

**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY(A),
HYDERABAD-500075**

**1.3.2 Number of value-added courses for imparting transferable and life skills
offered during last five years**

1.3.3 Average Percentage of students enrolled in the courses under 1.3.2

AY:2019-2020-Index

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**CHAITANYA BHARATHI
INSTITUTE OF TECHNOLOGY (A)**

Kokapet(Village), Gandipet, Hyderabad, Telangana-500075. www.cbit.ac.in



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COMMITTED TO
RESEARCH,
INNOVATION AND
EDUCATION

41
years

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
is Offering a Two Week Online Training/Internship Course
VIDYUT PRASIKSHANA (VIPRA)

on

SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING
08th June – 20th June, 2020

For II Semester Electrical & Electronics Engineering Students

☞ No Registration Fee

☞ Use the following Link for Registration

https://docs.google.com/forms/d/e/1FAIpQLSduqLEE1X6MSx_HDlejTmxlccCSgb6viMVjYP0Czt25tBLHA/viewform?usp=sf_link



S. P. S.

Objectives of the Course

- To introduce various simulation softwares used in Electrical & Electronics Engineering.
- To provide a platform to know about modeling of Electrical & Electronic circuits.
- To improve the preparation and presentation skills of doing their mini-project/project.
- To make the student to visualize the concepts of Electrical & Electronics Engineering using simulation.

Expected Course Outcomes

After successful completion of the Program, the Student should be able to

- Model Electrical & Electronic circuits using different softwares.
- Generate the graphs for the analysis of data.
- Identify the bug in the program and also knows the procedure to debug the same.
- Infer various logical operations.
- Identify and use suitable software appropriately for validation the concepts.



Department of EEE :: CBIT(A)

Two week inhouse-ONLINE training/Internship Program

Vidyut PRASIKSHANA

VIPRA

Day:1 08.06.2020

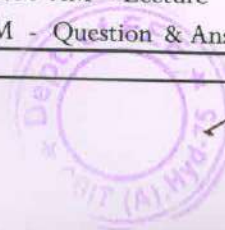
Minute-to-Minute Schedule [Repertoire]

Time	Part of Program
10.00 AM	Dr NVPB welcomes the participants and Dignitaries
Over to HoD-EEE	
10.05AM	Salient features of VIPRA
Over to Principal CBIT	
10.10AM	Address by Prof.P.Ravinder Reddy
Over to Director -I&I	
10.15AM	Greetings by Prof.U.K.Choudhury
Over to Director -Academics	
10.20AM	Address by Prof.K.Krishna veni
Over to Controller of Examinations	
10.25 AM	Address by Prof.P V Prasad
Over to Co-Convenor	
10.30 AM	Vote of thanks : Dr T.Murali Krishna



Training/Internship Course Schedule

Day	Date	Timings & Activity	
		Fore Noon	After Noon
1	08/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
2	09/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
3	10/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
4	11/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
5	12/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
6	13/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
7	15/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
8	16/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
9	17/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
10	18/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
11	19/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers
12	20/6/2020	10:00 AM to 11:30 AM - Lecture 11:30 AM to 12:00 PM - Question & Answers	02:00 PM to 03:30 AM - Lecture 03:30 PM to 04:00 PM - Question & Answers



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Topics to be Covered

- ✓ Basic MATLAB Programming
- ✓ Plots
- ✓ Matrices
- ✓ Logical operators
- ✓ Circuit Analysis
- ✓ Simple Power system
- ✓ Control Systems
- ✓ PSpice
- ✓ Inverters Design
- ✓ PWM Analysis
- ✓ Converter design using MATLAB
- ✓ Evaluation of Performance parameters
- ✓ Multi Level Inverter Topologies



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Department of EEE :: CBIT(A)

Two week in-house-ONLINE training/Internship Program

Vidyut PRAsikshana

VIPRA

Valedictory: 20.06.2020

Minute-to-Minute Schedule

[Repertoire]

Time	Part of Program
03.00 PM	Inviting Dignitaries on to the online
Over to HoD	
03.05PM	Brief Report of VIPRA by Sri. C. Harish
Over to HoD	
03.10PM	Feedback from the Participants
Over to HoD	
03.15PM	Response to the Feedback by HoD Prof. G. Suresh Babu
Over to HoD	
03.20PM	Address by Prof. U.K. Choudhury, Director I & I
Over to HoD	
03.25 PM	Presidential Remarks by Prof. P. Ravinder Reddy Principal, CBIT(A)
Over to HoD	
03.30 PM	Vote of thanks by Sri. D. Harsha



S. R. V.

Structures

UNIT-2

STEE

Structures

- Structures are cell arrays in that they allow you to group collection of dissimilar data into a single variable.
- However, instead of addressing elements by number, structure elements are addressed by names called fields.
- Whereas cell arrays use curly braces to access data, structures use dot notation to access data in fields.
- Structures are arrays whose names have **dot-separated parts**. They can be used to store information of different kinds together in a hierarchical structure.



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Structures

- Structures are like cell arrays in the sense they also allow grouping of different data types in a single variable called structure variable.
- Creation of a structure
- There are two common ways to create a structure. The first way is using the keyword `struct`, which takes a pair of field names and corresponding field values.
- Another way is to assign values to the fields of a structure variables.

Structures

```
>> staff.name='John Smith'  
staff =  
    name: 'John Smith'  
>> staff.age = 43  
staff =  
    name: 'John Smith'  
    age: 43  
>> staff.favourites = [1 42 37]  
staff =  
    name: 'John Smith'  
    age: 43  
    favourites: [1 42 37]
```

Structures

>> whos

Name	Size	Bytes	Class	Attributes
staff	1x1	580	struct	

>> staff

staff =

name: 'John Smith'

age: 43

favourites: [1 42 37]

Structures

>> staff(2).name = 'Jane Smythe';

staff(2).age = 30;

staff(2).favourites = [pi eps realmx realmn NaN Inf];

>> staff(2)

ans =

name: 'Jane Smythe'

age: 30

favourites: [3.1416 2.2204e-16 1.7977e+308 2.2251e-308 NaN

Inf]



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Structures

- Using **struct Keyword**
 - A structure variable is created using **struct function as follows**
 - **Strvar = struct ('Field1',data1, 'Field2',data2, 'Field3',data3....., 'FieldN',dataN);**
 - For example, suppose we want to store the information of a friend the following information, Name, age and address.
- ```
>> Friends = struct('Name','Dilip','Age',35,'Address','Roorkee')
Friends =
 Name: 'Dilip'
 Age: 35
 Address: 'Roorkee'
```
- The values of a structure can be retrieved using field names in association with the structure variable name

## Structures

- Using **struct Keyword**
  - The values of a structure can be retrieved using field names in association with the structure variable name
- Friend.Name will give the name of the friend, 'Karambi' here.  
 Friend.Age will give 35, the value of the field Age.  
 Friend.Address will give 'Salton', the value of the field Address.
- Suppose, Karambi has another name called Ibema and we want to store it in the Name field, we can do so as

```
>>Friend=struct ('Names','Karambi', 'Ibema'), 'Age', 35,
'address', 'Salton');
>>Friend
 Friend =
 1x2 struct array with fields:
 Names
 Age
 Address
```

## Multidimensional Arrays

Multidimensional matrices are natural extensions of the normal two dimensional matrices for cases where the data represent more than two dimensions. Examples are

- Medical tomography, where three-dimensional volumetric data are built up from a series of two-dimensional images;
- Temperature measurements taken at a three-dimensional grid in a room;
- Temperature measurements taken at a three-dimensional grid in a room and at a sequence of times, leading to a four-dimensional data set;
- Red, green and blue components of a two-dimensional image, an  $M \times N \times 3$  matrix; and
- Acoustic measurements of sound spectra as a function of frequency, direction of arrival, and time (sonar).

## Multidimensional Arrays

❖ A multidimensional array in MATLAB® is an array with more than two dimensions.

❖ In a matrix, the two dimensions are represented by rows and columns.

|      |  |         |        |        |        |
|------|--|---------|--------|--------|--------|
|      |  | columns |        |        |        |
| rows |  | (1, 1)  | (1, 2) | (1, 3) | (1, 4) |
|      |  | (2, 1)  | (2, 2) | (2, 3) | (2, 4) |
|      |  | (3, 1)  | (3, 2) | (3, 3) | (3, 4) |
|      |  | (4, 1)  | (4, 2) | (4, 3) | (4, 4) |

❖ Each element is defined by two subscripts, the row index and the column index.

❖ Multidimensional arrays are an extension of 2-D matrices and use additional subscripts for indexing.

## Multidimensional Arrays

❖ A 3-D array, for example, uses three subscripts. The first two are just like a matrix, but the third dimension represents pages or sheets of elements.



## Multidimensional Arrays

```
>> a = [1 2 3 ; 4 5 6 ; 7 8 9]
a =
 1 2 3
 4 5 6
 7 8 9
>> a(:,:,2) = a*2
a(:,:,1) =
 1 2 3
 4 5 6
 7 8 9
a(:,:,2) =
 2 4 6
 8 10 12
 14 16 18

>> a(:,:,3) = eye(3)
a(:,:,1) =
 1 2 3
 4 5 6
 7 8 9
a(:,:,2) =
 2 4 6
 8 10 12
 14 16 18
a(:,:,3) =
 1 0 0
 0 1 0
 0 0 1
```

## Multidimensional Arrays

Multidimensional arrays must be full *N-rectangles*; that is, they must have the same number of elements in parallel dimensions: all rows must have the same number of columns, all "pages" must have the same number of rows and columns, etc.

If you assign a single value to a matrix, matlab expands the definition as you would expect:

## Multidimensional Arrays

```
>> a(:,:,3) = 3
a(:,:,1) =
 1 2 3
 4 5 6
 7 8 9
a(:,:,2) =
 2 4 6
 8 10 12
 14 16 18
a(:,:,3) =
 3 3 3
 3 3 3
 3 3 3
```



## Multidimensional Arrays

Indexing for multidimensional arrays works in the same way as two dimensional

arrays;

```
>> a(2,;1)
```

```
ans =
```

```
4 5 6
```

```
>> a(2,;2)
```

```
ans =
```

```
8 10 12
```

```
>> a(2,;:)
```

```
ans(:,:,1) =
```

```
4 5 6
```

```
ans(:,:,2) =
```

```
8 10 12
```

```
ans(:,:,3) =
```

```
3 3 3
```

Data can be removed from multidimensional arrays by using the

empty

matrix:

```
>> a(:,;2) = []
```

```
a(:,;1) =
```

```
1 2 3
```

```
4 5 6
```

```
7 8 9
```

```
a(:,;2) =
```

```
3 3 3
```

```
3 3 3
```

```
3 3 3
```

## Multidimensional Arrays

Elements can be columnarly extracted from multidimensional arrays in the same way as they are from two-dimensional arrays:

```
>> a(:,)
```

```
ans =
```

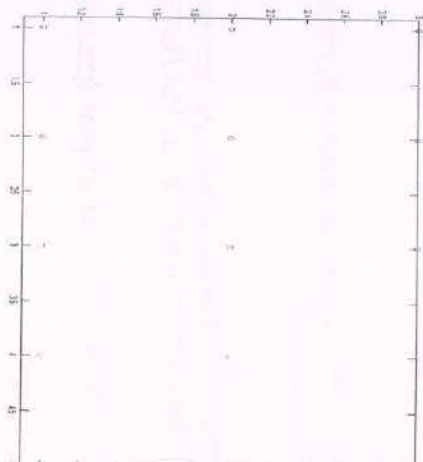
```
Columns 1 through 12
```

```
1 4 7 2 5 8 3 6 9 3 3 3
```

```
Columns 13through 18
```

```
3 3 3 3 3 3
```

```
>> clf
plot(x,y,'o')
axis([0.9 5 0.9 3])
```



## Plotting

- Why should we learn graphics and visualization in Matlab? Why not use Excel?
- Visualization is one of the most important and powerful features of MATLAB.
- It facilitates ease of plotting the data at any time.
- A number of **built-in functions** for **both two-dimensional (2-D)** and **3-D plots** are available in **MATLAB** for creating different types of plots.
- **MATLAB** has a **rich collection of graphics and plotting** commands to suit a wide range of applications.

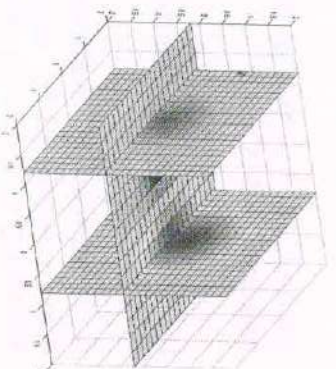


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## Plotting

- One of the most important functions in MATLAB is the **plot** function.
- The plot command is basic, yet most widely used among all the plot commands in MATLAB.
- The simplest format of plot function for a linear plot is:
  - `Plot(x,y)`

```
>> [x1,x2,x3] = ndgrid(-2:2:2, -2:2:2, -
2:1:6:2);
z = x2 * exp(-x1.^2 - x2.^2 - x3.^2);
>> slice(x2,x1,x3,z,[-1.2 .8],[], -2)
view(-24,28)
```



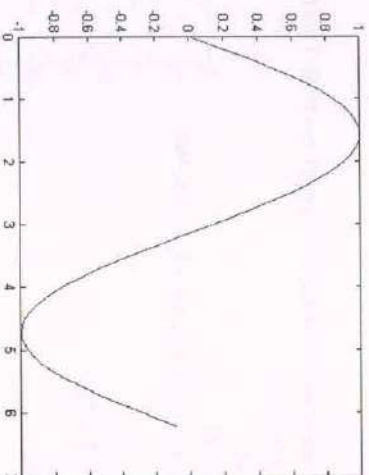
## Basic Graphics

Plot command

```
>> x = 0.:1:2*pi;
```

```
y = sin(x);
```

```
plot(x,y)
```



## Basic Graphics

### Plotting Functions

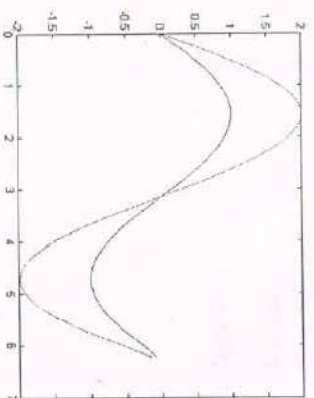
| FUNCTION  | DESCRIPTION                                     |
|-----------|-------------------------------------------------|
| axis      | freezes the axis limits                         |
| bar       | plots bar chart                                 |
| contour   | performs contour plots                          |
| ginput    | puts cross-hair input from mouse                |
| grid      | adds grid to a plot                             |
| gtext     | does mouse positioned text                      |
| histogram | gives histogram bar graph                       |
| hold      | holds plot (for overlaying other plots)         |
| loglog    | does log versus log plot                        |
| mesh      | performs 3-D mesh plot                          |
| meshdom   | domain for 3-D mesh plot                        |
| pause     | wait between plots                              |
| plot      | performs linear x-y plot                        |
| polar     | performs polar plot                             |
| semilogx  | does semilog x-y plot (x-axis logarithmic)      |
| semilogy  | does semilog x-y plot (y-axis logarithmic)      |
| shg       | shows graph screen                              |
| stairs    | performs stair-step graph                       |
| text      | positions text at a specified location on graph |
| title     | used to put title on graph                      |
| xlabel    | labels x-axis                                   |
| ylabel    | labels y-axis                                   |

## Basic Graphics

The plot command generates a linear x-y plot. There are three variations of the plot command.

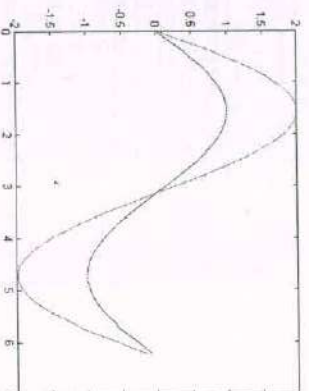
- (a) `plot(x)`
- (b) `plot(x, y)`
- (c) `plot(x1, y1, x2, y2, x3, y3, ..., xn, yn)`

```
>> x = 0:.1:2*pi;
y = sin(x);
plot(x,y)
>> plot(x,y,x,2*y)
```



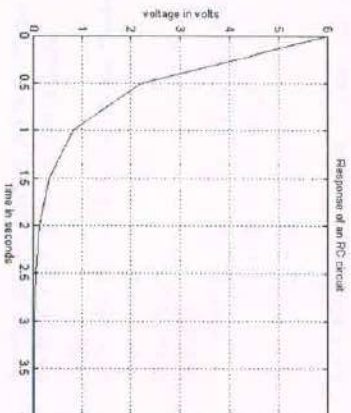
## Basic Graphics

```
>> x = 0:.1:2*pi;
y = sin(x);
plot(x,y)
>> plot(x,y,x,2*y)
>> plot(x,y,x,2*y,'-')
```



### Basic Graphics

```
>> clear all
>> t = 0:0.5:4;
y = 6*exp(-2*t);
plot(t, y)
title('Response of an RC circuit')
xlabel('time in seconds')
ylabel('voltage in volts')
grid
```



### Basic Graphics

| LINE-TYPES | INDICATORS | POINT TYPES | INDICATORS |
|------------|------------|-------------|------------|
| solid      | -          | point       | .          |
| dash       | --         | plus        | +          |
| dotted     | :          | star        | *          |
| dashdot    | -.         | circle      | o          |
|            |            | x-mark      | x          |

| COLOR     | SYMBOL |
|-----------|--------|
| red       | r      |
| green     | g      |
| blue      | b      |
| white     | w      |
| invisible | i      |

## Basic Graphics

For an R-L circuit, the voltage  $v(t)$  and current  $i(t)$  are given as

$$v(t) = 10\cos(377t)$$

$$i(t) = 5\cos(377t + 60^\circ)$$

Sketch  $v(t)$  and  $i(t)$  for  $t = 0$  to 20 milliseconds.

### Solution

MATLAB Script

% RL circuit

% current i(t) and voltage v(t) are generated; t

is time

t = 0:1E-3:20E-3; v = 10\*cos(377\*t);

a\_rad = (60\*pi/180); % angle in radians

i = 5\*cos(377\*t + a\_rad);

plot(t,v,'\*',t,i,'o')

title('Voltage and Current of an RL circuit')

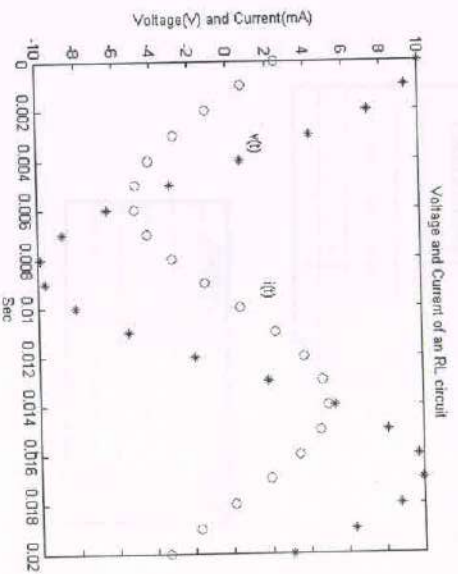
xlabel('Sec')

ylabel('Voltage(V) and Current(mA)')

text(0.003, 1.5, 'v(t)');

text(0.009, 2, 'i(t)')

## Basic Graphics



### LOGARITHMIC AND POLAR PLOTS

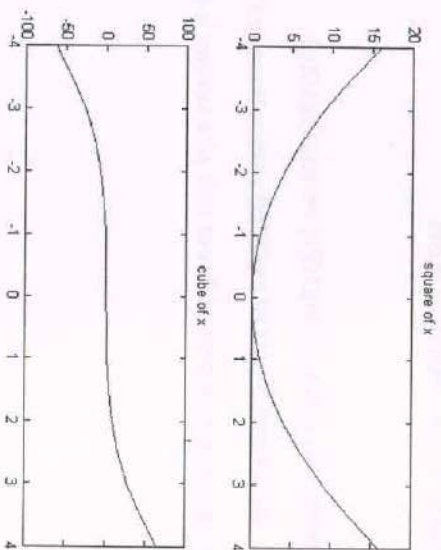
`loglog(x, y)` - generates a plot of  $\log_{10}(x)$  versus  $\log_{10}(y)$   
`semilogx(x, y)` - generates a plot of  $\log_{10}(x)$  versus linear axis of  $y$   
`semilogy(x, y)` - generates a plot of linear axis of  $x$  versus  $\log_{10}(y)$

### `subplot(i,j,k)`

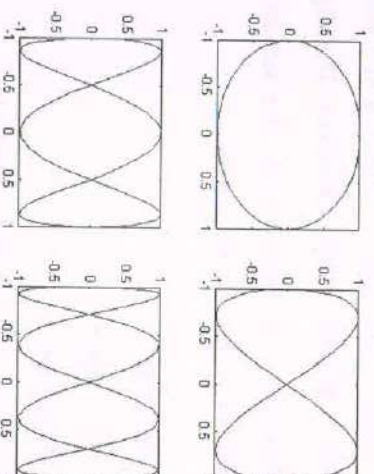
The digits  $i$  and  $j$  specify that the graph window is to be split into an  $i$ -by- $j$  grid of smaller windows. The digit  $k$  specifies the  $k$ th window for the current plot. The sub-windows are numbered from left to right, top to bottom.

```
>> x = -4:0.5:4;
y = x.^2; % square of x
z = x.^3; % cube of x
subplot(211), plot(x, y), title('square of x')
subplot(212), plot(x, z), title('cube of x')
```





```
t = 0.:1:2*pi;
subplot(2,2,1)
plot(cos(t),sin(t))
subplot(2,2,2)
plot(cos(t),sin(2*t))
subplot(2,2,3)
plot(cos(t),sin(3*t))
subplot(2,2,4)
plot(cos(t),sin(4*t))
```



## 2-D plots: Bar Chart

- `bar(X,Y)` draws the columns of the M-by-N matrix Y as M groups of N vertical bars.
- `bar(Y)` uses the default value of X=1:M
- For vector inputs, `bar(X,Y)` or `bar(Y)` draws `LENGTH(Y)` bars. The colors are set by the colormap.
- `bar(X, Y, WIDTH)` or `bar(Y, WIDTH)` specifies the width of the bars.
- Values of `WIDTH > 1`, produce overlapped bars. The default value is `WIDTH=0.8`

## 2-D plots: Bar Chart

- Display one bar for each row of the matrix. The height of each bar is the sum of the elements in the row.

