



## IFET COLLEGE OF ENGINEERING

(An Autonomous Institution)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

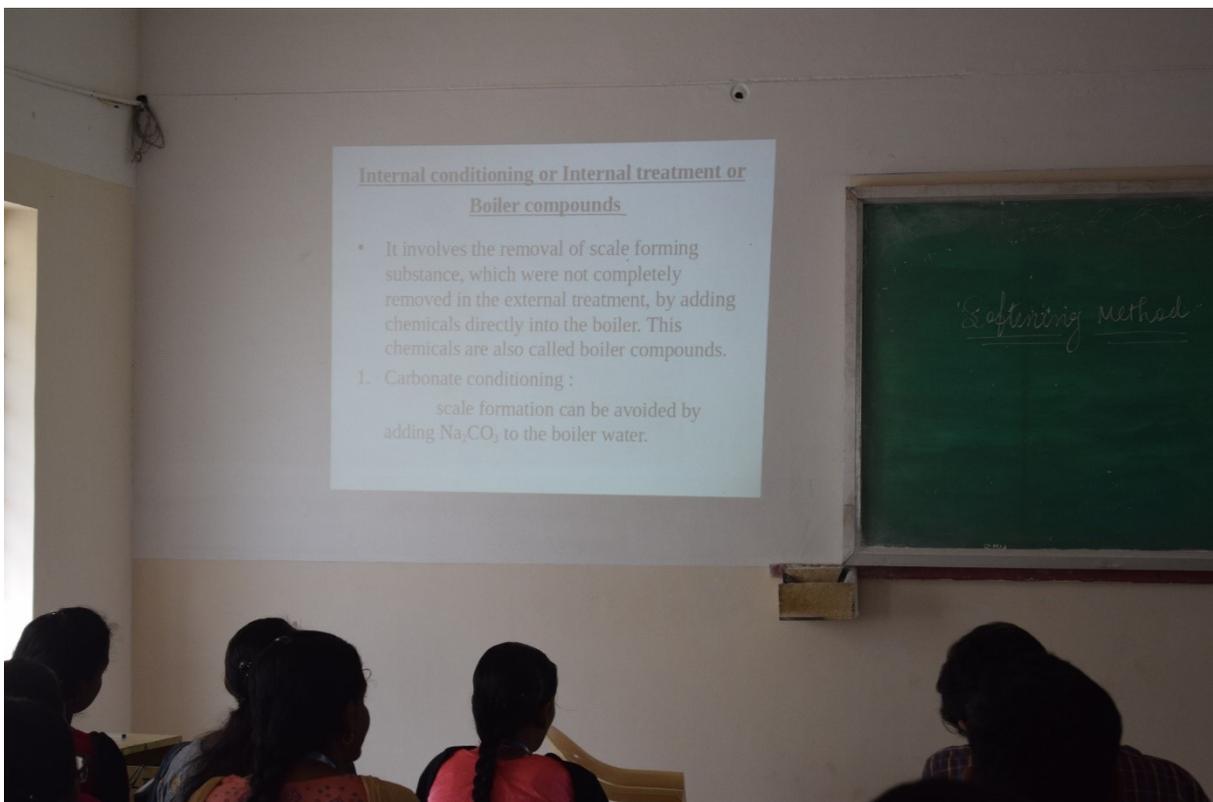
Gangarampalayam

### Summary of Innovations in Teaching Methodologies

S.NO	FACILITIES
1.	Classroom - LCD Projectors, LCD projectors , portable speakers and digital Pad
2.	Google Classroom
3.	Virtual Labs
4.	Course Materials in IFETERP
5.	Power Point Presentation
6.	Animated Videos
7.	Online Visualization
8.	Value added Courses
9.	Summer and Winter Workshops
10.	Project Expos
11.	NPTEL Video Links
12.	Employability Skill Teaching
13.	Outcome Based Teaching

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**INNOVATIONS BY FACULTY IN TEACHING AND LEARNING**

**Classroom - LCD Projectors, LCD projectors , portable speakers and digital Pad**



# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## INNOVATIONS BY FACULTY IN TEACHING AND LEARNING

### Google Classroom

This screenshot shows the submission page for 'CD Assignment-1' in a Google Classroom. The interface includes a top navigation bar with 'Instructions' and 'Student work' tabs. A 'Return' button and a '100 points' indicator are visible. On the left, a sidebar lists 'All students' with a 'Sort by status' dropdown and a 'Turned in' filter. The main area displays a grid of student submissions, each with a profile picture, name, and a Drive file icon. The status of each submission is shown as 'Turned in' or 'Draft'. The bottom of the image shows a Windows taskbar with the search bar and system tray.

Student Name	Status
Gopinath B	Turned in
Gokul	Turned in
GOKULAKRISHNAN R	7 Draft
diviya jayakumar	Turned in
DHIVYA N	Turned in
Agalya P	Turned in

This screenshot shows the 'Stream' page of a Google Classroom for the course '2018-2022'. The page features a 'Class code' section with the code 'swfxy7x'. Below this, an 'Upcoming' section indicates 'No work due soon'. The main stream area contains a series of announcements from 'Usharani S', each detailing a new assignment: 'OOAD Model Exam' (Oct 24, 2020), 'OOAD IA3' (Oct 17, 2020), 'OOAD IA2' (Sep 30, 2020), 'OOAD unit- test -2' (Sep 22, 2020), 'OOAD IA-1' (Sep 5, 2020), and 'OOAD IA -1' (Jul 7, 2020). The bottom of the image shows a Windows taskbar with the search bar and system tray.

