	Shailashree	
4AL18CS082	Sidramesh	
4AL17IS025	Lokesh	
4AL17CS067	**Priyanka Killedar**	II
4AL17CS097	Spoorthi M S	
4AL18CS051	Naveen Md	
4AL19CS401	Praneeta Handral	
4AL18CS050	Naipunya	

HOD CSE

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"Alva's Technothon-2020" in association with IIITAllahabad

Participants List

List of Teams for "Alva's TECHNOTHON-2020" in association with IIIT Allahabad.			
Sl. No	**Team Name**	**USN**	**Members**
1	**Team 1**	**4AL18CS087**	**Spoorthy V V**
2		4AL18CS033	Karthik H B
3		4AL16IS058	Varada
4		4AL18CS062	Prathibha Shetti
5		4AL19CS006	Akhilesh Herkal
6	**Team 2**	**4AL18CS074**	**Samruddhi A Bogar**
7		4AL18CS072	S Mohammed Tanzeel
8		4AL18CS030	Jyothi B R
9		4AL18CS047	M Venkataramanachari
10		4AL17IS002	Akshatha Hegde
11	**Team 3**	**4AL18IS022**	**Ramyashree**
12		4AL17IS031	Navya Poojary
13		4AL18CS005	Ambika V
14		4AL18CS014	Bhavya S
15		4AL18CS083	Sinchana K N
16	**Team 4**	**4AL18CS017**	**C K Chethan**
17		4AL18CS078	SHIZA AMREEN J
18		4AL18CS003	Adarsha N Y
19		4AL17CS028	Dheeraj Krishna Devadig
20		4AL19CS026	Chinmaya Dayananda Kamath
21	**Team 5**	**4AL18CS045**	**M Mahammad Asif**
22		4AL17CS035	Jayalakshmi
23		4AL18CS054	P Yuvaraj
24		4AL18CS035	Kavoor Latika Vinayak
25		4AL17CS101	Surya Prakash S
26	**Team 6**	**4AL18CS043**	**Laxman Pundalik Budhihal**
27		4AL17CS112	Vinod
28		4AL18CS036	Keertana Ganesh Ganiga
29		4AL18CS068	Ramesh Shekhappa Bhajantri
30		4AL18IS025	Vaibhavi
31	**Team 7**	**4AL18CS011**	**Archana J C**
32		4AL18CS061	Prathusha Ka
33		4AL18CS041	Lavanya D M
34		4AL19CS085	Shetty Sushmita rajeeva

74		4AL18CS096	Vanishree Binjadagi
75		4AL19CS400	Nikhil Kumar
76	**Team 16**	**4AL17CS108**	**Viha B Raju**
77		4AL18CS027	Jahnavi Pc
78		4AL18CS053	Niveditha Magadum
79		4AL18CS060	Prashant Rama Bhat Kodlekere
80		4AL19CS057	Natasha
81	**Team 17**	**4AL17CS109**	**Vikas A L**
82		4AL18CS021	Felina Simon Menezes
83		4AL18CS070	Riya C P
84		4AL17CS105	Tejaswini R
85		4AL19CS074	Rachana C
86	**Team 18**	**4AL17CS077**	**Rohan Mahaveer**
87		4AL18CS088	Spoorti S Daroji
88		4AL18CS065	Rachana B S
89		4AL18IS006	Chinmayi M K
90		4AL18CS091	Swathi B C
91	**Team 19**	**4AL17CS034**	**Jagath Haren**
92		4AL18CS020	D RICHARD FRENKLIN
93		4AL15CS026	Darshan M
94		4AL18CS034	Karthik S
95		4AL18CS002	Abhishek S Harsoorkar
96	**Team 20**	**4AL17CS104**	**Syed Hudaif Ibrahim**
97		4AL18CS056	Pooja D S
98		4AL18CS071	S Harin Gowda
99		4AL18CS092	T K Koushik Chinnappa
100		4AL19CS041	K Vinay
101	**Team 21**	**4AL17CS044**	**Koushik S N**
102		4AL18CS046	M R Jeevan
103		4AL14CS099	Sandesh Kumar K.M
104		4AL18IS002	Abhiman H R
105		4AL18CS084	Sneha G

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