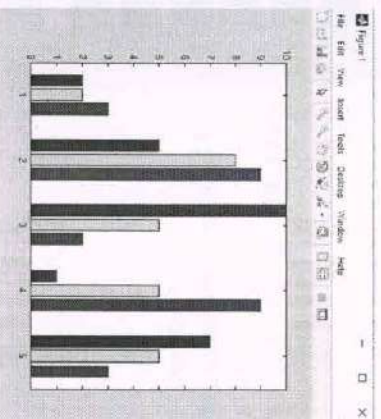
```
>> y=[2 2 3;5 8 9; 10 5 2;1 5 9;7 5 3]
```

```
Y =
```

```
 2 2 3
 5 8 9
10 5 2
 1 5 9
 7 5 3
```

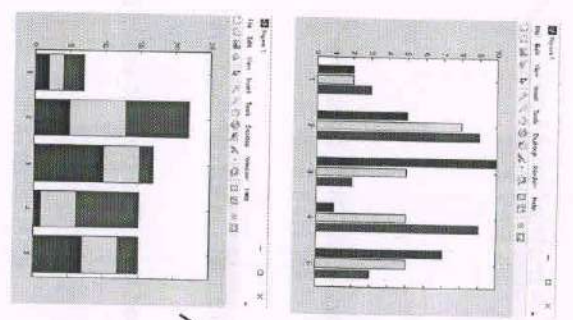
```
>> bar(Y)
```

```
>> bar(Y,'grouped')
```

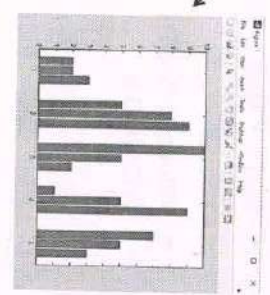


*Handwritten signature*

### 2-D plots: Bar Chart

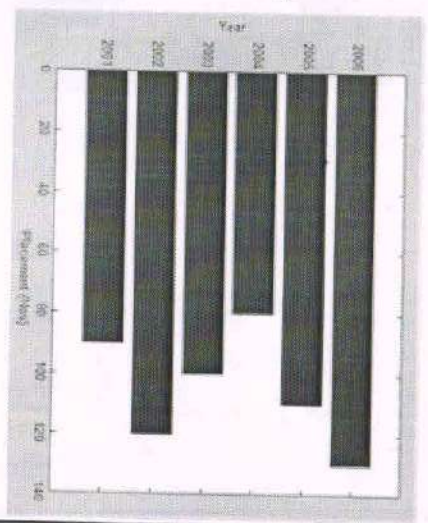


```
>> Y
Y =
 2 2 3
 5 8 9
 10 5 2
 1 5 9
 7 5 3
>> bar(Y,'grouped')
>> bar(Y,'stacked')
>> bar(Y,'r')
```



### 2-D plots: Bar Chart

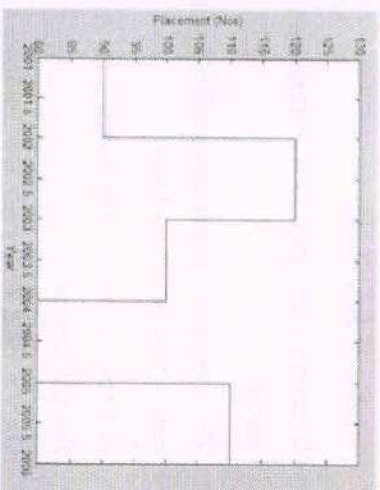
```
% Horizontal Bar Plot
Y = [2001:2006];
P = [90 120 100 80 110 130];
barh(Y,P);
xlabel('Placement (Mos)');
ylabel('Year');
```



## 2-D plots

```
% % Stairs Plot

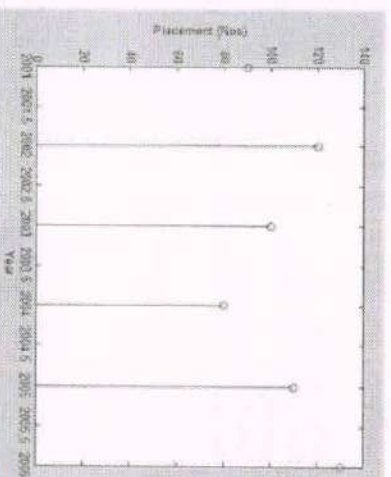
Y = [2001:2006];
P = [190 120 100 80 110 130];
stairs(Y,P);
xlabel('Year');
ylabel('Placement (Nos)');
```



## 2-D plots

```
% % Stem Plot

Y = [2001:2006];
P = [190 120 100 80 110 130];
stem(Y,P);
xlabel('Year');
ylabel('Placement (Nos)');
```

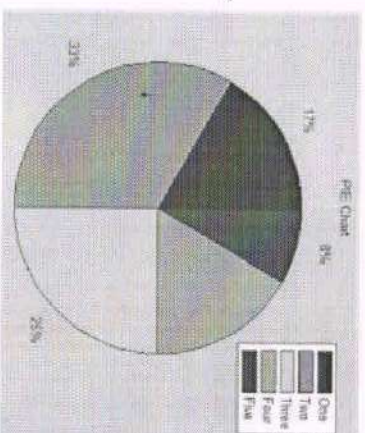


### 2-D plots: Pie Chart

- A pie chart is used for visualizing different but related quantities relatively, for example, grades assigned to the students of a class.
- It draws a pie plot of the data in a given vector A using syntax `pie(A)`.
- The values in A are normalized via  $A/\text{sum}(A)$  to determine the area of each slice of pie.
- If  $\text{sum}(A) \leq 1.0$ , the values in A directly specify the area of the pie slices.
- Only a particular pie will be drawn if  $\text{sum}(A) < 1$ .
- Example:  $A=[1\ 2\ 3\ 4]$ , then `pie(A)` will evaluate the elements  $A(1)$  as 1/10 or 10%,  $A(2)$  as 2/10 ... etc.

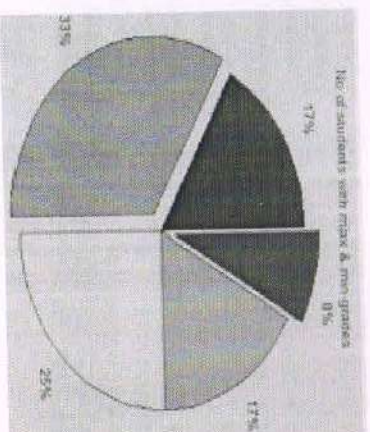
### 2-D plots: Pie Chart

```
% & PIE PLOT
A = [10 20 15 10 5];
pie(A);
title('PIE Chart');
legend('One','Two','Three','Four','Five');
```



### 2-D plots: Pie Chart

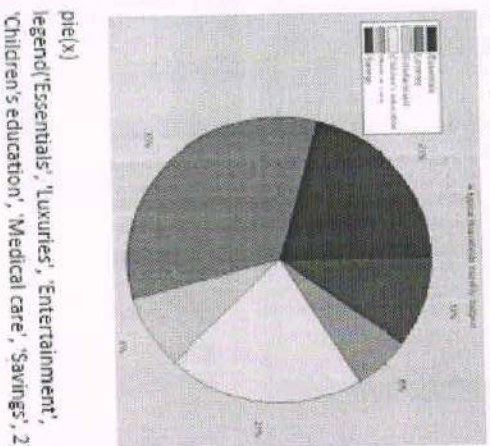
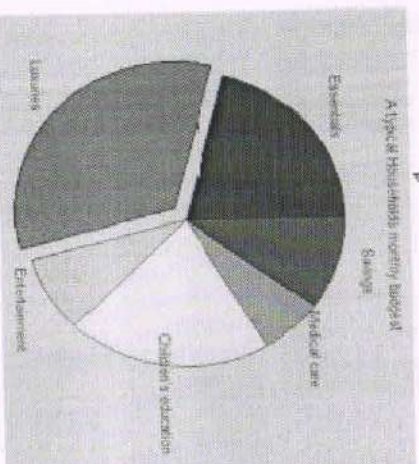
```
% * PIE plot with explode
A = [10 20 15 10 5];
explode = [0 1 0 0 1];
pie(A,explode);
title('No of students with max & min grades');
```



❖ The pie(A, explode) command is used to specify slices that should be pulled out from the pie.

### 2-D plots: Pie Chart

```
arr=[5000 3000 2000 3000 1500 2500];
labels={'Essentials', 'Savings', 'Entertainment', 'Children's education', 'Medical care', 'Luxuries'};
explode=[0 1 0 0 0 1];
% vector explode is set to 1; for the slice that you want to highlight
pie(x, explode, labels)
title('A typical household monthly budget')
```



*Handwritten signature*

## 3-D plots

- ❖ Plot the decaying oscillations of a mechanical system which can be represented as a function of independent variable time  $t = 0 \leq t \leq 10$  using both 2-D and 3-D plots  $x(t) = \sqrt{t} \cos 2t$ ;  $y(t) = \sqrt{t} \sin 2t$

```
% plot command
% File name Example_4_9.m
figure(2);
plot(t,x,t,y);grid;
xlabel('t');ylabel('x,y');
title('\bf 2-D Plot');

% 2-D Plots
figure(1);
plot(x,y);grid;
xlabel('x');ylabel('y');
title('\bf 2-D Plot');

% 3-D Plot of decaying oscillations of a
% mechanical system using plot3 command
figure(3);
plot3(x,y,t);grid;
xlabel('x');ylabel('y');zlabel('time');
title('\bf 3-D Plot');
```

## 3-D plots

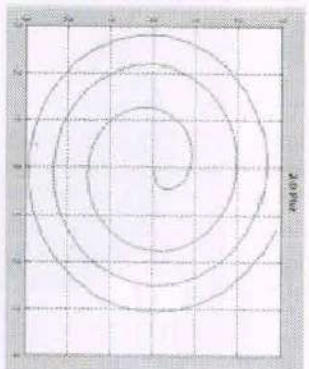


Fig. 1

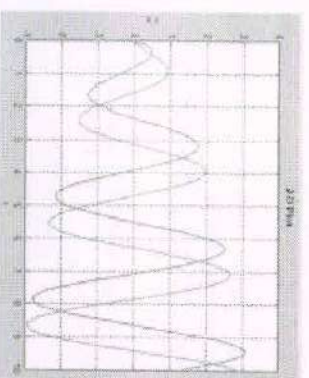


Fig. 2

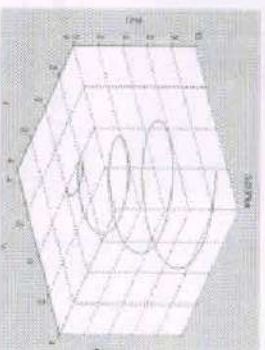


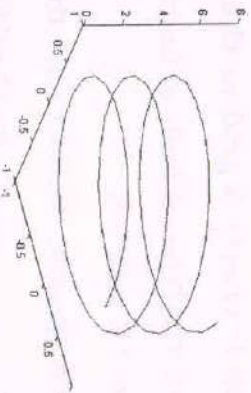
Fig. 3

### Three-Dimensional Plots

The plot3 command is the 3-c

```
t = 0:.1:2*pi;
```

```
plot3(cos(3*t),sin(3*t),t)
```



```
rotate3d
```

If you click the mouse button down on the plot and drag, you can move the axes and view the plot from any angle. Release the mouse button to redraw the data. Type rotate3d again to turn off this behaviour.

### 3-D plots: Mesh and surface plot

- Mesh and surface plots are 3-D plots, generally used to plot the functions with two independent variables.
- For example  $z=f(x, y)$ .
- Mesh and surface plots are created in three steps:
- Step I: create a grid in the  $x$ - $y$  plane converting the domain of the function.
- Step II: Calculate the value of  $z$  at every point of the grid.
- Step III: Create the plot



### 3-D plots: Mesh and surface plot

#### Step I: create a grid in the x-y plane

- MATLAB has a built-in function `meshgrid` to create *X* and *Y* matrices.
- The general syntax to use this function is  
 $[X, Y]=\text{meshgrid}(x, y)$
- $[X, Y]=\text{meshgrid}(xstart: xinc: xend, ystart: yinc: yend)$

### 3-D plots: Mesh and surface plot

- Step I: create a grid in the x-y plane

```
>> x=-1:2;
>> y=-1:3;
>> [X,Y]=meshgrid(x,y)

X =

 -1 0 1 2
 -1 0 1 2
 -1 0 1 2
 -1 0 1 2
 -1 0 1 2

Y =

 -1 -1 -1 -1
 0 0 0 0
 1 1 1 1
 2 2 2 2
 3 3 3 3
```

## 3-D plots: Mesh and surface plot

Step II: Calculate the value of Z

- ❖ The mesh grid so obtained can be further used to calculate the dependent variable Z.

❖ For Example, if Z is given by  $Z = \frac{X^2Y}{X^2+Y^2} + X$  then the value of Z at each point of the grid can be calculated as below

```
>> Z=(X.^2.*Y)./(X.^2+Y.^2)+X
```

```
Z =
-1.5000 0 0.5000 1.2000
-1.0000 NaN 1.0000 2.0000
-0.5000 0 1.5000 2.9000
-0.6000 0 1.4000 3.0000
-0.7000 0 1.3000 2.9231
```

## 3-D plots: Mesh and surface plot

• **Step III: Creating Mesh and Surface Plot**

- Once the three matrices are available, they can be used to plot mesh and surface plots as follows:
- mesh(X, Y, Z)
- surf(X, Y, Z)

## 3-D plots: Mesh and surface plot

- ❖ Example: Plot the function  $Z = \frac{X^2Y}{X^2+Y^2} + X$ , over the domain  $-1 \leq x \leq 2$  and  $-1 \leq y \leq 3$  using mesh and surface plot.

```
% Plotting a Function using Mesh and Surface Plot
% File name Example_4_10.m

clear; clc; close all;
N=1:2;
Y=-1:3;
[X, Y] = meshgrid(X, Y);
Z = ((X.^2.*Y)./(X.^2+Y.^2))+ X;

figure(1);
mesh(X, Y, Z);
xlabel('x'); ylabel('y'); zlabel('z');

figure(2);
surf(X, Y, Z);
xlabel('x'); ylabel('y'); zlabel('z');
```

## 3-D plots: Mesh and surface plot

### Mesh Plot

```
Z = peaks;
Z = peaks(N);
Z = peaks(V);
Z = peaks(X, Y);

peaks;
peaks(N);
peaks(V);
peaks(X, Y);

[X, Y, Z] = peaks;
[X, Y, Z] = peaks(N);
[X, Y, Z] = peaks(V);
```

- ❖ peaks : A sample function of two variables

The first variant produces a 49-by-49 matrix.  
 The second variant produces an N-by-N matrix.  
 The third variant produces an N-by-N matrix where N = length(V).  
 The fourth variant evaluates the function at the given X and Y, which must be the same size. The resulting Z is also that size.

## 3-D plots: Mesh and surface plot

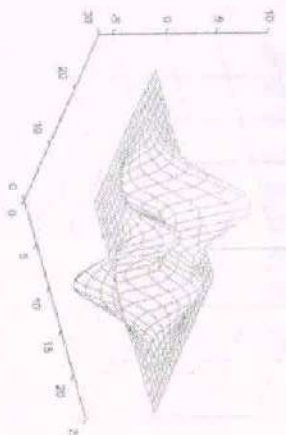
### Mesh Plot

- ❖ The mesh function creates a wireframe mesh.
- ❖ By default, the color of the mesh is proportional to the surface height.
- ❖ peaks : A sample function of two variables

```
>>z = peaks(25); % Now z=25x25 matrix data will generate
>>figure
>>mesh(z)
```

## 3-D plots: Mesh and surface plot

### Mesh Plot



## 3-D plots: Mesh and surface plot

### Surface Plot

The surf function is used to create a 3-D surface plot.

```
>>surf(z)
>>colormap(jet) % change color map
```

**Thank You**

## Unit-2

# MATRICES

### Contents:

- ❖ Creating and Manipulating matrices
- ❖ Matrix mathematics
- ❖ Matrix functions
- ❖ Colon operator
- ❖ Line space, Cross product
- ❖ Dot product
- ❖ Logical functions
- ❖ Logical indexing
- ❖ 3 – dimensional arrays
- ❖ Cell arrays, Structures
- ❖ Plotting: 2-D and 3-D plots
- ❖ Basic plots, subplots, Histograms, Bar graphs, Pie charts

### Introduction to Matrices in MATLAB

- A basic introduction to defining and manipulating matrices is given here.
- Defining a matrix is similar to defining a vector
- To define a matrix, you can treat it like a column of row vectors (note that the spaces are required)

### Initialising Matrices Within MATLAB

The simplest method involves simply typing the elements:

```
>> A = [2 3 4; 5 4 3]
A =
 2 3 4
 5 4 3
```

- Here the elements in the first row are separated by a space and the end of the first row is denoted by a semicolon.
- The second row is then typed, again with a space between successive elements.
- The whole matrix is contained within square brackets.

The variable A is now initialised to be a two-by-three matrix;  
we can see this by using the command size(A).

```
>> size(A)
ans =
 2 3
```

To enter a column vector we could use any of:

```
>> column_vector = [4
 5
 6];
>> column_vector = [4;5;6];
>> column_vector = [4 5 6]';
```

## MATRIX Functions

| Function         | Description                                                                                                            | Example                                                                                                                                                 |
|------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| size(A)          | Returns a row vector [m,n], where m and n are the size m x n of the array A.                                           | <pre>&gt;&gt; A = [6 1 4 0 12; 5 19 6 8 2] A =      6     1     4     0    12      5    19     6     8     2 &gt;&gt; size(A) ans =      2     5</pre>  |
| reshape(A, m, n) | Rearrange a matrix A that has r rows and s columns to have m rows and n columns. r times s must be equal to m times n. | <pre>&gt;&gt; A = [5 1 6; 8 0 2] A =      5     1     6      8     0     2 &gt;&gt; B = reshape(A,3,2) B =      5     0      8     6      1     2</pre> |
| diag(v)          | When v is a vector, creates a square matrix with the elements of v in the diagonal.                                    | <pre>&gt;&gt; v = [7 4 2] &gt;&gt; A = diag(v) A =      7     0     0      0     4     0      0     0     2</pre>                                       |



## MATRIX FUNCTIONS

| <code>diag(A)</code>                                                                                                                                         | When A is a matrix, creates a vector from the diagonal elements of A. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <pre>&gt;&gt; A = [1 2 3; 4 5 6; 7 8 9] A =      1     2     3      4     5     6      7     8     9 &gt;&gt; vec = diag(A) vec =      1      5      9</pre> |                                                                       |

### Sample Problem : Create a matrix

Create a  $6 \times 6$  matrix in which the middle two rows, and the middle two columns are 1's, and the rest are 0's.

## Built in array functions

| Function                  | Description                                                                                                                              | Example                                                                       |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| <code>mean(A)</code>      | If A is a vector, returns the mean value of the elements of the vector.                                                                  | <pre>&gt;&gt; A = [3 9 2 4]; &gt;&gt; mean(A) ans =      7</pre>              |
| <code>C=max(A)</code>     | If A is a vector, C is the largest element in A. If A is a matrix, C is a row vector containing the largest element of each column of A. | <pre>&gt;&gt; A = [5 9 2 4 11 6 7 11 0]; &gt;&gt; C = max(A) C =     11</pre> |
| <code>[d,n]=max(A)</code> | If A is a vector, d is the largest element in A, n is the position of the element (the first if several have the max value).             | <pre>&gt;&gt; [d,n] = max(A) d =     11 n =      5</pre>                      |

## Built in array functions

|                              |                                                                                        |                                                                                   |
|------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <code>min(A)</code>          | The same as <code>max(A)</code> , but for the smallest element.                        | <pre>&gt;&gt; A = [5 9 2 4] &gt;&gt; min(A) ans =      2</pre>                    |
| <code>[d, n] = min(A)</code> | The same as <code>[d, n] = max(A)</code> , but for the smallest element.               | <pre>&gt;&gt; A = [5 9 2 4] &gt;&gt; sum(A) ans =     20</pre>                    |
| <code>sum(A)</code>          | If <code>A</code> is a vector, returns the sum of the elements of the vector.          | <pre>&gt;&gt; A = [5 9 2 4] &gt;&gt; sort(A) ans =      2     4     5     9</pre> |
| <code>sort(A)</code>         | If <code>A</code> is a vector, arranges the elements of the vector in ascending order. | <pre>&gt;&gt; A = [5 9 2 4] &gt;&gt; median(A) ans =     4.5000</pre>             |
| <code>median(A)</code>       | If <code>A</code> is a vector, returns the median value of the elements of the vector. |                                                                                   |

We now turn our attention to how we access elements (or parts of a matrix).