OOAD Model Exam

Gopinath B 42/50 Done late

Return

Files  
Turned in on Oct 24, 2020, 4:07 PM  
See history

GOPINATH B 421118...

Grade  
42/50

Private comments  
Add private comment...  
Post

Model Exam

Registerno: 42111810402\*

Nama: D. Gopinath

Class: CSE - A 3<sup>rd</sup> Year

Subjekt code: CS 8592

Subjekt: Object Oriented Analysis and Design

Date: 24/10/20

Part - A

1. d) Abstraction

2. a) 4

Type here to search

13:14 14-12-2022

Google Classroom

To-do To review Calendar

NITTRC-FDPOM-82...  
NITTR Chennai

AICTE STTP on : Impa...  
Online  
Dr.K.Lakshminarayanan

CSE  
I CSE A

2018-2022  
C

2018-2022  
A

III CSE A  
A

Type here to search

13:10 14-12-2022

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**INNOVATIONS BY FACULTY IN TEACHING AND LEARNING**

**Virtual Labs**

**Machine Learning** | **Machine Learning Lab > Implementation of AND/OR/NOT Gate using Single Layer Perceptron > Aim**

Implementation of AND/OR/NOT Gate using Single Layer Perceptron

**Aim**

To understand the working of neural networks using AND, OR, NOT Gates implemented through a single neuron of the neural network.

**Machine Learning** | **Machine Learning Lab > Implementation of AND/OR/NOT Gate using Single Layer Perceptron > Simulation**

Implementation of AND/OR/NOT Gate using Single Layer Perceptron

**Simulation**

Select gate: AND Gate Start Simulation Stop Simulation

**AND Gate Neural Network (NN)**

$w_1 = 1$   
 $w_2 = 1$   
 Threshold: 0

$Y' = w_1 * X + w_2 * Y$   
 $= 1 * (X-) + 1 * (Y-)$

$Z' = F(Y')$   
 Threshold: 0

Apply next set of {P} values

**Truth Table of AND Gate**

X	Y	Expected O/P	O/P from NN
0	0	0	0
0	1	0	0
1	0	0	0

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INNOVATIONS BY FACULTY IN TEACHING AND LEARNING

POWERPOINT PRESENTATIONS

19UCSPC502  
Theory of Computation

UNIT-2  
REGULAR EXPRESSIONS AND  
LANGUAGES

### Syllabus

Regular Expressions - FA and Regular Expressions - Proving Languages not to be regular - Closure Properties of Regular Languages - Equivalence and Minimization of Automata

### Regular Languages

- ▶ A regular language (over an alphabet  $\Sigma$ ) is any language for which there exists a finite automaton that recognizes it.
- ▶  $\emptyset$  is a regular exp that denotes its empty set[]
- ▶  $\epsilon \rightarrow \epsilon$
- ▶  $A \rightarrow su(a) \rightarrow aa, aaa, aaaa$

### Regular Expression

- ▶ A *regular expression* is a mathematical model for describing a particular type of language.
- ▶ Regular expressions are kind of like arithmetic expressions.
- ▶ The regular expression is defined recursively.

### Regular Expression

- ▶ A *language* (over an *alphabet*  $\Sigma$ ) is any subset of the set of all possible strings over  $\Sigma$ . The set of all possible strings is written as  $\Sigma^*$ . Eg.
  - ▶  $\Sigma = \{a, b, c\}$
  - ▶  $\Sigma^* = \{\epsilon, a, b, c, ab, ac, ba, bc, ca, abc, \dots\}$

- ▶ Sort of like a programming language.
- ▶ Fundamental in some languages like perl and applications like Grep or lex.
- ▶ Capable of describing the same thing as a NFA
- ▶ The two are actually equivalent, so RE = NFA = DFA
- ▶ We can define an algebra for regular expressions

► Example 1:

- Find a regular expression for strings of 0's and 1's which have at least one pair of consecutive 0's.
- Each such string must have a 00 somewhere in it.
- It could have any string in front of it and any string after it, as long as it's there!!!
- Any string is represented by  $(0 + 1)^*$
- Answer:  $(0 + 1)^*00(0 + 1)^*$

► Example 2:

- What does  $(aa)^*(bb)^*b$  represent?
- All strings over  $\{a, b\}$  that start with an even number of a's which are then followed by an odd number of b's.
- It's important to understand the underlying meaning of a regular expression.

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**ANIMATED VIDEOS**

S.NO	COURSE NAME	URL FOR ANIMATED IMAGES
1.	Computer Networks	<a href="http://www.animatedgif.net/computers/computers.shtml">http://www.animatedgif.net/computers/computers.shtml</a>
2.	Computer Networks	<a href="https://www.nsf.gov/news/news_videos.jsp?org=NSF&amp;cntn_id=104467&amp;preview=false&amp;media_id=55918">https://www.nsf.gov/news/news_videos.jsp?org=NSF&amp;cntn_id=104467&amp;preview=false&amp;media_id=55918</a>
3.	DAA	<a href="https://www3.cs.stonybrook.edu/~skiena/combinatorica/animations/dijkstra.html">https://www3.cs.stonybrook.edu/~skiena/combinatorica/animations/dijkstra.html</a>
4.	Operating System	<a href="http://williamstallings.com/OS/Animation/Animations.html">http://williamstallings.com/OS/Animation/Animations.html</a>

**Animations for  
Operating Systems, Sixth Edition  
by William Stallings**

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The original animations referenced in the book have been withdrawn from public access by the developer. The following links are for alternative animations, and are from three sources:

-  Animations developed by Brian English of Henderson State University and Stephen Rainwater of The University of Texas at Tyler
-  Animations developed by the Hyperlearning Center at George Mason University
-  Animations developed by at Queensland University

Note to students: the animations listed here are more comprehensive than the interactive animations listed in the book. Viewing these animations while studying the corresponding chapter will enhance your understanding of the concepts.

Note to instructors: the animations listed here do not provide for changing input parameters and are therefore not suitable for project assignments. For that purpose the online, interactive simulations described in Appendix C.2 are suitable; project assignments are provided in the instructor's manual.

**Chapter 3 - Process Description and Control**

-  [The dynamic state of a process.](#)
-  [CPU switching between processes as a result of system calls or interrupts](#)
-  [Swapping of processes using a disk as a backing store](#)
-  [OS performance](#)
-  [Example process life cycle](#)

**Chapter 5 - Concurrency: Mutual Exclusion and Synchronization**

-  [Producer/Consumer problem](#)
-  [The Critical Section problem](#)

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**Online Visualization**

S.NO	COURSE NAME	Topic	URL FOR ANIMATED IMAGES
1.	Artificial Intelligence	Alpha beta pruning	<a href="https://pascscha.ch/info2/abTreePractice/">https://pascscha.ch/info2/abTreePractice/</a>
2.	Data Structures	Binary Search Tree Visualization	<a href="https://www.cs.usfca.edu/~galles/visualization/BST.html">https://www.cs.usfca.edu/~galles/visualization/BST.html</a>
3.	Data Structures	Binary Search Tree AVL Tree	<a href="https://visualgo.net/en/bst?slide=1">https://visualgo.net/en/bst?slide=1</a>
4.	DAA	Example Graphs Depth-First Search Breadth-First Search Topological Sort Bipartite Graph Check Cut Vertex & Bridge SCC Algorithms 2-SAT Checker	<a href="https://visualgo.net/en/dfsbfbs?slide=4">https://visualgo.net/en/dfsbfbs?slide=4</a>

slide 1 (1%)

```

Insert 1,77
Comparing 1 with 15
if insertion point is found
  create new vertex
if value to be inserted < this key
  go left
else go right
  
```

1x

About Team Terms of use Privacy Policy

Type here to search

09:35 15-12-2022

Graph Traversal (Depth/Breadth | x Binary Search Tree Visualization x Binary Search Tree Visualization x Depth-First Search Visualization x +

visualgo.net/en/dfsbfbs?slide=4

VISUALGO.NET /en /dfsbfbs GRAPH TRAVERSAL (DFS/BFS) e-Lecture Mode LOGIN

slide 4 (8%)

```

graph TD
    0((0)) --- 1((1))
    0 --- 2((2))
    2 --- 3((3))
    2 --- 4((4))
  
```

**Bipartite Graph Checker (BFS)**

```

Extract 2 from queue.

for each unvisited vertex u
  push u to the queue
while !Q.empty // Q is a normal queue
  for each neighbor v of u = Q.front, Q.pop
    if u and v have the same color - exit
    assign another color to v, push v to queue
// ch4_01_dfs.cpp/java, ch4, CP3
  
```

1x About Team Terms of use Privacy Policy

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alpha beta pruning visualizer - G x Alpha-Beta Pruning Practice x +

pasccha.ch/info2/abTreePractice/

Alpha-Beta Pruning Practice  $\alpha\beta$  Cutoff

Start Animation

Depth - +

Branching Factor - +

Swap Min/Max Regenerate Tree

Reset Tree Show Solution

Check Answer --

1 5 -2 -16 -9 9 -12 -17 14 10 -18 -4 5 9 -19 -2 -7 -5 -3 13 -19 -2 18 11 16 -14 -9