Let us start with the matrix

```
>> A = [11 12 13 14; 21 22 23 24; 31 32 33 34];
```

so that

$$A = \begin{pmatrix} 11 & 12 & 13 & 14 \\ 21 & 22 & 23 & 24 \\ 31 & 32 & 33 & 34 \end{pmatrix}$$

It is also possible to refer to a whole row (or column) of a matrix.

For example

```
>> A(2,:)
```

ans =

```
21 22 23 24
```

Alternatively to refer to a particular column we could use to return the fourth column of matrix A.

```
>> A(:,4)
ans =
 14
 24
 34
```

Note that in both cases the answers are the same "shape" as they would appear in the matrix, that is the second row has been returned as a row vector and the fourth column has been returned as a column vector.

With the colon operator we can create row vectors which can then be used as arguments in other commands. For instance

```
>> r = 1:3;
>> A(r,1)
ans =
 11
 21
 31
```

$$A = \begin{pmatrix} 11 & 12 & 13 & 14 \\ 21 & 22 & 23 & 24 \\ 31 & 32 & 33 & 34 \end{pmatrix}$$

This yields the same result as A(1:3,1) or A(:,1).

We could also use r = 1:2 to get the first two elements of the first column.

The possibilities are extensive; for example if we want to obtain the top left hand two-by-two corner of A, we could employ the following:

```
>> r = 1:2;
>> B = A(r,r)
B =
11 12
21 22
A =
11 12 13 14
21 22 23 24
31 32 33 34
21 22
```

Enter the matrix in MATLAB

$$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 0 & 0 & 0 \\ 3 & 0 & 0 & 0 \\ 4 & 0 & 0 & 0 \end{pmatrix}$$

In order to achieve this we use the commands



SNY

*In order to achieve this we use the commands*

```
>> A = zeros(4);
>> r = 1:4;
>> A(:,1) = r'; % First column
>> A(1,:) = r % First row
```

$$A = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 0 & 0 & 0 \\ 3 & 0 & 0 & 0 \\ 4 & 0 & 0 & 0 \end{pmatrix}$$

```
A =
1 2 3 4
2 0 0 0
3 0 0 0
4 0 0 0
```

Note: This is fine for small matrices but not practical for when we need to set up larger matrices.

Another variant which can be used to set up the matrix is

```
>> A = [1 2 3 4; 2 zeros(1,3); 3 zeros(1,3); 4 zeros(1,3)];
```

Here the command `zeros(1,3)` sets up a row vector (one-by-three) full of zeros.

This example serves to emphasise there is no unique way to go about setting up a particular matrix; some ways are more elegant (and sometimes less readable) than others.

### Matrix Operations

Consider the addition ( $C = A + B$ ) and subtraction ( $D = A - B$ ) of the matrices

$$A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \text{ and } B = \begin{pmatrix} 4 & 3 \\ 2 & 1 \end{pmatrix}.$$

We shall start by working through these by hand and then proceed to give the MATLAB code.

*Addition*

*Subtraction*

$$\begin{aligned} C &= \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} + \begin{pmatrix} 4 & 3 \\ 2 & 1 \end{pmatrix}, & D &= \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} - \begin{pmatrix} 4 & 3 \\ 2 & 1 \end{pmatrix}. \\ &= \begin{pmatrix} 1+4 & 2+3 \\ 3+2 & 4+1 \end{pmatrix} = \begin{pmatrix} 5 & 5 \\ 5 & 5 \end{pmatrix}; & &= \begin{pmatrix} 1-4 & 2-3 \\ 3-2 & 4-1 \end{pmatrix} = \begin{pmatrix} -3 & -1 \\ 1 & 3 \end{pmatrix}. \end{aligned}$$

The MATLAB code to achieve these operations is

```
>>A = [1 2; 3 4]; B = [4 3; 2 1];
>>C = A+B
C =
 5 5
 5 5
>>D = A-B
D =
 -3 -1
 1 3
```

Consider the expression  $A - 3B^T$

$$A = \begin{pmatrix} 3 & 8 & -1 \\ 5 & 2 & 0 \end{pmatrix} \text{ and } B = \begin{pmatrix} -3 & 2 \\ 2 & 2 \\ -1 & 3 \end{pmatrix}$$

The MATLAB code is:

A = [3 8 -1; 5 2 0];

B = [-3 2; 2 2; -1 3];

C = A-3\*transpose(B);

```
>>A = ones(3); B = ones(2);
>>C = A+B
??? Error using ==> +
Matrix dimensions must agree.
```

In this case the command is interpreted by MATLAB as

$$c_{i,j} = \lambda + b_{i,j}, \quad i = 1, \dots, m$$

$$\text{and } j = 1, \dots, n;$$

```
>>A = ones(1); B = ones(2);
>>C = A+B
C =
2 2
2 2
In this case although the variable A is a
one-by-one matrix it is treated as a
scalar.
```

```
>> A = [pi/4 pi/2 ; pi pi/3]
A =
 0.7854 1.5708
 3.1416 1.0472
>> B = sin(A)
B =
 0.7071 1.0000
 0.0000 0.8660
```

Here we have set up the matrix3

$$A = \begin{pmatrix} \frac{\pi}{4} & \frac{\pi}{2} \\ \pi & \frac{\pi}{3} \end{pmatrix}$$

and it returns the matrix B as

$$B = \begin{pmatrix} \sin \frac{\pi}{4} & \sin \frac{\pi}{2} \\ \sin \pi & \sin \frac{\pi}{3} \end{pmatrix} = \begin{pmatrix} \frac{1}{\sqrt{2}} & 1 \\ 0 & \frac{\sqrt{3}}{2} \end{pmatrix}$$

```
>> A = [1 2 3];
>> B = [4; 5; 6];
>> A*B
ans =
 32
>> B*A
ans =
 4 8 12
 5 10 15
 6 12 18
```



Dot arithmetic can be readily extended to work with matrices. With matrices A and B the matrix  $C = A .* B$  is given by

$$c_{ij} = a_{ij} b_{ij}, \quad i = 1, \dots, m$$

$$\text{and } j = 1, \dots, n$$

and similarly those of  $D = A ./ B$  by  $d_{ij} = \frac{a_{ij}}{b_{ij}},$   $i = 1, \dots, m$

$$\text{and } j = 1, \dots, n.$$

In addition to multiplication  $*$  and division  $/$  we can also use dot arithmetic for exponentiation using  $^{\wedge}$  as in

```
>> A = [1 2; 3 4];
>> B = [1 2; 3 4];
>> A.^B
ans =
 1 4
 27 256
```

By using dot arithmetic in MATLAB we must ensure the matrices are of the same size for the operation to be defined. We note either of the arguments can be scalars:

```
>> A = [1 2; 3 4];
>> B = A.^2; % square all entries
>> C = 2.^A; % [2 4; 8 16]
```

```

>> A = eye(2); B = [1 2; 3 4];
>> C = A*B
C =
 1 2
 3 4
>> C = A.*B
C =
 1 2
 1 2
 0 0
>> C = A/B
C =
 -2.0000 1.0000
 1.5000 -0.5000
>> C = A./B
C =
 1.0000 0
 0.2500

```

Given the matrices  $A = I$  and  $B = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

compare the results of the MATLAB calculations  $A*B$ ,  $A.*B$ ,  $A/B$  and  $A./B$ .

For the multiplications we have the code:

### The zeros, ones and eye commands

- The eye(n) command creates a square matrix with n rows and n columns in which the diagonal elements are equal to 1, and rest of the elements are 0.

- This matrix is called the identity matrix.

```

>> x=eye(3)
x=
 1 0 0
 0 1 0
 0 0 1

```



**The zeros, ones and eye commands**

- The zeros(m,n), the ones(m,n) and eye(n) commands can be used to create matrices that have elements with special values.
- The zeros(m,n) and ones(m,n) commands create a matrix with m rows and n columns, in which all the elements are the numbers 0 and 1 respectively.

**For a matrix**

- A(:,n) refers to the elements in all the rows of column n of the matrix A
- A(n,:) refers to the elements in all columns of row n of the matrix A
- A(:,m:n) refers to the elements in all the rows between columns m and n of the matrix A
- A(m:n,:) refers to the elements in all the columns between rows m and n of the matrix A
- A(m:n, p:q) refers to the elements in rows m through n and columns p through q of the matrix A

## Using indexing to edit 2D arrays

- What happens when sizes of matrices don't match?

```
y = zeros(3,3);
```

```
x = ones(3,3);
```

```
y(1, 2 : 3) = x(1 : 2, 2 : 3)
```

```
y =
```

|   |   |   |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 0 | 0 |
| 0 | 0 | 0 |

```
x =
```

|   |   |   |
|---|---|---|
| 1 | 1 | 1 |
| 1 | 1 | 1 |
| 1 | 1 | 1 |

??? Subscripted assignment dimension mismatch.

## Sub-array searching

- Find the indexes of values in x that are larger than 3

```
x = [2 8 7 0 6 2 3];
```

```
>> find(x > 3)
```

```
2 3 5
```

- Find the actual values in x that are larger than 3

```
>> x = [2 8 7 0 6 2 3];
```

```
>> x(find(x > 3))
```

```
8 7 6
```

We can also get the same result by breaking this into 2 steps:

```
>> inds = find(x > 3);
```

```
>> x(inds)
```

```
8 7 6
```

Finding the size of a matrix

```
x = [2 4 6
```

```
3 6 9];
```

```
size(x)
```

```
2 3
```

```
Rows columns
```

- Finding the length of a matrix: LENGTH(X) returns the length of vector X. It is equivalent to MAX(SIZE(X))

```
length(x)
```

```
>>ans=
```

```
3
```

Finding the maximal numbers in each matrix column

```
>> x = [1 8 3; 7 2 6; 4 5 9]
```

```
>> max(x)
```

```
x =
```

```
ans=
```

```
1 8 3
```

```
7 8 9
```

```
7 2 6
```

```
4 5 9
```

How do we get the maximal element in the entire matrix?

```
>> max(max(x))
```

```
Ans=9
```

### Operators (arithmetic)

- + addition
- subtraction
- \* multiplication
- / division
- ^ power
- ' complex conjugate
- transpose
- . \* element-by-element mult
- ./ element-by-element div
- .^ element-by-element power
- .' transpose

### Operators (relational, logical)

- == equal
- ~= not equal
- < less than
- <= less than or equal
- > greater than
- >= greater than or equal
- & AND
- | OR
- ~ NOT
- pi 3.14159265...
- j imaginary unit,
- i same as j

**Question: write a command that subtracts 1 from all the values in y that are larger than 4 and stores it back into y.**  
`y = [1 3 5; 2 5 8];`

```
>> y = [1 3 5; 2 5 8]
y =
 1 3 5
 2 5 8
```

```
>> y(find(y > 4))-1
ans =
 4
 4
 7
```

```
>> y([4 5 6])=[4 4 7]
y =
 1 3 4
 2 4 7
```

**Matrix Built in functions:**

```
A=[1 4 6; 2 5 7;3 0 6]
```

```
inv(a)
```

```
det(A)
```

```
sort(A,'descend')
```

```
sort(A,'ascend')
```

```
rank(A)
```

`max(A)`: returns the row vector containing the largest element of each column of A

`Eigenvalue`: returns the eigenvectors and eigenvalues given on the main diagonal of matrix A

```
[v,x]=eig(A)
```

| Command                  | Description                                                   | Example                                                                                          |
|--------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <code>rand</code>        | Generates a random number between 0 and 1                     | <pre>&gt;&gt; rand ans = 0.1270</pre>                                                            |
| <code>rand (1, n)</code> | Generates a row vector with n random numbers between 0 and 1  | <pre>&gt;&gt; rand(1, 5) ans = 0.9134 0.6324 0.0975 0.2785 0.5469</pre>                          |
| <code>rand (n)</code>    | Generates an n x n matrix with random numbers between 0 and 1 | <pre>&gt;&gt; rand(3) ans = 0.9575 0.9706 0.8003 0.9649 0.9572 0.1419 0.1576 0.4854 0.4218</pre> |
| <code>rand (n, m)</code> | Generates an n x m matrix with random numbers between 0 and 1 | <pre>&gt;&gt; rand(2, 3) ans = 0.9157 0.9595 0.0357 0.7922 0.6557 0.8491</pre>                   |

|                                                                     |                                                                           |
|---------------------------------------------------------------------|---------------------------------------------------------------------------|
| <pre>&gt;&gt; x = ones(4,1) x = 1 1 1 1</pre>                       | <pre>&gt;&gt; diag(x(1:3),1) ans = 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0</pre>  |
| <pre>&gt;&gt; diag(x,0) ans = 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1</pre> | <pre>&gt;&gt; diag(x(1:3),-1) ans = 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1 0</pre> |
| <pre>&gt;&gt; diag(x,1) ans = 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0</pre> |                                                                           |



We can use this command to produce combinations such as

$$\text{diag}(x,0)+\text{diag}(x(1:3)*2,1)+\text{diag}(x(1:3)*(-2),-1)$$

```
>> diag(x,0)+diag(x(1:3)*2,1)+diag(x(1:3)*(-2),-1)
```

ans =

```
1 2 0 0
-2 1 2 0
0 -2 1 2
0 0 -2 1
```

### Solving Equations with MATLAB:

- In this we discuss how to solve algebraic equations using MATLAB
- We will discuss both linear and non-linear algebraic equations.
- First let us solve the following for the variable x:simple linear equation

$2x-3=0$ ;

```
p(x)=2x-3=0
```

```
>>p=[2 -3]
```

```
>> roots(p)
```

```
>>ans=1.5000
```

```

5x5 - 3x4 - 5x3 + x2 - 1 = 0
>> p=[5 -3 -5 1 0 -1]
p =
 5 -3 -5 1 0 -1
>> roots(p)
ans =
 1.3129 + 0.0000i
 0.3192 + 0.4612i
 0.3192 - 0.4612i
 -0.6757 + 0.1663i
 -0.6757 - 0.1663i

```

• Consider the following simple system of two linear algebraic equations in the variables  $x$  and  $y$ :

$$\begin{aligned} x - 3y &= 5 \\ 4x + 6y &= 3 \end{aligned}$$

The resulting equivalent matrix equation is written as follows:

$$\begin{bmatrix} 1 & -3 \\ 4 & 6 \end{bmatrix} \begin{Bmatrix} x \\ y \end{Bmatrix} = \begin{Bmatrix} 5 \\ 3 \end{Bmatrix}$$

$$[A][x] = \{b\}$$

$$\{x\} = [A]^{-1}\{b\}$$

```
>> a=[1 -3;4 6]
a =
 1 -3
 4 6
>> b=[5;3]
b =
 5
 3
>> x=inv(a)*b
x =
 2.1667
 -0.9444
```

#### Solving equations with MATLAB:

- In this case, it was quick to find this inverse because the coefficient matrix was small.
- But for larger matrices, finding the inverse using MATLAB may take more time.
- Therefore, it is advised to use another method to solve the above system.
- One such method that is rather fast in execution is called Gaussian elimination.
- This method is already implemented in MATLAB as matrix division using the backslash operator “\”.

Here is the solution of the above system again using Gaussian

elimination and the backslash operator:

```
>>A = [1 -3 ; 4 6]
```

```
>>b=[5; 3]
```

```
>>x = A\b
```

```
x = 2.1667
```

```
-0.9444
```

It is clear that we obtain exactly the same solution as before but with more speed on the part of MATLAB.

### Solving equations with MATLAB

- Let us solve the following system of five algebraic linear simultaneous equations

$$2x_1 - 4x_2 - x_3 + 3x_4 - x_5 = 3$$

$$x_1 + x_2 - 2x_3 + x_5 = 6$$

$$-x_1 - 3x_2 + x_4 + 3x_5 = -4$$

$$3x_1 - x_2 - x_3 + 4x_4 - x_5 = 1$$

$$x_1 + x_2 - x_3 + 2x_4 = 5$$



### Solving equations with MATLAB

```
>>A=[2 -4 -1 3 -1; 1 1 -2 0 1; -1 -3 0 1 3; 3 -1 -1 4 -1; 1 1 -1
2 0]
>>b=[3; 6; -4; 1; 5]
>>x=A\b
x =
-4.3571
0.3571
-6.4286
1.2857
-2.8571
```

$$\begin{aligned}
 2x_1 - 4x_2 - x_3 + 3x_4 - x_5 &= 3 \\
 x_1 + x_2 - 2x_3 + x_5 &= 6 \\
 -x_1 - 3x_2 + x_4 + 3x_5 &= -4 \\
 3x_1 - x_2 - x_3 + 4x_4 - x_5 &= 1 \\
 x_1 + x_2 - x_3 + 2x_4 &= 5
 \end{aligned}$$

### Example:

For  $x$  in the range  $X=[0:0.1:1]$ , calculate  $f(x) = xe^{-2x}$ . Report the value of  $x$  at which  $f(x)$  is maximum.

#### 1. DEMO PROBLEM

Code of demoProblem.m (Method-1: using loops):

```
% Program to obtain the maximum value and the corresponding index
x = 0:0.1:1;
y = 1:length(x);
f(y) = x.*exp(-2*x);
index = 1;
while (f(index)<max(f))
 index = index + 1;
end
display(['result = ', num2str(x(index))]);
```

Final Result: 0.5

For  $x$  in the range  $x=[0:0.1:1]$ , calculate  $f(x) = xe^{-2x}$ . Report the value of  $x$  at which  $f(x)$  is maximum.

Code of demoProblem.m (Method-2: without using loops):

```
% Program to obtain the maximum value and the corresponding index
x = 0:0.1:1;
f = x.*exp(-2*x);
[maxVal,index] = max(f);
display(['result = ' num2str(x(index)) ']);
```

Final Result 0.5

### SALARY PROBLEM

Two friends A and B start with initial salaries of 1 unit and 1.25 unit, respectively. At the end of each year, they get a raise of 6% and 2% respectively. Write a MATLAB code that uses either a **For** or **while** loop to calculate annual salaries of the two until the year when A's salary exceeds that of B's. Report the value of the earliest year  $n$  when A's salary exceeds B's. When the program ends, A and B should be a  $n$ -dimensional vectors, containing their salaries in the respective years.

**3. SALARY PROBLEM**

Code of salary.m (Method 1: Using while loop)

```
% Program using while loop
sala(1) = 1;
salb(1) = 1.25;
n = 1;
while(sala<salb)
 sala(n+1) = (1.06) * sala(n);
 salb(n+1) = (1.02) * salb(n);
 n = n + 1;
end
```

Final Result: Number of years = 7 (6 years later, i.e., in the 7<sup>th</sup> year)

Code of salary.m (Method 2: Using for loop)

```
% Program using for loop
```

```
sala(1) = 1;
salb(1) = 1.25;
maxYears = 20;
for n=2:maxYears
 sala(n) = (1.06) * sala(n-1);
 salb(n) = (1.02) * salb(n-1);
 if (sala(n+1)>salb(n+1))
 break
 end
end
```

Final Result: Number of years = 7 (6 years later, i.e., in the 7<sup>th</sup> year)

### 1. A NON-CONVERGENT INFINITE SERIES

All the examples in the course videos have been about convergent series. In this example, you will code a series that does not converge:

$$S = 1 + \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{3}} + \dots + \frac{1}{\sqrt{n}}$$

Write a MATLAB code that takes in the value  $n$  and computes the above series sum  $S$ . Please report the value  $S$  for various cases,  $n = 500, 1000, 5000$  and  $10000$ .

```
1. A NON-CONVERGENT INFINITE SERIES
n=500;
vec=1./sqrt(1:n);
S=sum(vec);
disp(S)
```

The above code may be repeated for each value of  $n$ . The results for the four values are:

| $n$ | $S$    |
|-----|--------|
| 1   | 500    |
| 2   | 43.28  |
| 3   | 1000   |
| 4   | 61.80  |
| 5   | 5000   |
| 6   | 139.97 |
| 7   | 10000  |
| 8   | 198.54 |



**Dot product**

dot Vector dot product.

$C = \text{dot}(A,B)$  returns the scalar product of the vectors A and B.

▪ A and B must be vectors of the same length. When A and B are both column vectors,  $\text{dot}(A,B)$  is the same as  $A^*B$ .

▪  $\text{dot}(A,B)$ , for N-D arrays A and B, returns the scalar product along the first non-singleton dimension of A and B. A and B must have the same size.

▪  $\text{dot}(A,B,DIM)$  returns the scalar product of A and B in the dimension DIM.

**Cross product**

cross Vector cross product.  $C = \text{cross}(A,B)$

▪ returns the cross product of the vectors A and B. That is,  $C = A \times B$ . A and B must be 3 element vectors.

$C = \text{cross}(A,B)$

▪ returns the cross product of A and B along the first dimension of length 3.

$C = \text{cross}(A,B,DIM)$ ,

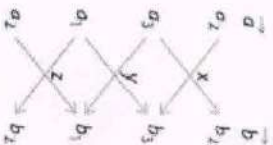
where A and B are N-D arrays, returns the cross product of vectors in the dimension DIM of A and B.

A and B must have the same size, and both  $\text{SIZE}(A,DIM)$  and  $\text{SIZE}(B,DIM)$  must be 3.

## Calculating the Cross Product

- For vector  $a = (1, 2, 1)$  and  $b = (4, 1, 2)$ , calculate:

a)  $a \times b$



$$\vec{a} \times \vec{b} = (a_2b_3 - a_3b_2, a_3b_1 - a_1b_3, a_1b_2 - a_2b_1)$$

## Cell Arrays

- Cell arrays are arrays of indexed cells where each cell can store an array of a different dimensions and data types.
- The cell function is used for creating a cell array. Syntax for the cell function is

$$C = \text{cell}(\text{dim}); \quad C = \text{cell}(\text{dim1}, \dots, \text{dimN}); \quad D = \text{cell}(\text{obj})$$

Where, C is the cell array,

- **dim** is a scalar integer or vector of integers that specifies the dimensions of cell array C;
- **dim1, ... , dimN** are scalar integers that specify the dimensions of C;
- **obj** is One of the following: (1) Java array or object, (2) .NET array of type System.String or System.Object

## Cell Arrays

Example:

- `c = cell(2, 5)`
- `c = {'Red', 'Blue', 'Green', 'Yellow', 'White'; 1 2 3 4 5}`

• OUTPUT:

`c =`

```

[] [] [] [] []
[] [] [] [] []

```

`c =`

```

'Red' 'Blue' 'Green' 'Yellow' 'White'
[1] [2] [3] [4] [5]

```

## Cell Arrays

- Accessing Data in Cell Arrays
- There are **two ways** to refer to the elements of a cell array
- Enclosing the indices in first bracket (`()`), to refer to sets of cells
- Enclosing the indices in braces (`{}`), to refer to the data within individual cells
- When you enclose the indices in first bracket, it refers to the set of cells.

## Cell Arrays

```
>> c = {'Red', 'Blue', 'Green', 'Yellow', 'White'; 1 2 3 4 5}
c =
'Red' 'Blue' 'Green' 'Yellow' 'White'
 [1] [2] [3] [4] [5]
>> c{1:2,1:2}
ans =
'Red' 'Blue'
 [1] [2]
```

```
Accessing Data in Cell
Arrays
>>c{1, 2:4}
ans =
Blue
ans =
Green
ans =
Yellow
```

## Cell Arrays

- Using Element wise Assignment.
- We can also create a cell array by assigning element wise through context indexing or through cell indexing.
- In former case, we enclose the cell subscripts in curly braces as well as the contents of the cell array on the right side of the assignment statement.

Example:  
A(1,1) = { [1 2 3;4 5 6;7 8 9]}  
A(1,2) = {1+2i}  
A(2,1) = {'A Character String'}  
A(2,2) = { [1:2;-2:0]}

```
OUT PUT:
A =
 [3x3 double]
A =
 [3x3 double] [1.0000e+00 + 2.0000e+00i]
A =
 [3x3 double] [1.0000e+00 + 2.0000e+00i]
'A Character String' []
A =
 [3x3 double] [1.0000e+00 + 2.0000e+00i]
'A Character String' [1x7 double]
```

## Cell Arrays

- **Example:**

- B{1,1} = [10 11 12;13 14 15;16 17 18];
- B{1,2} = 5+2i;
- B{2,1} = 'We are happy to learn MATLAB';
- B{2,2} = 0:0.1:1

OUTPUT:

B =

```
[3x3 double] [5.0000e+00 + 2.0000e+00i]
[1x28 char] [1x1 double]
```

## Cell Arrays

- Friends\_data = {'Name','Age','Phone Number','Qualification','Address';  
'Hari','30','9876543210','M.Com','Hyderabad';  
'Ramu','32','9876321054'  
, 'BE','Delhi'};

• OUTPUT:

Friends\_data =

```
Columns 1 through 3
'Name' 'Age' 'Phone Number'
'Hari' '30' '9876543210'
'Ramu' '32' '9876321054'
```

```
Columns 4 through 5
'Qualification' 'Address'
'M.Com' 'Hyderabad'
'BE' 'Delhi'
```

## Cell Arrays

Filling of Pre allocated cell arrays

```
>> A{4,3}=1
```

```
A =
```

```

0 0 0
0 0 1
0 0 0
0 0 0
```

Then, we can assign the individual elements of the cell array

```
>> A(1,2)=[9, 4]
```

```
A =
```

```

1 1 [1 x 2 double]
1 1 1
1 1 1
1 1 1
```

```
>> A(3,2)=[1 2; 3 2]
```

```
A =
```

```

1 1 [1 x 2 double]
1 1 1
1 1 [2 x 2 double]
1 1 1
```

## Cell Arrays

- Filling of Pre allocated cell arrays
- If we want to create empty cell arrays using cell function, we have to specify the size as inputs of the cell function and then assign the output to a variable.

```
>> B=cell(4,3) % creates an empty cell array of size 4-by-3
```

```
B =
```

```

[] [] []
[] [] []
[] [] []
[] [] []
```

```
>> A=cell(3,3)
```

```
A =
```

```

[] [] []
[] [] []
[] [] []
```

We can assign them with values using cell indexing as

```
>> A(1,1)='Sun flower';
```

```
>> A(2,1)='Cauli flower';
```

```
>> A(3,1)='Asiatic dayflower';
```

```
>>A
```

```
A =
```

```

'Sunflower' [] []
'Cauliflower' [] []
'Asiaticdayflower' [] []
```



## Cell Arrays

- Accessing the contents of cell arrays
- Using context indexing

```
>> Friends={'Karambi', 'Yunambi', 'Urmila', {'Sangeeta', 35}};
>> Friends(3) % gives the third element of the cell array.
ans =
 Urmila

>> Friends(1) % gives the content of the first cell.
ans =
 Karambi

>> Friends(4) % gives the content of the fourth cell.
ans =
 'Sangeeta' [35]
```

Thus, Friends(4){1} denotes the first element of the fourth cell of the cell array Friends. And Friends(4){2} denotes the second element of the fourth cell of the cell array Friends.

```
>> Friends(4){1}
ans =
 'Sangeeta'
>> Friends(4){2}
ans =
 35
```

## Cell Arrays

- Accessing the contents of cell arrays
- Using Cell Indexing

```
>> Bio_data={'Name', 'Age', 'Phone number', 'Qualification', 'Address';
'Ram', 32, 9876543210, 'Ph.D', 'Hyderabad', 'Hari', 35, 9123456780, 'M.Tech', 'Delhi';
'Suresh', 30, 9976543210, 'B.E', 'Bangalore', 'Ramesh', 21, 7896543210, 'B.Tech', 'Chennai'}}
Bio_data =
```

| Name     | Age   | Phone number  | Qualification | Address     |
|----------|-------|---------------|---------------|-------------|
| 'Ram'    | [ 32] | [ 9.9765e+09] | 'Ph.D'        | 'Hyderabad' |
| 'Hari'   | [ 35] | [ 9.1234e+09] | 'M.Tech'      | 'Delhi'     |
| 'Suresh' | [ 30] | [ 8.9765e+09] | 'B.E'         | 'Bangalore' |
| 'Ramesh' | [ 21] | [ 7.8965e+09] | 'B.Tech'      | 'Chennai'   |

```
>> Bio_data(4,1)
```

```
ans =
```

```
Ram
```

```
ans =
```

```
Suresh
```

```
ans =
```

```
Ramesh
```

```
>> Bio_data(:,1)
```

```
ans =
```

```
Ram
```

```
ans =
```

```
Suresh
```

```
ans =
```

```
Ramesh
```



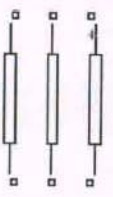


|    |                           |              |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|----|---------------------------|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53 | SANJAY KUMAR POGULA       | 160119734047 | A | A | A | A | A | A | A | A | A | A | A | A | A | P | A | P | A | A | A | A | P | P |
| 54 | FARDEEN AHMED SHAIK       | 160119734048 | A | A | P | P | A | P | P | P | P | P | P | A | P | P | A | P | A | P | P | P | P | P |
| 55 | POLYSETTY SHIVA SAI       | 160119734050 | A | P | A | P | A | A | A | A | A | A | A | A | A | P | A | A | A | A | A | A | A | P |
| 56 | USHAKOYLA SHIVA SAI       | 160119734051 | A | A | A | A | A | A | A | A | A | A | A | A | A | P | A | A | A | A | A | A | A | P |
| 57 | KALKURI SHIVA SHANTH      | 160119734052 | P | P | P | P | P | A | A | A | P | P | P | A | P | P | P | A | A | A | A | A | A | P |
| 58 | GODAVARI SRI SAI AKHIL    | 160119734054 | P | P | P | A | P | P | A | P | P | P | P | P | P | P | P | P | A | A | P | P | P | P |
| 59 | LANKALA SRISANTH          | 160119734055 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 60 | SUHASH GAMPA              | 160119734057 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 61 | KETHANAPALLY SUSENAREDD   | 160119734058 | P | P | P | A | P | P | A | P | A | P | A | A | A | A | A | A | A | A | A | A | A | P |
| 62 | DAREDDY THULASI HUSEN RE  | 160119734060 | A | A | P | A | P | A | P | P | A | A | A | A | P | A | A | A | A | A | A | A | A | P |
| 63 | KURRI ANITHA              | 160119734061 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | A | A | A | A | A | A | P |
| 64 | Firdous Anjum             | 160119734062 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 65 | BURRI GOWTHAMI            | 160119734063 | A | P | P | P | P | P | P | P | P | P | P | P | P | A | A | A | A | P | A | A | A | P |
| 66 | V. KRISHNA SREE           | 160119734064 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 67 | CHAKKA LAHARI             | 160119734065 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 68 | ESLAVATH.MANASA           | 160119734066 | A | A | A | A | A | A | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 69 | POOJA MUNNOLA             | 160119734067 | A | A | P | A | A | A | A | P | A | A | A | A | A | A | P | P | P | P | P | P | P | P |
| 70 | NAGAVELLI PRATHYUSHA      | 160119734068 | A | A | A | P | P | P | P | P | P | A | P | P | P | P | A | A | A | A | A | A | A | P |
| 71 | CHELLE SABHYATA           | 160119734069 | P | P | P | P | P | P | P | P | P | A | P | P | P | P | P | A | P | A | P | A | P | P |
| 72 | SINGIREDDY SAI NAGA KEERT | 160119734070 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 73 | BHEEMANADHUNI SAIMEGHAN   | 160119734071 | A | A | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 74 | B. SANDHYA                | 160119734072 | A | A | A | A | A | A | A | A | P | P | P | P | P | P | P | A | P | P | P | P | P | P |
| 75 | CHERUKU SANDHYA           | 160119734073 |   |   |   |   |   | P | P | P | A |   | P | P | A | A | A | A | A | A | A | A | A | P |
| 76 | PASHAM SHARATHDEEPIKA     | 160119734074 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | A | A | P | A | A | P |
| 77 | REGU SHRUTHI              | 160119734075 | P | A | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 78 | VINUKULA SUSHMA           | 160119734076 | P | P | P | P | P | P | P | P | P | P | P | P | P | A | P | A | P | P | P | A | P | P |
| 79 | DINTAKURTHI ABHINAY       | 160119734079 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 80 | POLU ABISHEK REDDY        | 160119734080 | A | A | A | A | A | A | A | A | A | A | A | A | A | P | P | P | P | P | P | P | P | P |
| 81 | AKHIL                     | 160119734082 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 82 | G BHARGAV                 | 160119734087 |   |   |   |   |   | P | P | P | P | P | P | P | P | A | P | A | A | A | A | A | A | P |
| 83 | DUSHYANTH YADAV           | 160119734088 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 84 | HADEEL SHAIK              | 160119734089 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | A | A | A | A | A | A | A | P |
| 85 | THALARI HAREESH           | 160119734090 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 86 | HARISH PAIDI              | 160119734091 | A | A | P | P | P | P | A | A | P | A | P | A | A | A | A | A | A | A | A | A | A | P |
| 87 | JASHWANTH SAMBARAJU       | 160119734092 | P | P | P | P | P | P | P | A | P | A | P | A | A | A | P | A | A | A | P | A | A | P |
| 88 | KOUSTHUBH VANGAPALLY      | 160119734094 | P | P | P | P | P | A | P | A | P | A | P | A | A | A | P | A | A | A | A | A | A | P |
| 89 | N.LALU PRASAD             | 160119734095 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 90 | CHAPALAMADUGU MAHENDER    | 160119734097 | A | A | P | P | P | A | A | P | P | A | P | P | P | P | P | P | A | P | P | P | A | P |
| 91 | MOHAMMAD AMAAN            | 160119734099 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 92 | GEDDAM NEENA NIKHIL       | 160119734100 | P | A | A | A | P | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 93 | NIKHIL                    | 160119734101 | A | A | A | A | A | A | A | P | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 94 | Y PRANEETH                | 160119734103 | P | P | A | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 95 | MANNEM RAVI TEJA          | 160119734106 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 96 | T ROHITH                  | 160119734107 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 97 | PATLOLLA SANDEEP KUMAR    | 160119734109 | P | A | A | P | P | A | A | P | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| 98 | CHETKURI SHIVA            | 160119734110 | A | A | A | A | P | A | P | A | A | P | A | A | A | P | A | P | A | A | A | A | A | P |
| 99 | Pogula Shivamani          | 160119734111 | A | A | A | A | A | A | A | A | A | A | A | A | A | P | A | A | A | A | A | A | A | P |
| ## | SHIVATEJA PUNNA           | 160119734112 | A | A | A | A | A | A | A | A | A | A | A | A | A | P | A | A | A | A | A | A | A | P |
| ## | SUPREETH AUTI             | 160119734113 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P |
| ## | CH.THARUN TEJA            | 160119734115 | A | A | P | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | P |
| ## | TOKALA VISHNUVARDHAN      | 160119734117 |   |   |   |   |   |   |   | P | P | P | P | P | P | A | P | A | A | P | P | P | P | P |
| ## | VIVEK CHANDRA ATIKETI     | 160119734118 | P | P | P | P | P | P | P | P | P | P | P | P | P | A | P | A | A | P | P | P | P | P |

*Handwritten signature/initials*



1. Which of the following block is essential for analysis of circuits?
  - a) Ground
  - b) Scope
  - c) Powergui
  - d) Measurement block
2. Which of the following waveform cannot be produced by Signal generator block
  - a) sinewave
  - b) square wave
  - c) sawtooth
  - d) trapezoidal wave
3. Sim power system is found in which of the following library?
  - a) Simulink Coder
  - b) Simscape
  - c) SimRF
  - d) SimEvents
4. Diode block is found under which library?
  - a) Sources
  - b) Elements
  - c) Measurements
  - d) Power electronics
5. Using universal bridge single phase and three phase converter topologies can be obtained. State true or false.
  - a) Demux
  - b) Mux
  - c) Add
  - d) Display
6. To observe many waveforms at once \_\_\_\_\_ block is used.
  - a) Demux
  - b) Mux
  - c) Add
  - d) Display
7. Choose the right statement
  - a) In order to obtain quick response we require more samples
  - b) More samples will cause process delay
  - c) More samples will reduce the accuracy
  - d) More samples will not cause any process delay.
8. What is the name of the following block?
 



The diagram shows three circuit symbols. The first is a series RLC branch, represented by a rectangle with a diagonal line through it. The second is a series RLC load, represented by a rectangle with a diagonal line through it and a small square at the bottom right. The third is a parallel RLC branch, represented by a rectangle with a diagonal line through it and a small square at the bottom right.

  - a) Series RLC branch
  - b) Series RLC Load
  - c) Distributed Parameters of line
  - d) Parallel RLC Branch
9. Scope is analogous to \_\_\_\_\_ in laboratory.
  - a) Potentiometer
  - b) CRO
  - c) Signal generator
  - d) Multiplexer
10. Frequency spectrum can be viewed by \_\_\_\_\_ analysis
  - a) fft
  - b) loadflow
  - c) Fault analysis
  - d) Symmetric component



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This is to Certify that Mr. /Ms. / Mrs. GADDAM BHARGAV bearing Roll No. 160119734087 of II-SEMESTER, EEE has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

**Dr. T. MURALI KRISHNA**

CO-CONVENER

Associate Professor, EEE

**Prof. G. SURESH BABU**

CONVENER

HOD - EEE

**Dr. P. RAVINDER REDDY**

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This is to Certify that Mr. /Ms. / Mrs. HADEEL SHAIK bearing Roll No. 160119734089 of II-SEMESTER, EEE has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

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CO-CONVENER

Associate Professor, EEE

**Prof. G. SURESH BABU**

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**Dr. P. RAVINDER REDDY**

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## CERTIFICATE OF PARTICIPATION

This is to Certify that Mr. /Ms. / Mrs. HARISH PAIDI bearing Roll No. 160119734091 of II-SEMESTER, EEE has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

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## CERTIFICATE OF PARTICIPATION

This is to Certify that Mr. /Ms. / Mrs. **JASHWANTH SAMBARAJU** bearing Roll No. **160119734092** of **II-SEMESTER, EEE** has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

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This is to Certify that Mr. /Ms. / Mrs. **KOUSTHUBH VANGAPALLY** bearing Roll No. **160119734094** of **II-SEMESTER, EEE** has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

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This is to Certify that Mr. /Ms. / Mrs. CHAPALAMADUGU MAHENDER bearing Roll No. 160119734097 of II-SEMESTER, EEE has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

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This is to Certify that Mr. /Ms. / \_\_\_\_\_ Y **PRANEETH** bearing Roll No. **160119734103** of **II-SEMESTER, EEE** has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

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This is to Certify that Mr. /Ms. / Mrs. SUPREETH AUTI bearing Roll No. 160119734113 of II-SEMESTER, EEE has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

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Associate Professor, EEE

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This is to Certify that Mr. /Ms. / Mrs. VISHNU YARDHAN TOKALA bearing Roll No. 160119734117 of II-SEMESTER, EEE has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

**Dr. T. MURALI KRISHNA**

CO-CONVENER

Associate Professor, EEE

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## CERTIFICATE OF PARTICIPATION

This is to Certify that Mr. /Ms. / Mrs. VIVEK CHANDRA ATIKETI bearing Roll No. 160119734118 of II-SEMESTER, EEE has Attended in the Two Week Online Training / Internship Course, VIDYUT PRASIKSHANA (VIPRA) on “SIMULATION TOOLS FOR ELECTRICAL & ELECTRONICS ENGINEERING”, conducted by the Department of Electrical and Electronics Engineering during 8<sup>th</sup> June to 20<sup>th</sup> June, 2020.

**Dr. T. MURALI KRISHNA**

CO-CONVENER

Associate Professor, EEE

**Prof. G. SURESH BABU**

CONVENER


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**Dr. P. RAVINDER REDDY**

PRINCIPAL

CBIT (A)

**“BOT Aspirant”**  
**Robotic Process Automation**



Head Dept. of IT  
CBIT, Hyderabad

**about the program:**

IT is excited to announce a short duration learning program to its students to help building critical skills on Robotic Process Automation.

In the wake of the coronavirus (Covid-19,) organizations are turning to RPA to mitigate business disruptions and advance public health, keep global supply chains moving and governments afloat.

We bring the learning program to extend the support to the students to build the skills online using Automation Anywhere University platform.

The students are advised to take advantage of the program and stay essential at the fast-changing workforce.

**about Robotic Process Automation:**

Robotic Process Automation is simple—and powerful—business process automation software.

Robotic Process Automation enables you with tools to create your own software robots to automate any business process. Your “bots” are configurable software set up to perform the tasks you assign and control.

RPA really is for everyone. And the benefits of RPA span all industries and business units. Applying RPA for business process automation is limited only by the imagination and creating bots to work has never been easier, with a growing marketplace of ready-made, ready-to-deploy Digital workers available on demand, requiring no specialized IT infrastructure.

**about Automation Anywhere**

Automation Anywhere is a global leader in Robotic Process Automation (RPA), empowering customers to automate end-to-end business processes with software bots – digital workers that perform repetitive and manual tasks, resulting in dramatic productivity gains, improved customer experience and more engaged employees. The company offers the world’s only web-based and cloud native intelligent automation platform combining RPA, artificial intelligence, machine learning and analytics right out of the box, to help organizations rapidly start and scale their process automation journey.

With offices in more than 40 countries and a global network of 1,200 partners, Automation Anywhere has deployed over 7 million bots to support some of the world’s largest enterprises across all industries.

For additional information

visit [www.automationanywhere.com](http://www.automationanywhere.com).