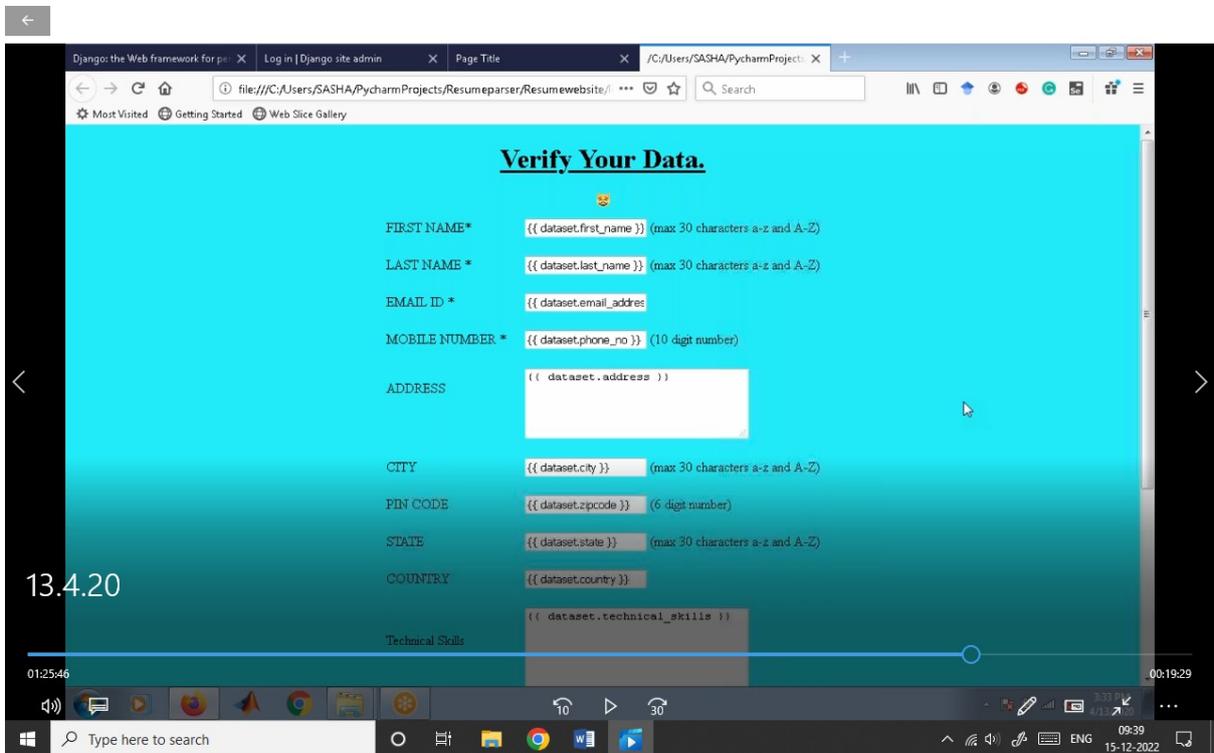
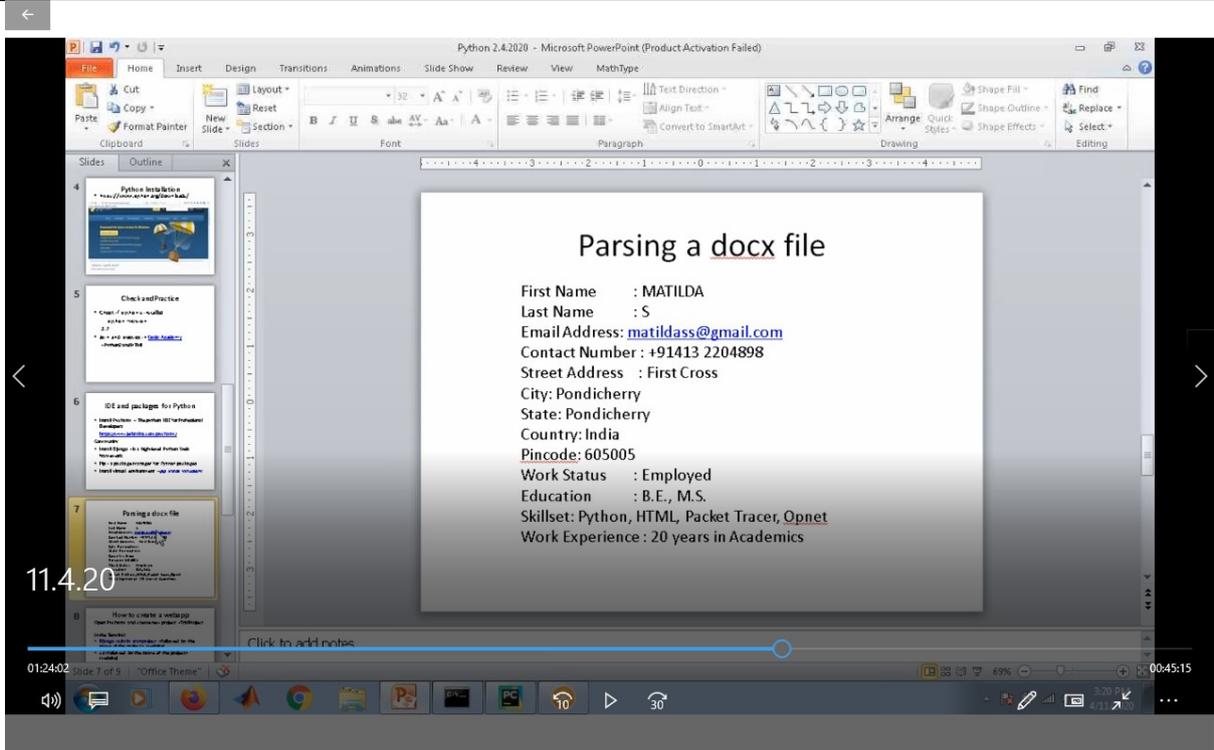
Developed by Aleks Kamko for UC Berkeley CS61B