**Program benefits:**

- Understand the nuances of Robotic Process Automation
- Building the basic capabilities to develop Software Bots using Automation Anywhere tools and technologies
- Students will receive Bot Aspirant online badge after successful completion of the learning trail

**“BOT ASPIRANT”**



**Learning outcomes**

- Understand the concepts of Digital Workforce Development & Robotic Process Automation
- Describe how Automation Anywhere’s RPA tool can be used for creating software robots (Bots)
- Describe the new features of the Automation Anywhere client to build the Bots

**Content of Learning program - 12 Hours**

1. Hello Bot: Introduction to RPA and Use Cases v11 (3 hours)
2. Build the digital work force (5 hours)
3. Storing and Manipulating Data: How to Automate Database-related Processes (30 Mins)
4. Automating Excel Operations: Methods to Work with Excel Workbooks (30 Mins)
5. Working with PDF Documents: Methods to Automate PDF-Related Processes (30 Mins)
6. Automating Structured Data: How to Work with XML Streams (30 mins)
7. Automating String Operations: Methods to Manipulate and Extract Strings (30 mins)
8. Communicating with Email Servers: Methods to Automate Email Messages (30 mins)
9. Communicating with Emulators: How to Automate Terminal Applications (30 mins)
10. Unleash Your Intelligent Bots: Developing Cognitive Bots, driven by AI & Machine Learning (IQ Bot) (30 Mins)
11. Bot Story: Where Automation Meets Analytics Using Bot Insight V11.0 (2 hours)

To join the program: [Click Here](#)

*[Handwritten signature]*  
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 CBIT, Hyderabad



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## Learning from Home

An Initiative by CBIT in association with Automation Anywhere



Presents

# “BOT ASPIRANT”

## An E-Learning Certification Program on RPA for Students of CBIT

Kindly Refer the Brochure for outcomes and benefits of the Program

Register at: <https://forms.gle/Fkoha3GPKbK3pZYP7>

For further information, contact  
CSE: Mrs G. Shanmukhi Rama -9949438284  
IT : Mrs.K.Swathi-9491388749  
ECE: Mr.G.Mallikharjuna Rao-9866047394

Head Dept. of IT  
CBIT, Hyderabad

**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY, HYDERABAD - 75**  
RPA Training Program 3 days attended Faculty and Students List

**Faculty List:**

| S. No. | Name of the Faculty      | Designation       | Department       | Email id                  | Contact No. |
|--------|--------------------------|-------------------|------------------|---------------------------|-------------|
| 1      | Mr. R. Srikanth          | Asst. Professor   | CSE              | rsrikanth_cse@cbit.ac.in  | 8978259394  |
| 2      | Ms. G. Shanmukhi         | Asst. Professor   | CSE              | Shanmukhi.rama@cbit.ac.in | 9949438284  |
| 3      | Ms. K. Swathi            | Asst. Professor   | IT               | Kswathi_it@cbit.ac.in     | 9491388749  |
| 4      | Mr. U. Sai Ram           | Asst. Professor   | IT               | Usairam_it@cbit.ac.in     | 8143364133  |
| 5      | Mr. G. Mallikharjuna Rao | Asst. Professor   | ECE              | mallikharjunag@gmail.com  | 9866047394  |
| 6      | Y. Prasada Rao           | Computer Operator | Placement Office | yprasadbbit@gmail.com     | 9701239306  |

**Students List:**

| S. No. | Roll No.     | Name                | Branch        | Email id                       | Contact No. |
|--------|--------------|---------------------|---------------|--------------------------------|-------------|
| 1      | 160117862007 | M.Apoorva           | MCA           | apoorvamadipadaga@gmail.com    | 9618306621  |
| 2      | 160116736025 | Jegadish Chinthala  | Mechanical -1 | jagdish.jaggu369@gmail.com     | 8096631465  |
| 3      | 160116736015 | Akhilesh Khadse     | Mechanical -1 | akhileshkhadse@gmail.com       | 7013735029  |
| 4      | 160117862018 | Shaik Hafeez        | MCA           | shaikhafeez89@gmail.com        | 9704740198  |
| 5      | 160116737086 | Avinash Bharadhwaj  | IT-2          | avinasshbharadhwaj@gmail.com   | 9110302541  |
| 6      | 160116737320 | Priyanka Kodakandla | IT-2          | priyankakodakandla1@gmail.com  | 8977231298  |
| 7      | 160116738015 | Vundela Vidya Sree  | Production    | vundela.vidyasree123@gmail.com | 9542102749  |
| 8      | 160116735121 | Akhila Chittireddy  | ECE-3         | ch.akhila123@gmail.com         | 9912100872  |
| 9      | 160116735130 | Maneesha Meneni     | ECE-3         | maneesharao99121@gmail.com     | 7995319427  |
| 10     | 160116737110 | Sree Harsha E       | IT-2          | etukuri.sreeharsha@gmail.com   | 8186833230  |
| 11     | 160117862022 | B.Lakshmi Rajyam    | MCA           | lakshmirajyambalaa@gmail.com   | 8106006757  |

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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY, HYDERABAD - 75**  
**RPA Training Program 3 days attended Faculty and Students List**

|    |              |                     |              |                                |             |
|----|--------------|---------------------|--------------|--------------------------------|-------------|
| 35 | 160116736043 | Sai Chandan Badugu  | Mechanical-1 | bsaichandan@gmail.com          | 8179041999  |
| 36 | 160116736006 | Pavani Malothu      | Mechanical-1 | pavanimalothu007@gmail.com     | 9491748863  |
| 37 | 160116736022 | Dayakar Kamala      | Mechanical-1 | dayakarkamala@gmail.com        | 8186007754  |
| 38 | 160116736026 | kalyan G            | Mechanical-1 | kalyan1861999@gmail.com        | 8008869870  |
| 39 | 160116736044 | Sai Harsha pisapati | Mechanical-1 | harsha.pisapati@gmail.com      | 08686757383 |
| 40 | 160116736011 | Susmitha Yendapalle | Mechanical-1 | susmithayendapalle11@gmail.com | 9704417736  |
| 41 | 160117862047 | Surya Teja Mekala   | MCA          | suryathejamekala@gmail.com     | 9492274604  |
| 42 | 160116733312 | Srikanth Mamidala   | CSE-1        | mamidalasrikanth22@gmail.com   | 9502564068  |
| 43 | 160116733026 | Devaraj Nadisheram  | CSE-1        | devarajdeva312@gmail.com       | 8008063358  |
| 44 | 160116736013 | Tejaswi Lella       | Mechanical-1 | tejaswillella40@gmail.com      | 7287810130  |



Head Dept. of  
 CBIT, Hyderabad





A Memorandum of Understanding is executed on the day 22nd of February 2019 between CBIT and Automation Anywhere for Robotic Process Automation (RPA) initiatives.

AAU Established RPA CoE in Lab 4 of CDC Providing 40 Licenses.

The following Faculty are being trained.

Ms. G. Shanmukhi, Mr. U. Sai Ram Mr. G. Mallikharjuna Rao are being trained on RPA Software Version 11.3 at Bangalore from 20th Jan-24th Jan 2020.

**RPA – Working Group**

| S. No. | Name of the Faculty      | Designation      | Dept | Email id                        | Contact No. |
|--------|--------------------------|------------------|------|---------------------------------|-------------|
| 1      | Mr. R. Srikanth          | Asst. Professor  | CSE  | rsrikanth_csc@cbti.ac.in        | 8978259394  |
| 2      | Ms. G. Shanmukhi         | Asst. Professor  | CSE  | shanmukhi.rama@cbti.ac.in       | 9949438284  |
| 3      | Ms. K. Swathi            | Asst. Professor  | IT   | kswathi_it@cbti.ac.in           | 9491388749  |
| 4      | Mr. U. Sai Ram           | Asst. Professor  | IT   | usairam_it@cbti.ac.in           | 8143364133  |
| 5      | Mr. GNR Prasad           | Assoc. Professor | MCA  | gnrp@cbti.ac.in                 | 9885191683  |
| 6      | Mr. G. Mallikharjuna Rao | Asst. Professor  | ECE  | mallikharjunarao_ece@cbti.ac.in | 9866047394  |
| 7      | Mr. C. SriSailam         | Asst. Professor  | EEE  | srisailamc_eee@cbti.ac.in       | 9032838993  |

**AAU Will Provide**

- E-learning access to those Students enrolled in the Course.
- Licenses as per terms in Section 3 of this Agreement.
- Work with the CBIT(A) to set up the CoE, including installing the Software and providing Documentation.
- Certification test materials needed to test Students for AAI certification Issue the AAI certification to those students who have successfully completed the certification course.
- Faculty members attend AAI train-the-trainer courses, and have those who have successfully completed such course be tested for AAI train-the-trainer certification.
- Train Students using only Faculty Who are already AAI certified trainers.
- Opportunity to enroll in the Course, and conduct and oversee Student’s participation in the Course



Exchanging of MOU between CBIT & Automation Anywhere University (RPA) on 31.01.2019

*[Signature]*  
Head Dept. of  
CBIT, Hyderabad



RPA Training Programmes For Faculty & Students by Mr. Kunal Banerjee, from 19-21.03.2019 at Placement Online Exam Centre



# **CBIT Hacktoberfest Hackathon 2019**

**Organized By CBIT Open Source Community**

Sponsored By

**Monster**

Mr. R. Srikanth

**CBIT Open Source Community Incharge**

Sairakshitha Yalamanchili

**President, COSC**

# **CBIT HACKTOBERFEST HACKATHON 2019**

## **WHAT IS HACKTOBERFEST?**

Hacktoberfest is a month long virtual festival event to celebrate open source contributions presented by DigitalOcean and DEV. It's a celebration of Open Source ethos and also an opportunity to contribute to new-to-you projects. It is that tiny extra push people might need to make their first Open Source contribution. It is the easiest way to get into open source.

Through this event, students are introduced Open Source and are encouraged to make contributions to open source projects.

## **WHY 24 HOUR HACKATHON?**

A hackathon aids students to apply the concepts they have learned to build practical applications, while also allowing them to explore various facets of the frameworks or programming languages they use for the same. A 24 hour hackathon enables incremental development of an application with novel modifications and optimization. It also allows the students to learn new open source concepts and use them effectively in the product being developed.

We set out to therefore, continue the 24 hour hackathon under Hacktoberfest for the second time to encourage students to develop innovative applications based on open source technologies and explore other new technologies.

**Event Dates:** 25<sup>th</sup> and 26<sup>th</sup> October 2019

**Event Website:** [www.hacktoberfest.cbit.org.in](http://www.hacktoberfest.cbit.org.in)

# SPONSORS

## Monster Energy

Monster Beverage Corporation is an American beverage company that manufactures energy drinks including Monster Energy, Relentless and Burn. The company was originally founded as Hansen's in 1935 in Southern California, originally selling juice products. The company renamed itself as Monster Beverage in 2012, and then sold their Hansen's juices and sodas and their other non-energy drink brands to The Coca-Cola Company in 2015.

As of May 2012, Monster held nearly 35% of the \$31.9 billion US energy drink market.

Monster Energy is an energy drink introduced by Hansen Natural Company (now Monster Beverage Corporation) in April 2002.[1] There are 34 different drinks under the Monster brand in North America, including its core Monster Energy line, Java Monster, Extra Strength, Import, Rehab and Muscle Monster.



# MENTORS

Sekhar Karedla

Data Analyst

JPMC

Kalyan Jitender

Software Engineer

JPMC

Praneeth Raparathi

Software Engineer

Deloitte

Kapil Dutta

Founder

Coderplex

Harsha

Software Engineer

Google

Rohith Singirikonda

OSS Contributor

Krishnaveni Rokala

OSS Contributor

Revanth Rallabandi

OSS Contributor

Laxman Damera

OSS Contributor

Ram Damera

OSS Contributor

Pranav Devarakonda

OSS Contributor

VSVS Varma

OSS Contributor

Chandrakanth Reddy

OSS Contributor

## SCHEDULE

| Date                           | Event                                                            | Time                |
|--------------------------------|------------------------------------------------------------------|---------------------|
| Day-01<br>25 <sup>th</sup> Oct | Registrations & Team Formation                                   | 03:00 - 4:00 PM     |
| Day-01<br>25 <sup>th</sup> Oct | Inaugural                                                        | 4:00 - 4:30 PM      |
| Day-01<br>25 <sup>th</sup> Oct | Introduction about Hacktoberfest<br>and COSC                     | 4:30 - 5:00 PM      |
| Day-01<br>25 <sup>th</sup> Oct | Awareness about Open Source,<br>contributions, Free Software     | 5:00 – 5:30 PM      |
| Day-01<br>25 <sup>th</sup> Oct | Tea Break                                                        | 5:30 - 6:00 PM      |
| Day-01<br>25 <sup>th</sup> Oct | Workshop on Git & GitHub                                         | 6:00 - 7:00 PM      |
| Day-01<br>25 <sup>th</sup> Oct | Helping students start with git,<br>GitHub and OSS contributions | 7:00 - 8:00 PM      |
| Day-01<br>25 <sup>th</sup> Oct | Hacking starts..                                                 | 8:00 - 9:30 PM      |
| Day-01<br>25 <sup>th</sup> Oct | Social Dinner                                                    | 9:30 - 10:30 PM     |
| Day-01<br>25 <sup>th</sup> Oct | Overnight hacking begins..                                       | 10:30 PM - 11:59 PM |
| Day-02<br>26 <sup>th</sup> Oct | Overnight hacking continues..                                    | 12:00 AM - 8:30 AM  |
| Day-02<br>26 <sup>th</sup> Oct | Breakfast                                                        | 8:30 AM - 9:30 AM   |
| Day-02<br>26 <sup>th</sup> Oct | Morning Hack                                                     | 9:30 AM - 12:00 PM  |
| Day-02<br>26 <sup>th</sup> Oct | Teams conclude their contributions<br>and make presentation.     | 12:00 PM - 1:00 PM  |
| Day-02<br>26 <sup>th</sup> Oct | Lunch.                                                           | 1:00 PM - 1:30 PM   |
| Day-02<br>26 <sup>th</sup> Oct | Pull requests on GITHUB                                          | 1:30 PM - 2:30 PM   |
| Day-02<br>26 <sup>th</sup> Oct | Announcement of Winners and<br>Valedictory Session               | 2:00 PM - 3:30 PM   |



# **ORGANIZERS**

**Organized By CBIT Open Source Community**

## **Faculty Coordinators**

Mr. R. Srikanth

Mrs. T. Suvarna Kumari

Mrs. T. Prathima

## **Core Committee**

President – Sairakshitha Yalamanchili

Joint Secretary – Pavan Kalyan I

Vice President – Preethivardhan

Joint Secretary – Hruday Tej Akkaladevi

Secretary – Meenan Sai Vooturi

Joint Secretary – Neha Dinesh Prabhu

Secretary – Shreeyesh Reddy

Public Relations – Syed Hyder Hussain

Joint Secretary – Mirza Akber Namazi

## **Volunteers**

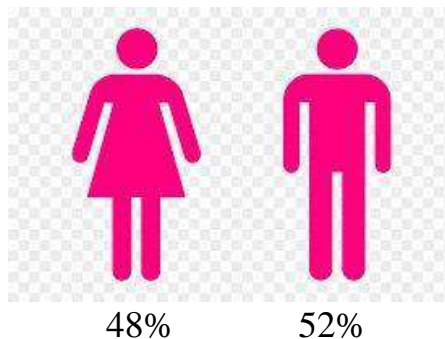
Gudapati Greeshma

Gongidi Gouthami

Sai Sanjeev Kumar Reddy Boppidi

## DEMOGRAPHICS

We saw active participation from students of various colleges which include KMIT, St. Mary's Group of Institutions, Aurora Degree college, and VNR VJIET. Over 100 students actively participated in building prototypes for their projects. We were thrilled to see such active participation from girls as well as boys in the 24-hour hackathon.



## BUDGETING

| Purpose                                                           | Dr    | Cr    |
|-------------------------------------------------------------------|-------|-------|
| Transport, Petrol and Mentors Expenses                            | 2922  |       |
| Food and Beverages                                                | 26839 |       |
| T-shirts, ID-Cards, Stationery, Certificates, Banners and Posters | 8984  |       |
| Participant registration                                          |       | 30300 |
| Total                                                             | 38745 | 30300 |
| <b>Net Expenses: 8445</b>                                         |       |       |

# PROJECTS & WINNERS

The participants were actively involved in the discussion held, followed by a session on GITHUB. The mentors were elated to see the dedicated participants work on their project. A few of the project ideas include:

**1. Events/Club Information:** An application which provides information about all clubs of the university and events that are happening in the institution, where each club has their own login (handle).

**2. Experience Expo:** An application which lets 4/4 or passed out students who are placed to post their interview experience as in which company expected what skills, concentrated on which subject, how many rounds were conducted etc., and how did the he ace the same and got selected. Whenever there is a new post, all the subscribed students of that conversation should receive emails about the update.

**3. Startup Finder:** An application which pools the info of all the startups in a particular area which can be viewed based on their core Technology such as IT, blockchain etc.

**4. Power Failure Complaint System (or sewage treatment):** An application which allows its users to file complaints regarding power failures in their region. Application needs to maintain a count of the complaints regions wise and after the count crosses the threshold, the respective authorities need to be notified about the same. This data should be displayed to the authorities in the form of list of complaints or the region can be highlighted on the map.

**5. Accident Info System:** An application which maintains a centralized database of the location, time and causalities when an accident has occurred. From this database, nearby hospitals, police Stations and ambulances are notified about the same.

**6. Marks Record Tracker:** An application to maintain slip test/mid marks/lab internal marks of a student entered by faculty so a student has access to his marks and progress always.

**7. Placement Management:** An application which automates the process of filtering students based on various factors such as branch and CGPA, so that the filtered list is sent to the company and the company details are sent to the filtered student only.

**8. Project Base:** An application which provides an interface to every previous year project done by students.

**9. Resource Repository:** An application which has all the best resources related to a particular course.

The session ended on a formal note as the top three project ideas were awarded prizes by the mentors. The prize-winning ideas were:

- Experience Expo
- Electrical and Sewage Complaint Registration
- Start-up Finder

# PICTURES





## **EVENT PLANNING**

We registered our event in the first week of October, at Digital Ocean Hacktoberfest global events website. The planning began in the first week of October. We divided ourselves into groups to find sponsors, community partners and mentors from the industry.

The publicity team set out to publicize the event in campus as well as off campus. Volunteers were picked as an extra help to organize the event. The mentors and sponsors were finalized and the dates for the hackathon were fixed. Care was taken to provide the attendees with uninterrupted power and high speed internet connectivity. It was made sure that the event took place in the way we had planned it.

## **NEXT STEPS**

The Hacktoberfest Hackathon was the second 24-hour hackathon in CBIT. The result of this hackathon was sheer creativity and high productivity. A follow up was made to help every participant to complete their 4 pull requests of their hacktoberfest and complete their product to perfection. The winning projects of this hackathon were guided further for real time implementation.

Through this hackathon, students learned to collaborate, cooperate and contribute to open source and rapid prototyping that are very essential for JPMC Code For Good and Smart India Hackathon.

Based on the enthusiasm of the participants, we plan to continue the hacknight approach in future to solve some of the real world problems. We also plan to host an internal college level version control using GitLab to allow projects to be developed collaboratively and managed internally. We will also continue to work closely with the developer communities that have provided their support for this hackathon for future events of this club.

|    | Timestamp           | Name (On Certificate)   | College                | Branch | Year | Roll number(if CBIT) |
|----|---------------------|-------------------------|------------------------|--------|------|----------------------|
| 1  | 10/26/2019 8:38:47  | Allen Thomas Sajju      | Aurora's Degree and PG | BSc Cs |      | 1                    |
| 2  | 10/26/2019 8:19:38  | HARIKA BANDARU          | CBIT                   | CSE    |      | 4 160116733066       |
| 3  | 10/26/2019 10:07:42 | Appali Lasya            | CBIT                   | CSE    |      | 4 160116733319       |
| 4  | 10/26/2019 8:35:49  | Revu Sai Roopa Amrutha  | CBIT                   | CSE    |      | 2 160117733015       |
| 5  | 10/26/2019 8:21:35  | Bogala Indu             | CBIT                   | CSE    |      | 3 160117733064       |
| 6  | 10/26/2019 8:36:43  | Maanasa Gupta Thatikon  | CBIT                   | CSE    |      | 3 160117733066       |
| 7  | 10/26/2019 8:22:32  | Sahaja Samudrala        | CBIT                   | CSE    |      | 3 160117733073       |
| 8  | 10/26/2019 8:21:22  | Sowmya Bommu            | CBIT                   | CSE    |      | 3 160117733076       |
| 9  | 10/26/2019 8:20:27  | Sri Swathi Nimmagadda   | CBIT                   | CSE    |      | 3 160117733079       |
| 10 | 10/26/2019 8:21:11  | Devinuri Abhilash       | CBIT                   | CSE    |      | 3 160117733084       |
| 11 | 10/26/2019 8:21:23  | G.Pavan Praneeth        | CBIT                   | CSE    |      | 3 160117733103       |
| 12 | 10/26/2019 8:36:08  | Sharath Chandra Sriramu | CBIT                   | CSE    |      | 3 160117733111       |
| 13 | 10/26/2019 8:25:36  | Shashank Kandaala       | CBIT                   | CSE    |      | 3 160117733112       |
| 14 | 10/26/2019 8:36:15  | B Varun                 | CBIT                   | CSE    |      | 3 160117733115       |
| 15 | 10/26/2019 8:20:36  | Kedamath                | CBIT                   | CSE    |      | 3 160117733116       |
| 16 | 10/26/2019 8:23:32  | B.Vineeth Sharma        | CBIT                   | CSE    |      | 3 160117733119       |
| 17 | 10/26/2019 8:32:31  | Vishal Chandra Jongoni  | CBIT                   | CSE    |      | 3 160117733120       |
| 18 | 10/26/2019 8:34:42  | Bhargavi Sunkireddy     | CBIT                   | CSE    |      | 3 160117733126       |
| 19 | 10/26/2019 8:35:31  | Deekshitha              | CBIT                   | CSE    |      | 3 160117733127       |
| 20 | 10/26/2019 8:40:30  | Kranthi Rekha Chinthapa | CBIT                   | CSE    |      | 3 160117733131       |
| 21 | 10/26/2019 8:41:13  | Susmitha Chintareddy    | CBIT                   | CSE    |      | 3 160117733142       |
| 22 | 10/26/2019 8:20:11  | R Bhanu Prasad Nayak    | CBIT                   | CSE    |      | 3 160117733147       |
| 23 | 10/26/2019 8:35:31  | PUPPIREDDY CHARITH      | CBIT                   | CSE    |      | 3 160117733149       |
| 24 | 10/26/2019 8:35:41  | Jada Shiva Kumar        | CBIT                   | CSE    |      | 3 160117733172       |
| 25 | 10/26/2019 8:40:52  | chidura shivajyothe     | CBIT                   | IT     |      | 3 160117737021       |
| 26 | 10/26/2019 8:37:44  | P.Andal SriVaishnavi    | CBIT                   | IT     |      | 3 160117737065       |
| 27 | 10/26/2019 9:04:27  | MOHAMMED AMEER UD       | CBIT                   | IT     |      | 3 160117737090       |
| 28 | 10/26/2019 8:43:50  | Vinay                   | CBIT                   | IT     |      | 3 160117737117       |
| 29 | 10/26/2019 8:42:29  | V.Nithisha              | CBIT                   | IT     |      | 3 160117737303       |
| 30 | 10/26/2019 8:20:33  | V G K Lahari            | CBIT                   | CSE    |      | 2 160118733005       |
| 31 | 10/26/2019 8:23:16  | Rathod maheshwari       | CBIT                   | CSE    |      | 2 160118733009       |
| 32 | 10/26/2019 8:24:25  | G Sai Prathyusha        | CBIT                   | CSE    |      | 2 160118733012       |
| 33 | 10/26/2019 8:22:47  | Deva.Sudeeshna          | CBIT                   | CSE    |      | 2 160118733019       |
| 34 | 10/26/2019 8:21:12  | Sukritha Mankala        | CBIT                   | CSE    |      | 2 160118733020       |
| 35 | 10/26/2019 8:22:54  | Dara Supriya            | CBIT                   | CSE    |      | 2 160118733021       |
| 36 | 10/26/2019 8:35:53  | Supriya Kaluri          | CBIT                   | CSE    |      | 2 160118733022       |
| 37 | 10/26/2019 8:26:47  | Mohammed Abdul Muhay    | CBIT                   | CSE    |      | 2 160118733024       |
| 38 | 10/26/2019 8:36:56  | Pranav kaple            | CBIT                   | CSE    |      | 2 160118733036       |
| 39 | 10/26/2019 8:21:10  | Ramya Perumandla        | CBIT                   | CSE    |      | 2 160118733075       |
| 40 | 10/26/2019 8:19:40  | G SAKETHA               | CBIT                   | CSE    |      | 2 160118733077       |
| 41 | 10/26/2019 8:36:27  | Asfiya Tabassum         | CBIT                   | CSE    |      | 2 160118733084       |
| 42 | 10/26/2019 8:20:00  | Tejaswini Jakka         | CBIT                   | CSE    |      | 2 160118733085       |
| 43 | 10/26/2019 8:52:53  | Hussain Aziz Ahmed      | CBIT                   | CSE    |      | 2 160118733092       |
| 44 | 10/26/2019 8:25:40  | Asrar Hussain           | CBIT                   | CSE    |      | 2 160118733144       |
| 45 | 10/26/2019 8:27:09  | P. Akshay               | CBIT                   | CSE    |      | 2 160118733145       |
| 46 | 10/26/2019 8:20:16  | DACHEPALLY SAI KIRAN    | CBIT                   | CSE    |      | 2 160118733168       |
| 47 | 10/26/2019 8:20:41  | Vijay Donkena           | CBIT                   | CSE    |      | 2 160118733178       |
| 48 | 10/26/2019 8:20:47  | Yashwanth reddy vadde   | CBIT                   | CSE    |      | 2 160118733180       |
| 49 | 10/26/2019 8:20:11  | Anmol Maini             | CBIT                   | CSE    |      | 2 160118733181       |
| 50 | 10/26/2019 8:19:44  | Malik Arsalan Majid     | CBIT                   | CSE    |      | 2 160118733183       |
| 51 | 10/26/2019 8:20:18  | Vaneet Kapoor           | CBIT                   | CSE    |      | 2 160118733184       |
| 52 | 10/26/2019 8:20:14  | Paras Phull             | CBIT                   | CSE    |      | 2 160118733185       |
| 53 | 10/26/2019 8:21:30  | Anthareddy Hemalatha    | CBIT                   | CSE    |      | 2 160118733301       |
| 54 | 10/26/2019 8:21:54  | YENNAM HARSHASRI        | CBIT                   | CSE    |      | 2 160118733303       |
| 55 | 10/26/2019 8:21:19  | G.Laya Rao              | CBIT                   | CSE    |      | 2 160118733313       |
| 56 | 10/26/2019 8:21:31  | Varsha oggu             | CBIT                   | CSE    |      | 2 160118733315       |
| 57 | 10/26/2019 8:41:24  | Noorain Fathima         | CBIT                   | IT     |      | 2 160118737065       |
| 58 | 10/26/2019 8:20:57  | Sathwika S              | CBIT                   | IT     |      | 2 160118737080       |
| 59 | 10/26/2019 8:21:26  | K.Sri Yagna             | CBIT                   | IT     |      | 2 160118737085       |
| 60 | 10/26/2019 8:26:17  | M.Srimaan Murari        | CBIT                   | IT     |      | 2 160118737116       |
| 61 | 10/26/2019 8:35:05  | Ankit Kumar Pradhan     | CBIT                   | MCA    |      | 2 160118862003       |
| 62 | 10/26/2019 8:19:48  | Samineni ankitha        | CBIT                   | MCA    |      | 2 160118862004       |



|     | Timestamp           | Name (On Certificate)   | College                     | Branch | Year | Roll number(if CBIT) |
|-----|---------------------|-------------------------|-----------------------------|--------|------|----------------------|
| 63  | 10/26/2019 8:19:48  | B Arun Kumar            | CBIT                        | MCA    |      | 2 160118862008       |
| 64  | 10/26/2019 8:27:05  | P Deepthi Reddy         | CBIT                        | MCA    |      | 2 160118862012       |
| 65  | 10/26/2019 8:35:50  | Karthik Sai Kumar Reddy | CBIT                        | MCA    |      | 2 160118862017       |
| 66  | 10/26/2019 8:20:11  | KADAMBALA MANISH K      | CBIT                        | MCA    |      | 2 160118862022       |
| 67  | 10/26/2019 8:44:31  | Tulala Rushikeswara Rao | CBIT                        | MCA    |      | 2 160118862029       |
| 68  | 10/26/2019 11:05:20 | S.shiva kumar           | CBIT                        | MCA    |      | 2 160118862032       |
| 69  | 10/26/2019 10:24:54 | BOYALAKUNTLA SIDDA      | CBIT                        | MCA    |      | 2 160118862034       |
| 70  | 10/26/2019 8:20:36  | Mahesh Sharma           | CBIT                        | MCA    |      | 1 160119862016       |
| 71  | 10/26/2019 8:21:43  | GONUGUNTLA SAI HAR      | CBIT                        | MCA    |      | 1 160119862031       |
| 72  | 10/26/2019 8:21:34  | N.Saikiran yadav        | CBIT                        | MCA    |      | 1 160119862032       |
| 73  | 10/26/2019 8:21:19  | Bhima.Maanvitha         | CBIT                        | CSE    |      | 2 160118733009       |
| 74  | 10/26/2019 8:20:12  | MUZZAMMIL AHMED         | CBIT                        | CSE    |      | 2 160118733025       |
| 75  | 10/26/2019 8:23:44  | M Srikanth              | CBIT                        | MCA    |      | 2 160118862036       |
| 76  | 10/26/2019 8:37:15  | Vidyadhar Pogul         | CBIT                        | CSE    |      | 3 160117733118       |
| 77  | 10/26/2019 8:37:09  | Juhitha Doddolu         | CBIT                        | CSE    |      | 3 160117733128       |
| 78  | 10/26/2019 8:39:40  | Kousthubha Krishna CH   | CBIT                        | CSE    |      | 3 160117733157       |
| 79  | 10/26/2019 8:42:29  | Pratap Rahul Sai        | CBIT                        | CSE    |      | 3 160117733161       |
| 80  | 10/26/2019 8:35:37  | Sai Rohith Kommineni    | CBIT                        | CSE    |      | 3 160117733165       |
| 81  | 10/26/2019 8:23:38  | G Lavanya               | CBIT                        | CSE    |      | 2 160118733008       |
| 82  | 10/26/2019 8:35:00  | Khush                   | CBIT                        | CSE    |      | 2 160118733101       |
| 83  | 10/26/2019 8:22:32  | SIVA SANKAR MADALA      | CBIT                        | MCA    |      | 1 160119862038       |
| 84  | 10/26/2019 8:22:22  | Koushik palnam          | CBIT                        | CSE    |      | 3 160117733094       |
| 85  | 10/26/2019 8:40:10  | Satya Shodhaka R Prabh  | CBIT                        | IT     |      | 3 160117737054       |
| 86  | 10/26/2019 8:20:57  | Chaitanya Changala      | CBIT                        | CSE    |      | 2 160118733001       |
| 87  | 10/26/2019 8:21:45  | Deepthi Begari          | CBIT                        | CSE    |      | 2 160118733002       |
| 88  | 10/26/2019 8:20:47  | Yaswanth Mallapureddy   | CBIT                        | MCA    |      | 2 160118862046       |
| 89  | 10/26/2019 8:34:58  | Vyshali chava           | CBIT                        | CSE    |      | 3 160117733144       |
| 90  | 10/26/2019 8:35:29  | Amogha Bhandari         | Keshav Memorial institute   | CSE    |      | 3                    |
| 91  | 10/26/2019 8:23:10  | Tejaswini Viswanath     | Keshav Memorial Institute   | CSE    |      | 3                    |
| 92  | 10/26/2019 8:20:43  | Yeticherla Sai Viswatej | KMIT                        | CSE    |      | 3                    |
| 93  | 10/26/2019 8:37:42  | Annanya Bhandari        | KMIT                        | CSE    |      | 3                    |
| 94  | 10/26/2019 8:21:12  | Anmol Sharma            | St. Mary's Group of Instit  | CSE    |      | 3                    |
| 95  | 10/26/2019 8:19:59  | Sourabh Diwanji         | St. Mary's group of instit  | CSE    |      | 3                    |
| 96  | 10/26/2019 8:20:23  | Syed Haany Ali          | St. Mary's Group of Instit  | CSE    |      | 3                    |
| 97  | 10/26/2019 8:23:13  | Tushar Jain             | St. Marys Group Of Instit   | CSE    |      | 3                    |
| 98  | 10/26/2019 8:22:43  | Aditya Shetty           | St.mary engineering colle   | CSE    |      | 3                    |
| 99  | 10/26/2019 8:20:52  | MD WASIM QUADRI         | St.mary's group of institut | CSE    |      | 3                    |
| 100 | 10/26/2019 8:22:47  | Durgam Archana          | VNR vignana jyothi instit   | IT     |      | 3                    |
| 101 | 10/26/2019 8:20:21  | SAI SARIKA DEVISETTY    | VNR VJIET                   | IT     |      | 3                    |

Professor and Head Department  
Department of Computer Science & Engineering  
Chaitanya Bharathi Institute of Technology (A)  
Gandipet, Hyderabad-500 075.(T.S.)

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**Srinivas Bangaru** <srinivas.bangaru@t-hub.co>  
To: Director Incubation & Innovation <director\_ii@cbit.ac.in>  
Cc: "Smt.M.Sangeetha Assistant Professor (C)" <msangeetha\_sms@cbit.ac.in>

Wed, Jul 28, 2021 at 11:05 AM

Dear Sir,

As discussed over the phone, Kindly confirm the details given in the trailing mail.

Please do the needful.

Thanks & Regards,  
B. Srinivas.

[Quoted text hidden]

---

**Director Incubation & Innovation** <director\_ii@cbit.ac.in>  
To: Srinivas Bangaru <srinivas.bangaru@t-hub.co>  
Cc: Principal CBIT <principal@cbit.ac.in>

Thu, Jul 29, 2021 at 7:32 PM

Dear Mr. Srinivas

We are confirming GST and PAN No. They are fine. The Phone No to be changed to . **8466997204. Dr P. Ravinder Reddy is the Principal, CBIT.**

Regards.

Dr U.K. Choudhury  
Prof. (I&I) CBIT

[Quoted text hidden]

---

**admin office** <accounts@cbit.ac.in>  
To: Director Incubation & Innovation <director\_ii@cbit.ac.in>

Fri, Jul 30, 2021 at 10:05 AM

Dear Sir,

The GST number provided in the above table is correct.

Thanks & Regards,  
Krutika Atre

[Quoted text hidden]

---

**Team Onboarding** <onboarding@t-hub.co>  
To: principal@cbit.ac.in

Fri, Jul 30, 2021 at 4:00 PM

Cc: Ganesh Rayala <ganesh.rayala@t-hub.co>, Sheshendra Sharma <sharma.as@t-hub.co>, Madhu Sudhan Reddy <madhusudhan.k@t-hub.co>, Srinivas Bangaru <srinivas.bangaru@t-hub.co>, Phani Raju <phani.r@t-hub.co>, director\_ii@cbit.ac.in, Placements HEAD <placements@cbit.ac.in>

Hi Dr. P. Ravinder Reddy (Principal CBIT)

Please find attached the Letter of Membership Allotment (LMA) duly signed.

Please ensure payment upon receipt of invoice.

Regards,

Team T-Hub On-boarding

On Fri, Jul 30, 2021 at 9:16 AM Srinivas Bangaru <[srinivas.bangaru@t-hub.co](mailto:srinivas.bangaru@t-hub.co)> wrote:

Dear Phani,

Please find the below details and the attached documents from CBIT. Kindly arrange the LMA & invoice (LaunchPad Membership) at the earliest.

|                                                        |                                                                                                                               |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| i) Name of Company                                     | Chaitanya Bharathi Institute of Technology                                                                                    |
| ii) Constitution (Pvt, Ltd, Individual)                | Private Education                                                                                                             |
| iii, Company CIN Number (If Individual not applicable) | -NA-                                                                                                                          |
| ii) Billing address                                    | Dr. Ravinder Reddy, Principal<br>Chaitanya Bharathi Institute of Technology<br>Gandipet, Hyderabad, T.S.<br>Pin code: 500 075 |
| ii) Member GST Regn No., if applicable                 | 36AABTC1906A1ZG                                                                                                               |
| ii) Billing email id                                   | <a href="mailto:principal@cbit.ac.in">principal@cbit.ac.in</a>                                                                |
| iii) Paying member name                                | Chaitanya Bharathi Institute of Technology                                                                                    |
| iv) Paying member contact no. & email id               | 8466997204 & <a href="mailto:principal@cbit.ac.in">principal@cbit.ac.in</a>                                                   |
| v) Bank account cancelled cheque                       |                                                                                                                               |
| vi) PAN                                                | AABTC1906A                                                                                                                    |

Please do the needful.

Thanks,

Srinivas.

[Quoted text hidden]

--

Regards,

R.Phani Raju

Sr. Analyst - Admin and Procurement

Corporate Support

9866185188



**DISCLAIMER:** This communication is confidential and privileged and is directed to and for the use of the addressee only. The recipient, if not the addressee should not use this message if erroneously received, and access and use of this e-mail in any manner by anyone other than the addressee is unauthorized. The recipient acknowledges that T-Hub may be unable to exercise control or ensure or guarantee the integrity of the text of the email message and the text is not warranted as to completeness and accuracy. Before opening and accessing the attachment, if any, please check and scan for virus. Furthermore, this email is for Information Purposes Only. It does not constitute any kind of commitment, contractual or legal binding, either formal or informal, on behalf of T-Hub. Also, the content of the mail does not necessarily express the views of T-Hub, and may represent an individual's view only in a given context.

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**LMA TTLP - Chaitanya Bharathi Institute of Technology...pdf**  
567K

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**Director Incubation & Innovation** <director\_ii@cbit.ac.in>  
To: admin office <accounts@cbit.ac.in>

Fri, Jul 30, 2021 at 4:10 PM

For information. Hope We have paid the membership fee for this year.

Best Wishes.  
Dr u.K. Choudhury  
[Quoted text hidden]

---

**LMA TTLP - Chaitanya Bharathi Institute of Technology...pdf**  
567K

---

**Madhu Sudhan Reddy** <madhusudhan.k@t-hub.co>  
To: principal@cbit.ac.in

Fri, Jul 30, 2021 at 5:43 PM

Cc: Ganesh Rayala <ganesh.rayala@t-hub.co>, Srinivas Bangaru <srinivas.bangaru@t-hub.co>, Phani Raju <phani.r@t-hub.co>, director\_ii@cbit.ac.in, Placements HEAD <placements@cbit.ac.in>

Hi Dr. P. Ravinder Reddy,

Please find the attached invoice for membership renewal. We already sent the payment in a separate mail.

Let me know if you have any requirements.

Thanks  
[Quoted text hidden]

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**Madhu Sudhan Reddy**  
Asst. Manager-Finance & Accounts  
Corporate Support, T-Hub  
Contact: +91 8341090787



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 **Invoice\_TH202122061\_from\_THub\_Foundation.pdf**  
55K

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**Srinivas Bangaru** <srinivas.bangaru@t-hub.co> Fri, Jul 30, 2021 at 8:20 PM  
To: Harshitha Koganti <harshitha.koganti@t-hub.co>  
Cc: Ganesh Rayala <ganesh.rayala@t-hub.co>, Director Incubation & Innovation <director\_ii@cbit.ac.in>, principal@cbit.ac.in, Placements HEAD <placements@cbit.ac.in>, "Smt.M.Sangeetha Assistant Professor (C)" <msangeetha\_sms@cbit.ac.in>

Dear Harshitha,

I am glad to inform you that CBIT has renewed T-Tribe LaunchPad Program Membership for the academic year of 2021-22. I request you to connect with Mrs. Sangeetha, Assistant Professor to discuss the program execution plan.

With best regards,  
B. Srinivas.

[Quoted text hidden]

---

**Harshitha Koganti** <harshitha.koganti@t-hub.co> Tue, Aug 3, 2021 at 6:06 PM  
To: Director Incubation & Innovation <director\_ii@cbit.ac.in>, principal@cbit.ac.in  
Cc: Ganesh Rayala <ganesh.rayala@t-hub.co>, Srinivas Bangaru <srinivas.bangaru@t-hub.co>, Placements HEAD <placements@cbit.ac.in>, "Smt.M.Sangeetha Assistant Professor (C)" <msangeetha\_sms@cbit.ac.in>

Dear Sir/Ma'am,

Greetings from T-Tribe!!!

We are glad to know that CBIT College is being a part of the T-Tribe LaunchPad program with the second batch. As we experienced a great participation from the students in our first batch, now we are looking forward to more graduates in this batch. We once again welcome CBIT college to be a part of the T-Tribe LaunchPad program.

As you are aware, **T-Tribe - Academic Membership Program** - is the latest and proud initiative of T-Hub launched with a vision to empower students across the country with entrepreneurship.

### How do we plan to achieve this?

We have various expertly curated programs to help aspiring entrepreneurs in every stage of their entrepreneurial journey. One of them is our one-year **Launchpad Program!** By associating with the leading colleges in the country, T-Tribe aims to deliver entrepreneurial content to the students and help them consider entrepreneurship as a career. The Launchpad Program is a perfect amalgamation of theoretical and practical learning that not only enlightens students on the scope of entrepreneurship but also gives them a direction to achieve success in the field.

### Why should you choose the Launchpad Program for your students?

The future is looking at more job creators than job seekers. We want the next generation of the country to be able to become successful entrepreneurs by implementing their revolutionary ideas. And their success journey starts with the Launchpad Program.