Nodes are pruned when  $\beta \leq \alpha$

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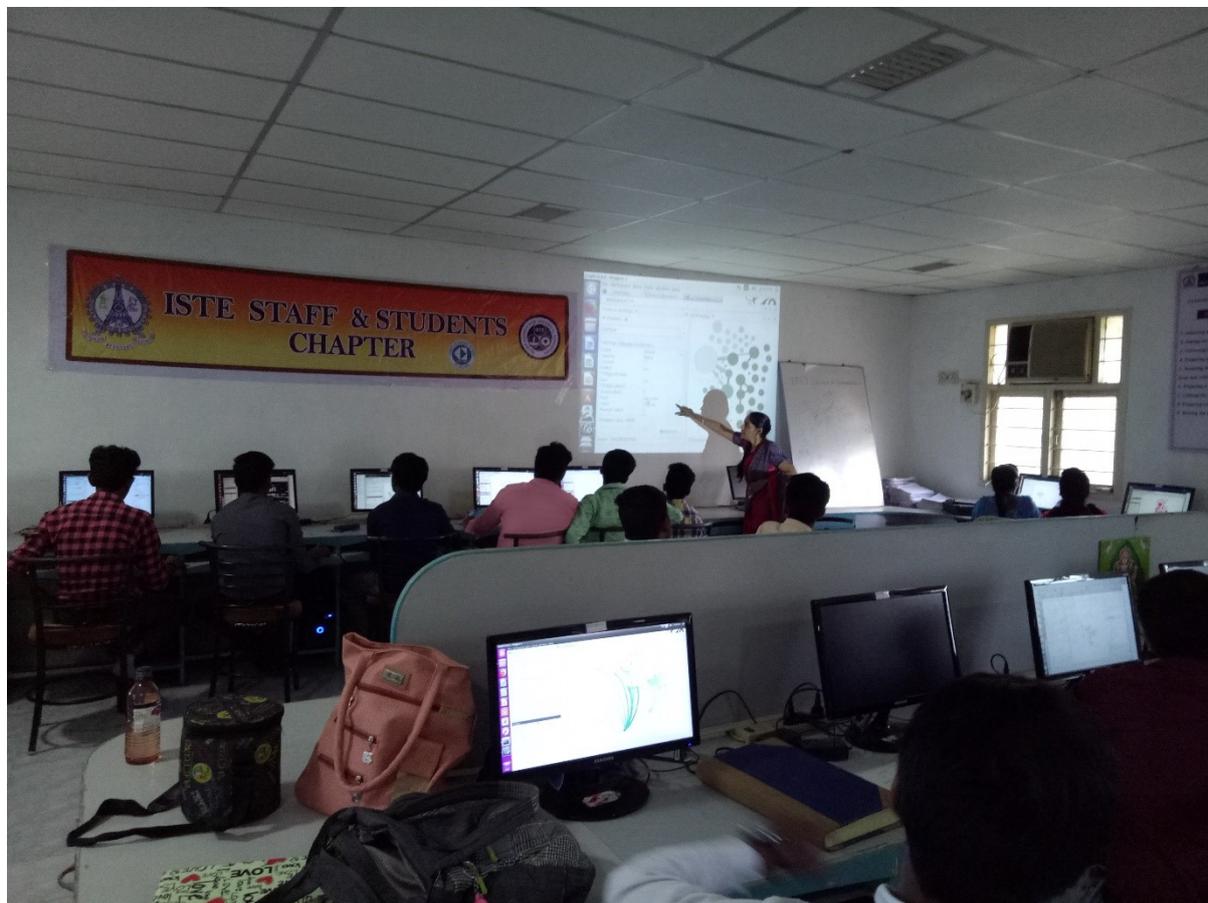
Value Added Courses

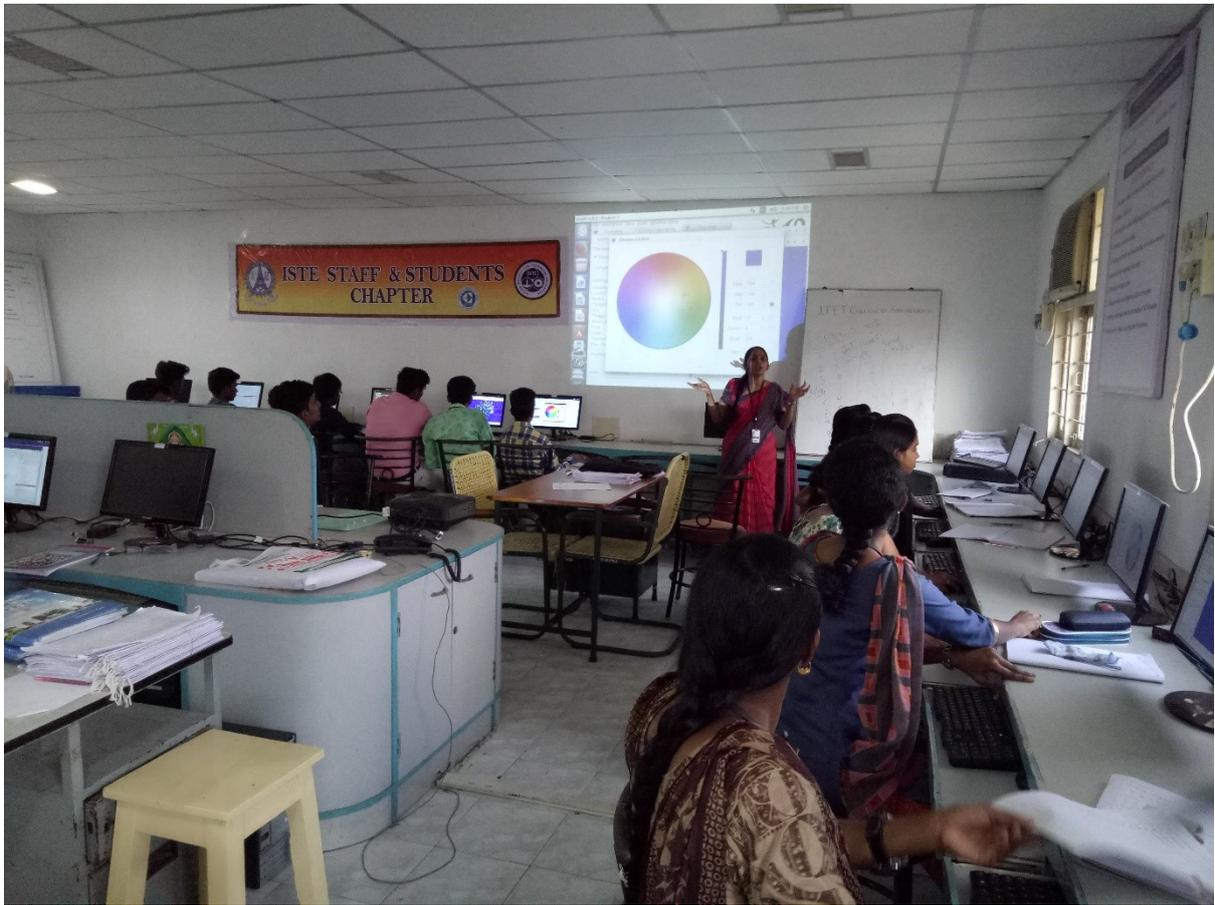




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INNOVATIONS BY FACULTY IN TEACHING AND LEARNING**

**Summer and Winter Workshops**





# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## INNOVATIONS BY FACULTY IN TEACHING AND LEARNING

### Project Expos





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## INNOVATIONS BY FACULTY IN TEACHING AND LEARNING

### NPTEL Video Links

**NPTEL:**  
**Introduction to Machine learning by Sudeshna Sarkar, IIT Kharagpur**

**UNIT-I**

1. <https://youtu.be/T3PsRW6wZSY> ( Introduction to Machine Learning)
2. <https://youtu.be/EWmCkVfPnJ8> ( Different types of Learning)
3. <https://youtu.be/8PJ24SrQqv8> ( Linear Regression)