The following are the key outcomes of the program:

- Certification from T-hub
- Provide a structured approach to entrepreneurship

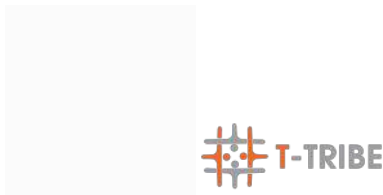
- Provide an opportunity for student entrepreneurs to assess their ideas and consider entrepreneurship as a career option
- Help colleges to have access to founders, start-ups, corporates, and mentors for students that would help them to move towards business viability
- Hone entrepreneurial skill sets

T-Tribe has immense respect for those who encourage the next generation to be independent thinkers, leaders, and competent entrepreneurs. We would like to do everything for you to keep up the good work. T-Tribe is currently associated with **22 colleges**.

We request you to kindly connect a faculty SPOC from your end who will be incharge of this LaunchPad program and further communication can be rolled through them.

For any other queries please write to us.

--Best  
Harshitha.  
[Quoted text hidden]  
--



**Harshitha Chowdary**  
Senior Associate | T-Tribe, T-Hub  
Contact: [+91 9010839295](tel:+919010839295)  
Website: <https://t-hub.co>  
[Quoted text hidden]

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### 3 attachments

- LaunchPad Program (2).pdf**  
1590K
- LaunchPad Module (2).pdf**  
99K
- LaunchPad Live Project.pdf**  
1799K

---

**Srinivas Bangaru** <srinivas.bangaru@t-hub.co>  
To: Director Incubation & Innovation <director\_ii@cbit.ac.in>

Wed, Oct 6, 2021 at 10:46 AM

Dear Sir,

Greetings from T-Hub!

Hope you are doing well. I request you to update the payment status. If the payment is done, kindly ignore.

Best regards,  
Srinivas.

[Quoted text hidden]

---

**Director Incubation & Innovation** <director\_ii@cbit.ac.in>  
To: admin office <accounts@cbit.ac.in>

Mon, Nov 8, 2021 at 2:04 PM

----- Forwarded message -----

From: **Srinivas Bangaru** <srinivas.bangaru@t-hub.co>

Date: Thu, Jun 10, 2021 at 11:40 AM

Subject: T-Tribe Membeship renewal request

To: Director Incubation & Innovation <director\_ii@cbit.ac.in>

Cc: Smt.M.Sangeetha Assistant Professor (C) <msangeetha\_sms@cbit.ac.in>

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---

**3 attachments**

 **T-TRIBE\_LAUNCHPAD\_PROGRAM.pdf**  
1571K

 **TRIBE Z PROJECT.pdf**  
1800K

 **LaunchPad Module.pdf**  
99K

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**Madhu Sudhan Reddy** <madhusudhan.k@t-hub.co>

Fri, Nov 12, 2021 at 2:47 PM

To: principal@cbit.ac.in

Cc: director\_ii@cbit.ac.in, Placements HEAD <placements@cbit.ac.in>, Srinivas Bangaru <srinivas.bangaru@t-hub.co>

Hi Dr. P. Ravinder Reddy,

We received the payment.

Thank You

[Quoted text hidden]

---

**Director Incubation & Innovation** <director\_ii@cbit.ac.in>

Fri, Nov 12, 2021 at 2:50 PM

To: admin office <accounts@cbit.ac.in>, "Smt.M.Sangeetha Assistant Professor (C)" <msangeetha\_sms@cbit.ac.in>, iic@cbit.ac.in

For information.

Dr U.K. Choudhury

[Quoted text hidden]

---

**admin office** <accounts@cbit.ac.in>

Fri, Nov 12, 2021 at 3:22 PM

To: Director Incubation & Innovation <director\_ii@cbit.ac.in>

Dear Sir,

Thanks for the information

Thanks & Regards,  
Krutika Atre

[Quoted text hidden]

---

**Smt.M.Sangeetha Assistant Professor (C)** <msangeetha\_sms@cbit.ac.in>

Fri, Nov 12, 2021 at 3:58 PM

To: Director Incubation & Innovation <director\_ii@cbit.ac.in>

Okay sir, noted.

Thanks & Regards  
M Sangeetha

---

## T-Tribe Membeship renewal request

---

**Madhu Sudhan Reddy** <madhusudhan.k@t-hub.co>

Fri, Jul 30, 2021 at 5:43 PM

To: principal@cbit.ac.in

Cc: Ganesh Rayala <ganesh.rayala@t-hub.co>, Srinivas Bangaru <srinivas.bangaru@t-hub.co>, Phani Raju <phani.r@t-hub.co>, director\_ii@cbit.ac.in, Placements HEAD <placements@cbit.ac.in>

Hi Dr. P. Ravinder Reddy,

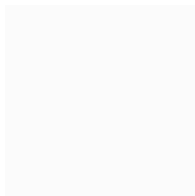
Please find the attached invoice for membership renewal. We already sent the payment in a separate mail.

Let me know if you have any requirements.

Thanks

[Quoted text hidden]

--



**Madhu Sudhan Reddy**

Asst. Manager-Finance & Accounts


Corporate Support, T-Hub

Contact: +91 8341090787



[Quoted text hidden]

---

 Invoice\_TH202122061\_from\_THub\_Foundation.pdf  
55K



## T-Tribe Membeship renewal request

**Srinivas Bangaru** <srinivas.bangaru@t-hub.co>  
To: Director Incubation & Innovation <director\_ii@cbit.ac.in>  
Cc: "Smt.M.Sangeetha Assistant Professor (C)" <msangeetha\_sms@cbit.ac.in>

Mon, Jul 26, 2021 at 2:21 PM

Dear Sir,

Greetings from T-Hub!

We are grateful to you for another opportunity to work with you. I request you to check the following details to initiate the LaunchPad program onboarding process:

The details below were provided last year for LMA. If they are okay with you, will initiate the onboarding process.

|                                                        |                                                                                                           |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| i) Name of Company                                     | Chaitanya Bharathi Institute of Technology                                                                |
| ii) Constitution (Pvt, Ltd, Individual)                | Private Education                                                                                         |
| iii, Company CIN Number (If Individual not applicable) | -NA-                                                                                                      |
| ii) Billing address                                    | Principal<br>Chaitanya Bharathi Institute of Technology<br>Gandipet, Hyderabad, T.S.<br>Pin code: 500 075 |
| ii) Member GST Regn No., if applicable                 | 36AABTC1906A1ZG                                                                                           |
| ii) Billing email id                                   | <a href="mailto:principal@cbit.ac.in">principal@cbit.ac.in</a>                                            |
| iii) Paying member name                                | Chaitanya Bharathi Institute of Technology                                                                |
| iv) Paying member contact no. & email id               | 8466997201 & <a href="mailto:principal@cbit.ac.in">principal@cbit.ac.in</a>                               |
| v) Bank account cancelled cheque                       |                                                                                                           |
| vi) PAN                                                | AABTC1906A                                                                                                |

Please call me for any clarifications.

Best Regards,

B.Srinivas

Team T-Tribe

90004 30055

[Quoted text hidden]

## T-Tribe Membeship renewal request

---

**Srinivas Bangaru** <srinivas.bangaru@t-hub.co>

Fri, Jul 30, 2021 at 8:20 PM

To: Harshitha Koganti <harshitha.koganti@t-hub.co>

Cc: Ganesh Rayala <ganesh.rayala@t-hub.co>, Director Incubation & Innovation <director\_ii@cbit.ac.in>, principal@cbit.ac.in, Placements HEAD <placements@cbit.ac.in>, "Smt.M.Sangeetha Assistant Professor (C)" <msangeetha\_sms@cbit.ac.in>

Dear Harshitha,

I am glad to inform you that CBIT has renewed T-Tribe LaunchPad Program Membership for the academic year of 2021-22. I request you to connect with Mrs. Sangeetha, Assistant Professor to discuss the program execution plan.

With best regards,  
B. Srinivas.

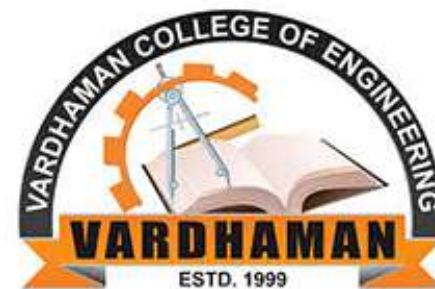
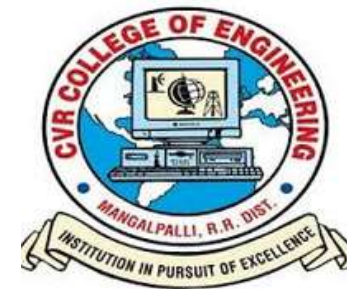
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# Launchpad Program

Nurturing student entrepreneurs  
across India



# Our Partner Colleges



CBIT



|                      |                                                                   |
|----------------------|-------------------------------------------------------------------|
| <i>Program Title</i> | <b>Launchpad</b>                                                  |
| <i>Execution</i>     |                                                                   |
| <i>Partner</i>       | <b>T-Hub</b>                                                      |
| <b>S.no.</b>         | <b>Module Title</b>                                               |
| <b>0</b>             | <b>Program Orientation</b>                                        |
| 0.1                  | T-Tribe - Objective, Goals, Opportunities                         |
| 0.2                  | Launchpad - Introduction, Phases, Expected Outcome                |
| <b>1</b>             | <b>Entrepreneurship as a Career</b>                               |
| 1.1                  | What is Entrepreneurship?                                         |
| 1.2                  | Why Entrepreneurship?                                             |
| 1.3                  | Opportunities                                                     |
| 1.4                  | Breaking Psychology Barriers                                      |
| 1.5                  | Skills to be an Entrepreneur                                      |
| 1.6                  | Basic Entrepreneurship Terminologies                              |
| <b>2</b>             | <b>Design Thinking</b>                                            |
| 2.1                  | Understanding Design Thinking                                     |
| 2.2                  | Process of Design Thinking                                        |
| 2.3                  | Design Solutions                                                  |
| <b>3</b>             | <b>Idea Genration &amp; Innovation</b>                            |
| 3.1                  | Identifying the Problem                                           |
| 3.2                  | Understanding Problem                                             |
| 3.3                  | Framing problem Statement                                         |
| 3.4                  | Framing a solution (Product/ Process)                             |
| 3.5                  | Feasibility of creating the solution                              |
| 3.6                  | Deriving Business Idea                                            |
| <b>4</b>             | <b>Passion to Compassion (Finding Your Customer)</b>              |
| 4.1                  | Emotional Intelligence                                            |
| 4.2                  | Importance of Failure                                             |
| 4.3                  | Motivation and Empathy                                            |
| 4.4                  | Social Skills                                                     |
| <b>5</b>             | <b>Business Model Canvas</b>                                      |
| 5.1                  | Understanding BMC                                                 |
| 5.2                  | Revenue Modeling                                                  |
| <b>6</b>             | <b>Tech Standpoints &amp; Prototyping</b>                         |
| 6.1                  | Current Technological Trends                                      |
| 6.2                  | Cost-free Technological Utilities like AWS, Google Analytics etc  |
| 6.3                  | Selecting appropriate programming language/ frameworks/ databases |
| <b>7</b>             | <b>Market Research &amp; Marketing Strategies</b>                 |

|           |                                                                                       |
|-----------|---------------------------------------------------------------------------------------|
| 7.1       | Market analysis, Pricing strategy, Target Determination                               |
| 7.2       | Competitor Analysis                                                                   |
| 7.3       | Marketing Strategy Building                                                           |
| 7.4       | Sales & Market Planning                                                               |
| 7.5       | S.W.O.T.: Individual, idea & Organisational                                           |
| <b>8</b>  | <b>Business Communications</b>                                                        |
| 8.1       | Verbal                                                                                |
| 8.2       | Non-verbal                                                                            |
| 8.3       | Business Writing                                                                      |
| 8.4       | Art of Pitching                                                                       |
| <b>9</b>  | <b>Team Building Essentials</b>                                                       |
| 9.1       | Founding Team Development                                                             |
| 9.2       | How to choose the right team-mate                                                     |
| 9.3       | Personality Types                                                                     |
| <b>10</b> | <b>Leadership &amp; Management</b>                                                    |
| 10.1      | Styles of Leadership (Personality Test)                                               |
| 10.2      | Leader DNA & Role                                                                     |
| <b>11</b> | <b>Intellectual Property Rights</b>                                                   |
| 11.1      | Trademarks, Patents, Copyrights & Licenses                                            |
| <b>12</b> | <b>Money Matters</b>                                                                  |
| 12.1      | Raising Funds & Understanding Capital                                                 |
| 12.2      | Start-up Financing (Income/Expenditure Road map, Mobilising of funds and utilisation) |
| 12.3      | Financial Management & Book-keeping                                                   |
|           | Final Assessment                                                                      |

# Certificate of Completion

This certifies that

**Nakka Naga Geetha Krishna**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

Nakka Naga Geetha Krishna has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB



# Certificate of Completion

This certifies that

**Pranavi Nagubandi**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Pranavi Nagubandi has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**P. Sri Ram**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

P. Sri Ram has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Byreddy Gnanadatha Reddy**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Byreddy Gnanadatha Reddy has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Saikumar Ramavath**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Saikumar Ramavath has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Rashmith Reddy Arra**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Rashmith Reddy Arra has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Y. Praneeth**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

Y. Praneeth has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Vallakatti Chetan Mani Chandra**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Vallakatti Chetan Mani Chandra has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Vignan Babu Dyavanapelly**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

Vignan Babu Dyavanapelly has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB



# Certificate of Completion

This certifies that

**AdityaVardhan S**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

AdityaVardhan S has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Vijayendra Vemula**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Vijayendra Vemula has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**M. Ananda Prasad Rao**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

M. Ananda Prasad Rao has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**G Samhita Reddy**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

G Samhita Reddy has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Patlolla Sandeep Kumar**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

Patlolla Sandeep Kumar has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Piyush Agarwal**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

Piyush Agarwal has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**P. Himavarshini**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

P. Himavarshini has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Hrithik Thakur**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Hrithik Thakur has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB



# Certificate of Completion

This certifies that

**Sathish Malothu**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Sathish Malothu has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**Charvi Panyala**

of CBIT has successfully completed the **T-Tribe LaunchPad Program** 2019-20.  
The student has performed exceptionally well throughout the program.

Charvi Panyala has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB



CEO, T-HUB

# Certificate of Completion

This certifies that

**S V Muthesham**

of CBIT has successfully completed the **T-Tribe LaunchPad Program 2019-20**.  
The student has performed exceptionally well throughout the program.

S V Muthesham has everything that takes to be a successful entrepreneur.



DIRECTOR, ACADEMIC PROGRAMS, T-HUB




CEO, T-HUB

# **Orientation Program**

**on**

# **Cyber Security**

  
**Head Dept. of IT**  
**CBIT, Hyderabad**



**CHAITANYA BHARATHI**  
**INSTITUTE OF TECHNOLOGY (A)**  
 Kokapet(Village), Gandipet, Hyderabad, Telangana-500075. / www.cbit.ac.in  
**ISO 9001:2015 Certified Institute**

COMMITTED TO  
 RESEARCH,  
 INNOVATION AND  
 EDUCATION

**41**  
 years

# An Orientation Programme on **CYBER SECURITY**

**31<sup>st</sup> January, 2020**

Venue : Assembly Hall  
 (1:00 PM to 4:00 PM)

Followed by **FORTNIGHT** Campaign  
 From **01-02-2020 to 15-02-2020**

\*\* Poster Presentations will be held  
 on **15<sup>th</sup> February 2020** at Assembly Hall,  
 Followed by **Prize Distribution.**

**Organized by :**

**CBIT R&E Hub in Collaboration with Digintrude Infosec Pvt.Ltd**

*Handwritten signature*

**Head Dept. of IT**  
**CBIT, Hyderabad**

*Handwritten signature*  
 Director, Institute of IT  
 CBIT, Hyderabad

**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)**  
Orientation Programme on Cyber Security

IT


Attendance Sheet

Venue: Assembly Hall

Date: 31-01-2020

Time: 1:00PM - 4:00 PM

| Sl.No | Roll Number    | Name                   | Branch/Section | Mail                              | Contact    | Sign                   |
|-------|----------------|------------------------|----------------|-----------------------------------|------------|------------------------|
| 1     | 160117737310   | D. Manichandana        | IT-H1          | ugs17310-it.danduc@cbit.org.in    | 9642715361 | Manichandana           |
| 2     | 16011773731019 | M. Sanjana             | IT-H1          | ugs17019-it.sanjana@cbit.org.in   | 7995670249 | Sanjana                |
| 3     | 160117737024   | G. SRAVANI             | IT-H1          | gopasravani57@gnail.com           | 9701955166 | G. SRAVANI             |
| 4     | 160117737037   | HARSHA                 | IT-H1          | harsha608am@gnail.com             | 9177916237 | HARSHA                 |
| 5     | 160117737015   | Sakithya Reddy         | IT-H1          | ugs17015-it.sakithya@cbit.org.in  | 7032376751 | Sakithya               |
| 6     | 160117737007   | Kanani Palli           | IT-H1          | ugs17007-it.kanani@cbit.org.in    | 6302786011 | Kanani                 |
| 7     | 160117737308   | Haritha Reddy          | IT-H1          | ugs17308-it.haritha@cbit.org.in   | 9493375115 | Haritha                |
| 8     | 160117737004   | Divisha                | IT-H1          | ugs17004-it.divisha@cbit.org.in   | 9618482200 | Divisha                |
| 9     | 160117737010   | Mulika                 | IT-H1          | ugs17010-it.mulika@cbit.org.in    | 8309599802 | Mulika                 |
| 10    | 160117737003   | Deepshika              | IT-H1          | ugs17003-it.deepshika@cbit.org.in | 8712886896 | Deepshika              |
| 11    | 160117737023   | Spoorthy Reddy         | IT-H1          | ugs17023-it.spoorthy@cbit.org.in  | 9866757439 | Spoorthy               |
| 12    | 160117737002   | Ashwika                | IT-H1          | ugs17002-it.ashwika@cbit.org.in   | 8919872209 | Ashwika                |
| 13    | 160117737026   | M. Sruthika Keerthi    | IT-H1          | ugs17026-it.sruthika@cbit.org.in  | 7015554544 | M. Sruthika Keerthi    |
| 14    | 160117737018   | M. Samvidha Reddy      | IT-H1          | ugs17018-it.samvidha@cbit.org.in  | 7993138940 | M. Samvidha Reddy      |
| 15    | 160117737016   | K. Sai Chandana Amulya | IT-H1          | ugs17016-it.sai@cbit.org.in       | 8985415779 | K. Sai Chandana Amulya |
| 16    | 160117737012   | S. Prasanna Kumari     | IT-H1          | ugs17012-it.prasanna@cbit.org.in  | 9347574839 | S. Prasanna Kumari     |
| 17    | 160117737008   | Manogna                | IT-H1          | ugs17008-it.manogna@cbit.org.in   | 7993987434 | Manogna                |
| 18    | 160117737013   | Prerana Rajesh         | IT-H1          | ugs17013-it.prem@cbit.org.in      | 9030316550 | Prerana Rajesh         |
| 19    | 160117737014   | V. Roshni              | IT-H1          | ugs17014-it.roshni@cbit.org.in    | 8374060971 | Roshni                 |
| 20    | 160117737030   | M. Varitha Nandini     | IT-H1          | ugs17030-it.varitha@cbit.org.in   | 8919369431 | M. Varitha Nandini     |
| 21    | 160117737303   | V. Nithisha            | IT-H1          | ugs17303-it.nithisha@cbit.org.in  | 9951417440 | V. Nithisha            |