**UNIT-II**

1. <https://youtu.be/FuJVLsZYkuE> (Introduction to Decision Trees)
2. <https://youtu.be/7SSAA1CE8Ng>(Learning Decision Tree)
3. <https://youtu.be/v6SpA2Wuyt8>(**Overfitting**)
4. [https://youtu.be/lIBPihB02\\_8](https://youtu.be/lIBPihB02_8)(Python Exercise on Decision Tree and Linear Regression)
5. <https://youtu.be/5WCkrDI7VCs>(Naive Bayes)
6. <https://youtu.be/gidJbK1gXmA>(Introduction Support Vector Machine)

**UNIT-III**

1. <https://youtu.be/PNglugooJUQ>(k-Nearest Neighbour)
2. <https://youtu.be/FwbXHY8KCUw>(Feature Extraction)
3. <https://youtu.be/40B8D9OWUf0>(Python Exercise on kNN and PCA)
4. <https://youtu.be/CwjLMV52tzl>(Introduction to Clustering)
5. [https://youtu.be/qg\\_M37WGKG8](https://youtu.be/qg_M37WGKG8)(Kmeans Clustering)
6. <https://youtu.be/NCsHRMkDRE4>(Agglomerative Hierarchical Clustering)

**UNIT-IV**

1. <https://youtu.be/ep3hLUDM7uA>(Genetic Algorithms)
2. <https://youtu.be/YaPSPu7K9S0>(Introduction to RL)
3. <https://youtu.be/Ein91yBECrc>(Markov Decision Process Set Up)

**Topics for Innovative Teaching:**

**Unit - 1 :** Applications of Machine Learning - Crossword

**Unit - 2 :** Supervised Machine Learning Algorithms - Quiz

**Unit - 3 :** Clustering: k-Means Clustering – Role play

**Unit - 4 :** Getting Lost Example - Demonstration

**Unit – 5 :** Medical Diagnosis – Coding

Introduction

YouTube · Machine Learning · Sudeshna Sarkar · 28-Jun-2016

More videos

- 00:47 Overview of the course
- 02:18 The first machine learning system
- 09:07 Rise of Neural Network
- 12:12 What is Machine Learning?

Related topics

- Learning rule

Photo from Usharani S - x | (no subject) - ushasanchu x | (3) WhatsApp x | 1. https://youtu.be/T3PsR x | Introduction to internet x

onlinecourses.nptel.ac.in/noc20\_cs66/student/mentee

ushasanchu@gmail.com

**NPTEL** Introduction to internet of things

Announcements About the Course Ask a Question Progress Mentor Mentee List Review Assignment

**Mentee Details** [Download CSV](#)

Serial Number	Name	Email	Roll Number	Mobile Number	Assignment 0	Assignment 1	As
1	AGALYA_P	agalayaprabharan04@gmail.com	421118104002	+919077882706	100.0	80.0	87
2	Ajithkumar	ajithkumar53841@gmail.com	03	+919655591613	100.0	80.0	87
3	Akash M	akashmrunagan501@gmail.com	421118104004	+919843201213	100.0	80.0	87
4	Amirtha_V	amirtha2504@gmail.com	421118104005	+919380029598		80.0	
5	Amreen	amreenabdu2000@gmail.com	4211	+919500385957	100.0	80.0	87
6	Archana.S	akasharchana01@gmail.com	42111801007	+918524017987	100.0	80.0	87
7	Arul Stephen Joshua.A	smartstephen22@gmail.com	421118104008	+919469362981	100.0	80.0	87
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11	BACHALA BHARATH SUDHA CHANDRA	bharathsudhachandraasdf@gmail.com	421118104012	+919885740600	100.0	80.0	87
12	BORRA SURENDRA	borrasurendra077@gmail.com	4211	+916302577022		80.0	87
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14	Bharathi R	bharathi25122000@gmail.com	421118104014	+919374440534	100.0	80.0	87
15	Brightsingh	massbright822@gmail.com	421118104016	+919500484004			
16	DHAVAVARSHINI.M	varshinimi21@gmail.com	421118104018	+919952886335	100.0	80.0	87
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18	Dhilipkumar D	dhillipkumar901@gmail.com	421118104019	+919843016373		80.0	87
19	Dhivya N	dhivyanagarathinam8@gmail.com	421118104020	+919385430078	100.0	80.0	87
20	Diviya Jayakumar	diviyajayakumar@gmail.com	4211	+919489499655	100.0	73.0	87
21	GAYATHRI	gayathrigowthams@gmail.com	4211	+919524224391	100.0	80.0	87
	GOGULA						

22:45 14-12-2022




# CERTIFICATE OF APPRECIATION

is awarded to

**USHARANI S**  
**IFET COLLEGE OF ENGINEERING**  
 VILLUPURAM, TAMIL NADU

in recognition of his/her role as mentor for the  
 NPTEL Online Certification course

**INTRODUCTION TO INTERNET OF THINGS**  
**Jan - Dec 2020**

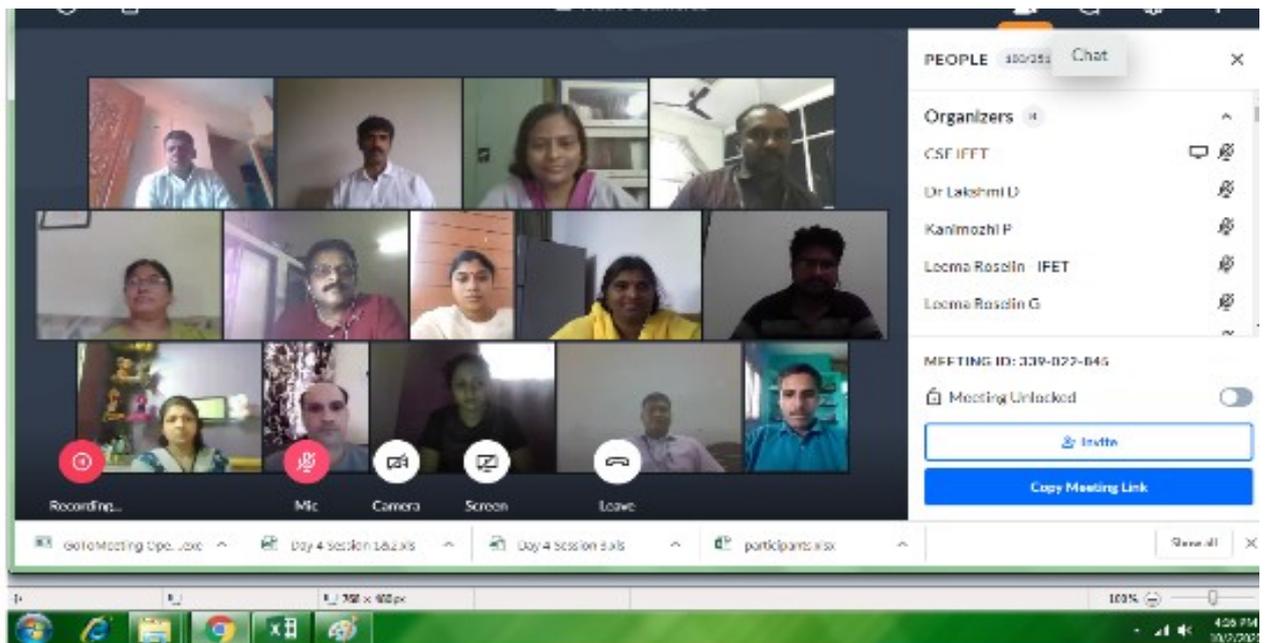
Mentees Enrolled	Mentees Present	Score (in %)					
		<40	40-59	60-74	75-89	>=90	Toppers
47	26	5	11	10	0	0	0

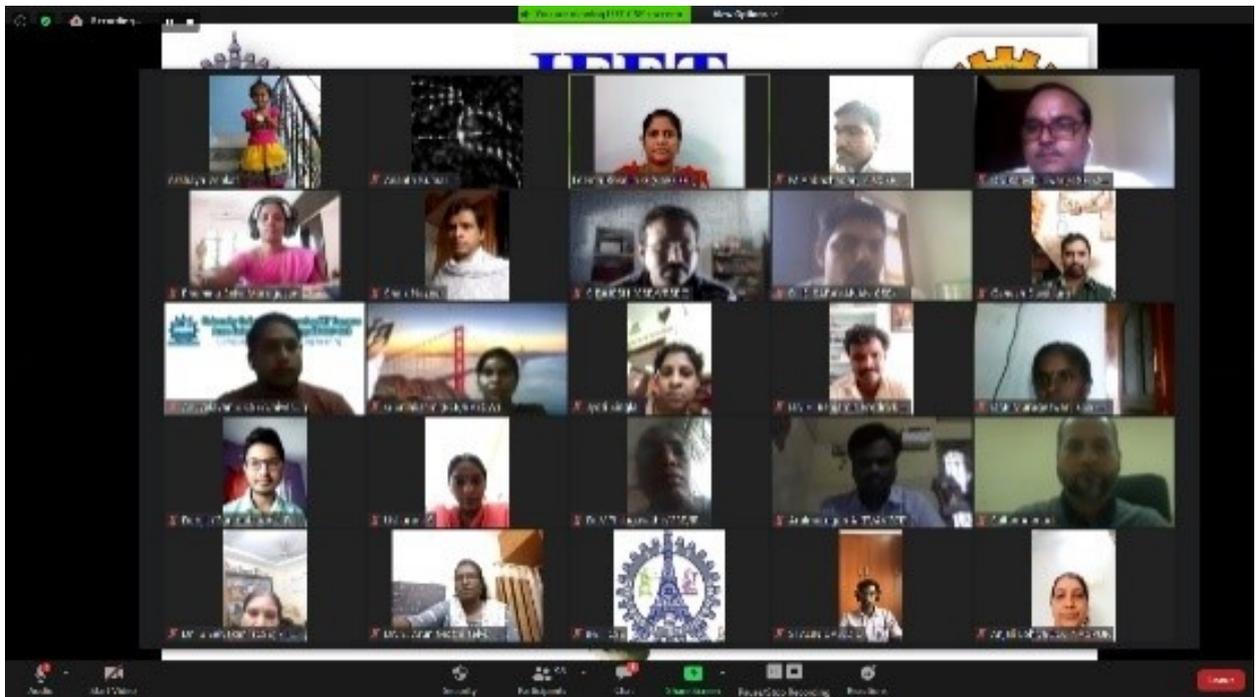
  
**PROF. ANDREW THANGARAJ**  
 NPTEL Coordinator  
 IIT Madras

# DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

## INNOVATIONS BY FACULTY IN TEACHING AND LEARNING

### Employability Skill Teaching





Dr. Abhinav K. Pandey is presenting

### LSTM information flow

The diagram illustrates the information flow in an LSTM cell. It shows two time steps,  $t$  and  $t+1$ . At time  $t$ , the input  $x_t$  is processed by the forget gate ( $f_t$ ) and the input gate ( $i_t$ ). The forget gate output is multiplied element-wise with the previous cell state  $C_{t-1}$ . The input gate output is multiplied element-wise with the candidate cell state  $\tilde{C}_t$ . The results are then added to form the new cell state  $C_t$ . The cell state  $C_t$  is passed through the output gate ( $o_t$ ) and the  $\tanh$  activation function to produce the hidden state  $h_t$ . The hidden state  $h_t$  is then passed through another  $\tanh$  activation function to produce the output  $y_t$ . The diagram also shows the flow of information from the cell state  $C_t$  to the hidden state  $h_{t+1}$  at the next time step.

Information flow of LSTM

12:21 PM | AICTE-IBTE-IFET - ANACONDA PYTHON

Activate Windows  
Go to Settings to activate Windows. [Show all](#)

ATMNetwork2... pdf | AFE420212ch10\_Labn... | Iybal W. Sebula... pdf

152  
27/10/2021

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING  
INNOVATIONS BY FACULTY IN TEACHING AND LEARNING**

**Outcome Based Teaching**

Reg. No. :

# IFET COLLEGE OF ENGINEERING

(An Autonomous Institution)

## INTERNAL ASSESSMENT EXAMINATION-I

DEPARTMENT OF CSE

SUB CODE: CS8792	MAX MARKS: 100
SUB NAME: CRYPTOGRAPHY AND NETWORK SECURITY	DURATION: 180Min
DATE: 25.09.2021/FN	YEAR/ SEMESTER: IV/VII

### TIME MANAGEMENT CHART

Part	Question No.'s	Time allotted
A	1-10	9.55 - 10.25 AM
B	11	10.25 - 10.50 AM
	12	10.50 - 11.15 AM
	13	11.15 - 11.40 AM
	14	11.40 - 12.05 PM
	15	12.05 - 12.30 PM
C	16	12.30 - 12.55 PM

#### PART-A (10×2=20)

**Answer All Questions**

(Each answer should have minimum 7 lines)

- |   |   |     |
|---|---|-----|
| 1. What are security trends in network security?                | R | CO1 |
| 2. Define security attack and Give the types of attack          | U | CO1 |
| 3. Distinguish between attack and threat                        | S | CO1 |
| 4. What are the two general approaches for attacking a cipher?  | A | CO1 |
| 5. What is a cryptographic primitive?                           | S | CO1 |
| 6. What is an Algebraic structure in cryptography?              | R | CO2 |
| 7. Identify the GCD of 1970 and 1066 using Euclidean Algorithm. | R | CO2 |
| 8. Define Linear Congruence.                                    | A | CO2 |
| 9. Differentiate stream ciphers and block ciphers.              | R | CO2 |
| 10. Give the five modes of operation of block cipher.           | U | CO2 |

#### PART-B (5×13=65)

**Answer All Questions**

(Each answer should be written for minimum 6 pages with minimum 25 lines per page)

- |       |  |   |     |      |
|-------|--|---|-----|------|
| 11. A | i)What are the different types of security attacks? Explain. | S | CO1 | (7)  |
|       | ii)Describe the various Security Mechanisms.                 | R | CO1 | (6)  |
| (OR)  |  |   |     |      |
| 11. B | Explain about the Classical cryptosystems and its types.     | R | CO1 | (13) |
| 12. A | i)Explain Caesar cipher and mono-alphabetic cipher.          | R | CO1 | (7)  |
|       | ii)Explain in detail about symmetric cipher model.           | U | CO1 | (6)  |

(OR)

12. B With a neat block diagram, explain the network security model and the important parameters associated with it. S CO1 (13)

13. A Explain OSI Security Architecture model with neat diagram. U CO1 (13)

(OR)

13. B Describe SDES algorithm with neat diagram and explain the steps. A CO2 (13)

14. A Discuss in detail about block cipher design principles. S CO2 (13)

(OR)

14. B With the help of the block diagram, explain the AES encryption and decryption processes in detail. U CO2 (13)

15. A Explain RC4-Stream cipher with a neat diagram. R CO2 (13)

(OR)

15. B Discuss about groups, rings and fields S CO2 (13)

**PART-C (1 × 15 = 15)**

***Answer All Questions***

16. A Encrypt the following using play fair cipher using the keyword MONARCHY. "SWARAJ IS MY BIRTH RIGHT". Use X for blank spaces. A CO1 (15)

(OR)

B Compute the bits number 1, 16, 33, and 48 at the output of the first round of the DES decryption, assuming that the ciphertext block is composed of all ones and the external key is composed of all ones. A CO2 (15)

***----- All the Best -----***

**Mapping of Course Outcomes (CO) to Programme Outcomes (PO)**

Course/Course Outcomes	Mapping with Programme outcomes											
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
C402.1	3	2	3	-	-	-	-	-	-	-	-	-
C402.2	2	2	3	-	-	-	-	-	-	-	-	-

3- Strong Correlation, 2 - Medium Correlation, 1- Weak Correlation