  
 Head Dept. of IT  
 CBIT, Hyderabad

# CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

## Orientation Programme on Cyber Security

IT

Attendance Sheet

Venue: Assembly Hall

Date: 31-01-2020

Time: 1:00PM - 4:00 PM

| Sl.No | Roll Number  | Name               | Branch/Section | Mail                               | Contact    | Sign |
|-------|--------------|--------------------|----------------|------------------------------------|------------|------|
| 1     | 160117737059 | Pragna Shreebaba   | IT/1           | ugs17054-it.sateja@cbit.org.in     | 8558021375 |      |
| 2     | 160117737049 | Racharla Rakul     | IT/1           | ugs17049-it.rakul@cbit.org.in      | 9182720429 |      |
| 3     | 160117737059 | Vinil Kumar        | IT/1           | ugs17059-it.vinil@cbit.org.in      | 9502186539 |      |
| 4     | 160117737040 | Madan Vijay. K     | IT/1           | ugs17040-it.madan@cbit.org.in      | 885651191  |      |
| 5     | 160117737025 | G. SRINIDHI        | IT/1           | ugs17025-it.srinidhi@cbit.org.in   | 9515320576 |      |
| 6     | 160117737001 | V. APOORVA         | IT/1           | ugs17001-it.apoorva@cbit.org.in    | 9014737156 |      |
| 7     | 160116737012 | V. Komali          | IT/1           | ugs16012-it.komali@cbit.org.in     | 9515897235 |      |
| 8     | 160116737059 | Venkata Sanjosh    | IT/1           | ugs16059-it.venkate@cbit.org.in    | 8328537023 |      |
| 9     | 160117737042 | Nishuvarth         | IT/1           | ugs17042-it.nishuvarth@cbit.org.in | 8989607689 |      |
| 10    | 160117737038 | Hemanth            | IT/1           | ugs17038-it.hemanth@cbit.org.in    | 9542824665 |      |
| 11    | 160117737048 | S Raghavendra      | IT-1           | ugs17048-it.sraghava@cbit.org.in   | 852069130  |      |
| 12    | 160117737034 | Arun Raj           | IT-1           | ugs17034-it.arun@cbit.org.in       | 9000274115 |      |
| 13    | 160117737039 | Kranthi            | IT-1           | ugs17039-it.kranthi@cbit.org.in    | 9013701131 |      |
| 14    | 160117737047 | Pratik Lahoti      | IT-1           | ugs17047-it.pratik@cbit.org.in     | 920885311  |      |
| 15    | 160117737037 | Hemsha Vardhan     | IT-1           | ugs17037-it.hemsha@cbit.org.in     | 9177916237 |      |
| 16    | 160117737052 | Sovan Sai Parakash | IT-1           | ugs17052-it.sovan@cbit.org.in      | 8780545024 |      |
| 17    | 160117737051 | Sarun              | IT-1           | ugs17051-it.sarun@cbit.org.in      | 4493938399 |      |
| 18    | 160117737205 | Phanindra          | IT-1           | ugs17205-it.phanindra@cbit.org.in  | 9381160648 |      |
| 19    | 160117737049 | Rahul              | IT-1           | ugs17049-it.rahul@cbit.org.in      | 7032172341 |      |
| 20    | 160117737031 | Dahan              | IT-1           | ugs17031-it.dahan@cbit.org.in      | 7853622299 |      |
| 21    | 160117737041 | Mandeep            | IT-1           | ugs17041-it.mandeep@cbit.org.in    | 7416261855 |      |
| 22    | 160117737032 | Arundeep           | IT-1           | ugs17032-it.arundeep@cbit.org.in   | 9310100000 |      |
| 23    | 160117737033 | Surendra           | IT-1           | ugs17033-it.surendra@cbit.org.in   | 9888888888 |      |

**Head Dept. of IT  
CBIT, Hyderabad**

# CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

Orientation Programme on Cyber Security

Attendance Sheet

Venue: Assembly Hall


Date: 31-01-2020

Time: 1:00PM - 4:00 PM

IT

| Sl.No | Roll Number  | Name            | Branch/Section | Mail                                              | Contact    | Sign               |
|-------|--------------|-----------------|----------------|---------------------------------------------------|------------|--------------------|
| 1     | 160117737072 | NIKHITA         | IT 2           | nikh.ugsl7072-it.nikhita@cbit.org                 | 8860392345 | <i>Nikhita</i>     |
| 2     | 160117737071 | Neha            | IT 2           | ugsl7071-it.neha@cbit.org                         | 709574976  | <i>Neha</i>        |
| 3     | 160117737075 | Prasanna        | IT 2           | ugsl7075-it.prasanna@cbit.org                     | 9490117902 | <i>Prasanna</i>    |
| 4     | 160117737066 | Aparna          | IT 2           | ugsl7066-it.aparna@cbit.org                       | 767486566  | <i>Aparna</i>      |
| 5     | 160117737073 | Nishi           | IT 2           | ugsl7073-it.nishi@cbit.org                        | 9000110430 | <i>Nishi</i>       |
| 6     | 160117737082 | Navya           | IT 2           | ugsl7082-it.navya@cbit.org                        | 7866985337 | <i>Navya</i>       |
| 7     | 160117737069 | Heghana         | IT 2           | ugsl7069-it.heghana@cbit.org                      | 7000049555 | <i>Heghana</i>     |
| 8     | 160117737065 | Vaishnavi       | IT-2           | ugsl7065-it.vaishnavi@cbit.org                    | 7013291429 | <i>P.A. Vishnu</i> |
| 9     | 160117737321 | R. Poojitha     | IT 2           | ugsl7321-it.poojitha@cbit.org                     | 957392648  | <i>Poojitha</i>    |
| 10    | 160117737063 | Aruna           | IT-2           | ugsl7063-it.aruna@cbit.org                        | 9182968225 | <i>Aruna</i>       |
| 11    | 160117737078 | Soodhana        | IT-2           | ugsl7063-it.soodhana@cbit.org                     | 8309316119 | <i>Soodhana</i>    |
| 12    | 160117737083 | C. Swetha       | IT-2           | ugsl7083-it.swetha@cbit.org                       | 7673993380 | <i>Swetha</i>      |
| 13    | 160117737062 | R. Aditi        | IT-2           | ugsl7062-it.aditi@cbit.org                        | 9502207034 | <i>Aditi</i>       |
| 14    | 160117737056 | Ch. Jyothi      | IT-2           | ugsl7056-it.verkatesh@cbit.org                    | 7702746836 | <i>Jyothi</i>      |
| 15    | 160117737313 | H. Shivani      | IT-2           | ugsl7313-it.hannilpu@cbit.org<br>shivani@cbit.org | 9908587610 | <i>Shivani</i>     |
| 16    | 160117737065 | K BLESSY        | IT 2           | ugsl7065-it.bleessy@cbit.org                      | 9642564325 | <i>Blessy</i>      |
| 17    | 160117737002 | Ashitha         | IT 1           | ugsl7002-it.ashitha@cbit.org                      | 9853622296 | <i>Ashitha</i>     |
| 18    | 160117737120 | Zohrab          | IT-2           | ugsl7120-it.zohrab                                | 95536220   | <i>Zohrab</i>      |
| 19    | 160117737322 | Banu Teja       | IT-2           | ugsl7322-it.teja@cbit.org                         | 9133556286 | <i>Teja</i>        |
| 20    | 160117737320 | M. Sridhar goud | IT-2           | ugsl7320-it.sridhar                               | 7036499999 | <i>Sridhar</i>     |

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**CBIT, Hyderabad**



# CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

Orientation Programme on Cyber Security

IT


Attendance Sheet

Venue: Assembly Hall

Date: 31-01-2020

Time: 1:00PM - 4:00 PM

| Sl.No | Roll Number  | Name               | Branch/Section | Mail                             | Contact    | Sign               |
|-------|--------------|--------------------|----------------|----------------------------------|------------|--------------------|
| 1     | ORF          | Abdullah           | I              |                                  |            |                    |
| 2     | 160117737115 | K.V. Srinivas      | IT-2           | ugs17115-it.venkata@cbit.org.in  | 9566692402 | <i>[Signature]</i> |
| 3     | 160117737094 | G. Vaishnavi Devi  | IT-2           | vaishnavivijayi@gmail.com        | 8074224609 | <i>[Signature]</i> |
| 4     | 160117737110 | S. Sathvik         | IT-2           | sathvik785@gmail.com             | 8309378289 | <i>[Signature]</i> |
| 5     | 160117737112 | P. Sumanth         | IT-2           | ugs17112-it.sumanth@cbit.org.in  | 9502651595 | <i>[Signature]</i> |
| 6     | 160117737315 | R. Nitesh Bhargava | IT-2           | niteshbhargava6@gmail.com        | 7678912012 | <i>[Signature]</i> |
| 7     | 160117737314 | Akhil Bandaru      | IT-2           | ugs17314-it.akhil@cbit.org.in    | 7660980098 | <i>[Signature]</i> |
| 8     | 160117737070 | B. Meghanaa        | IT-2           | ugs17070-it.meghanaa@cbit.org.in | 9121673642 | <i>[Signature]</i> |
| 9     | 160117737109 | K. Sanjay Kumar    | IT-2           | ugs17109-it.sanjay@cbit.org.in   | 8309643209 | <i>[Signature]</i> |
| 10    | 160117737117 | P. Vinay           | IT-2           | ugs17117-it.vinay@cbit.org.in    | 9182419035 | <i>[Signature]</i> |
| 11    | 160117737388 | Adeeb              | IT-2           | ugs17088-it.adeeb@cbit.org.in    | 9121509773 | <i>[Signature]</i> |
| 12    | 160117737392 | Gagan              | IT-2           | ugs17092-it.gagan@cbit.org.in    | 9712693162 | <i>[Signature]</i> |
| 13    | 160117737113 | Hyder              | IT-2           | ugs17113-it.hyder@cbit.org.in    | 8019455338 | <i>[Signature]</i> |
| 14    | 160117737323 | Muhammad Mustafiz  | 2              | ugs17323-it.muhammad@cbit.org.in | 9492085534 | <i>[Signature]</i> |
| 15    | 160117737075 | Hemanth            | 2              | ugs17075-it.hemanth@cbit.org.in  | 9515214569 | <i>[Signature]</i> |
| 16    | 160117737098 | Maksh              | 2              | ugs17098-it.maksh@cbit.org.in    | 8897205300 | <i>[Signature]</i> |
| 17    | 160117737041 | Manideep           | IT-1           | ugs17141-it.manideep@cbit.org.in | 8304554241 | <i>[Signature]</i> |
| 18    | 160117737074 | Pranika            | IT-2           | ugs17074-it.pranika@cbit.org.in  | 6304534241 | <i>[Signature]</i> |
| 19    | 160117737077 | M. Rajini          | IT-2           | ugs17077-it.rajini@cbit.org.in   | 8639670233 | <i>[Signature]</i> |
| 20    | 160117737109 | Ch. Sruja          | IT-1/2         | ugs17079-it.sreeraj@cbit.org.in  | 8340902720 | <i>[Signature]</i> |
| 21    | 160117737100 | I. Pavan Kalyan    | IT-2           | ugs17100-it.pavan@cbit.org.in    | 9101911111 | <i>[Signature]</i> |
| 22    | 160117737102 | Preethi Vardhan    | IT-2           |                                  |            | <i>[Signature]</i> |
| 23    | 160117737032 | K. Anudeep         | IT-1           |                                  |            | <i>[Signature]</i> |

  
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**CBIT, Hyderabad**

**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)**  
Orientation Programme on Cyber Security

IT

Attendance Sheet

Venue: Assembly Hall

Date: 31-01-2020

Time: 1:00PM - 4:00 PM

| Sl.No | Roll Number  | Name             | Branch/Section | Mail                         | Contact     | Sign |
|-------|--------------|------------------|----------------|------------------------------|-------------|------|
| 1     | 160117337108 | K. Satcharan     | IT/H2          | kppatopu.seicharan@gmail.com | 8309262888  |      |
| 2     | 160117337116 | G. Vikas         | IT/H2          | vickyvikas6699@gmail.com     | 8465977640  |      |
| 3     | 160117337099 | V. Nikin Reddy   | IT/H2          | nkrvsk@gmail.com             | 7992498246  |      |
| 4     | 160117337093 | Ch. Goutham      | IT/H2          | gouthamkiranji@gmail.com     | 8801702369  |      |
| 5     | 160117337089 | Akhil Anand      | IT/H2          | akhilanand9999@gmail.com     | 9640414131  |      |
| 6     | 160117337094 | N. Harshik. Rao  | IT/H2          | xacharshik@gmail.com         | 7032104333  |      |
| 7     | 160117337317 | Nagendel - B     | IT/H2          | Nagendrabkennan.na@gmail.com | 9063508571  |      |
| 8     | 160117337103 | Raghav Peddy     | IT/H2          | Raghav12@gmail.com           | 93818711816 |      |
| 9     | 160117337091 | G. Bharani Kumar | IT/H2          | bharan@gmail.com             | 799776184   |      |
| 10    | 160117337119 | U. Vineeth       | IT/H2          | udumalavineeth@gmail.com     | 7842185473  |      |
| 11    | 160117337316 | K. Manjunath     | IT/H2          | kamthunjanath@gmail.com      | 790501992   |      |
| 12    | 160117337116 | D. SODHEER       | "              | sudheerredda@gmail.com       | 9123373712  |      |
| 13    | 160117337104 | K. Rohith        | "              | rohith@gmail.com             | 9124831812  |      |
| 14    | 160117337108 | B. Sampath       | IT/H2          | sampathtoniz@gmail.com       | 7998637467  |      |
| 15    | 160117337101 | G. Prashanth     | IT/H2          | prashanthgupta11@gmail.com   | 912469562   |      |
| 16    | 160117337097 | J. Madhav        | IT/H2          | jindammadhavi15@gmail.com    | 8639064873  |      |
| 17    | 160117337080 | B. Shivan Datta  | IT/H2          | shivan@gmail.com             | 8800174008  |      |
| 18    | 160117337076 | K. Priyadashini  | IT/H2          | Priyadashini692@gmail.com    | 9182119946  |      |
| 19    | 160117337081 | S. Sindhu        | IT/H2          | Sindhu@gmail.com             | 9182291591  |      |
| 20    | 160117337085 | V. Vaishnavi     | IT-2(3/4)      | Vaishnavivenu34903@gmail.com | 8074368099  |      |

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**TITLE OF THE VALUE ADDED COURSE:** Indian Constitutional Values  
**COURSE CODE:** CBIT/19EGV06  
**ACADEMIC YEAR:** 2019 - 20  
**TARGET PARTICIPANTS:** Final Year Students - VII  
**DURATION OF THE COURSE:** 40 hours/ 10 weeks



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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY-(A) HYDERABAD -75**

**DEPARTMENT OF ENGLISH**

**INDIAN CONSTITUTIONAL VALUES**

Course Code: CBIT/19EGV06

Instruction Hours

3 Hours Per Week

CIE

50 Marks

**Course Objectives**

**The course will introduce the students to:**

1. History of making Indian Constitution and how it reflected the social, political and economic aspirations of Indian society.
2. Fundamental Rights, Duties and Directive Principles of State Policy.
3. Composition and functions organs of Government and Local Administration.

**Course Outcomes**

**After successful completion of the course the students will be able to:**

1. Understand the making of the Indian Constitution and its features.
2. Evaluate the realisation of fundamental rights and directive principles of state policy.
3. Analyse the emerging challenges to federal system in the country and position of President in Union Government.
4. Underline the relation between the Legislature and Judiciary.
5. Differentiate between the functions underlying Municipalities and Panchayats.
6. Apply the knowledge of Indian Constitution to real-life or professional situation for better civic society.

**Unit-I**

**Constitutional History and Framing of Indian Constitution**

East India Company Rule (1757-1857): Regulating Acts and Charter Acts, Social, Economic and Political impact of Company rule. Constitutional History (1858-1947): Indian Council Acts, Indian National movement and Government of Indian Acts 1909, 1919, 1935 and 1947.

Framing of Indian Constitution: Constituent Assembly, Preamble and Salient Features.



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## **Unit-II**

### **Fundamental Rights, Duties and Directive Principles of State Policy**

The Fundamental Rights – Importance of Rights and restrictions on Rights. Fundamental Duties-- the legal status. Directive Principles of State Policy – Features and importance.

## **Unit-III**

### **Union Government and its Administration**

Structure of the Indian Union: Federalism-Legislative and Financial Relations, Union Executive- Role and Position of President. Emergency Provisions: National Emergency, Constitutional Emergency and Financial Emergency.

## **Unit-IV**

### **Union Legislature and Judiciary**

Union Legislature: Parliament of India-Composition and functions, Parliamentary Committees. Union Judiciary: Supreme Court of India-Composition and Functions, Judicial Review and Judicial Activism.


## **Unit-V**

### **Local Self Governments**

Rural Local Governments: 73<sup>rd</sup> Constitution Amendment Act, ZillaPanchayat-Chairperson, CEO, and functions of ZillaPanchayat, MandalParishad- Role of Elected and Officials, Gram Panchayat- Sarpanch, Secretary and Gram Sabha. Urban Local Governments: 74<sup>th</sup> Constitutional Amendment Act- Municipalities and Municipal Corporations, Chairperson/Mayor, Commissioner and Standing Committees. District Collector: Role in District Administration.

### **Text Books:**

1. **Indian Government & Politics**, Ed Prof V Ravindra Sastry, Telugu Akademy, 2nd edition, 2018.
2. **Indian Constitution at Work**, NCERT, First edition 2006, Reprinted in 2022.



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**Suggested Reading:**

1. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar, Framing of Indian Constitution, 1<sup>st</sup> Edition, 2015.
3. Granville Austin, The Indian Constitution: the Cornerstone of a Nation, OUP, 2<sup>nd</sup> Edition 1999
4. M.V. Pylee, India's Constitution, S. Chand Publishing, 16<sup>th</sup> Edition, 2017
5. Rajeev Bhargava (ed), Politics and Ethics of the Indian Constitution, OIP, 2009

**Online Resources:**

1. <http://www.nptel.ac.in/courses/103107084/Script.pdf>



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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)**

**Department of English**

**CIRCULAR**

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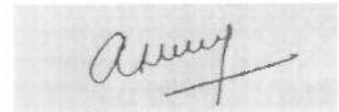
**Date: 29.06.2019**

This is to inform all the VII Semester students that the department of English is offering the Value -Added course **Indian Constitutional Values – CBIT/19EG V06** from 01.07.2019. The interested students can register in the Department of English.

**Expected Outcomes of the Course:**

- To sensitize the students towards the significance of our Constitution.
- To make the students aware of various relevant constitutional codes.
- To make the students understand the value and importance of constitution in our life.

**Duration: 40 hours**



**Head**

**Department of English**

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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY- HYDERABAD -75  
DEPARTMENT OF ENGLISH**

**Time Table, Academic Year: 2019-20**

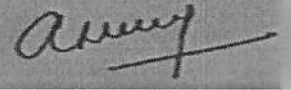
**SEM-VII Indian Constitutional Values CBIT/19EGV06**

**Room No :K 303**

**Name Of The Faculty: Mr. Vare Lakshman**

| Time Day | 9.10 -10.10      | 10.10-11.10 | 11.15-12.15 |                                  | 1.00-2.00             | 2.00-3.00             | 3.05-4.05 |
|----------|------------------|-------------|-------------|----------------------------------|-----------------------|-----------------------|-----------|
| MON      |                  |             |             | <b>L<br/>U<br/>N<br/>C<br/>H</b> |                       |                       |           |
| TUE      |                  |             |             |                                  |                       |                       |           |
| WED      |                  |             |             |                                  |                       |                       |           |
| THU      | B2 CSE2          | B1 CSE1     |             |                                  | B3 CSE                | 3B4<br>CHEM , BIOTECH |           |
| FRI      | B1 CSE1          | B2 CSE2     |             |                                  | 3B4 CHEM ,<br>BIOTECH | B5<br>IT 1 ,IT 2      |           |
| SAT      | B5<br>IT 1 ,IT 2 | B3 CSE 3    |             |                                  |                       |                       |           |

**Time Table In-charge**

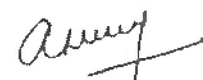


**HoD  
Dept of English**

**Head  
Dept. of English  
CBIT (A), Hyderabad-75.**



|                                         |                              |
|-----------------------------------------|------------------------------|
| <b>TITLE OF THE VALUE ADDED COURSE:</b> | Indian Constitutional Values |
| <b>COURSE CODE:</b>                     | CBIT/19EGV06                 |
| <b>ACADEMIC YEAR:</b>                   | 2019 - 20                    |
| <b>TARGET PARTICIPANTS</b>              | Final Year Students - VIII   |
| <b>DURATION OF THE COURSE:</b>          | 40 hours/ 10 weeks           |



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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)**  
**Department of English**

**CIRCULAR**

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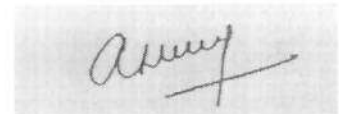
**Date: 14.12.2019**

This is to inform all the VII Semester students that the department of English is offering the Value -Added course **Indian Constitutional Values – CBIT/19EG V06** from 16.12.2019. The interested students can register in the Department of English.

**Expected Outcomes of the Course:**

- To sensitize the students towards the significance of our Constitution.
- To make the students aware of various relevant constitutional codes.
- To make the students understand the value and importance of constitution in our life.

**Duration: 40 hours**



**Head**

**Department of English**

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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY- HYDERABAD -75  
DEPARTMENT OF ENGLISH**

**Time Table, Academic Year: 2019-20**

**SEM: VIII Sem Indian Constitutional ValuesCBIT/19EGV06**

**NAME OF THE FACULTY: Mr. V.Lakshman**

| <b>Time Day</b> | <b>9.10 -10.10</b> | <b>10.10-11.10</b> | <b>11.15-12.15</b> |                                  | <b>1.00-2.00</b> | <b>2.00-3.00</b> | <b>3.05-4.05</b> |
|-----------------|--------------------|--------------------|--------------------|----------------------------------|------------------|------------------|------------------|
| <b>MON</b>      |                    |                    |                    | <b>L<br/>U<br/>N<br/>C<br/>H</b> |                  |                  |                  |
| <b>TUE</b>      |                    |                    |                    |                                  |                  |                  |                  |
| <b>WED</b>      |                    |                    |                    |                                  |                  |                  |                  |
| <b>THU</b>      | <b>B1 CIVIL 1</b>  |                    |                    |                                  |                  | <b>B2CIVIL2</b>  |                  |
| <b>FRI</b>      | <b>B2 CIVIL 2</b>  |                    |                    |                                  |                  | <b>B3 ECE 1</b>  |                  |
| <b>SAT</b>      | <b>B3 ECE 1</b>    |                    |                    |                                  |                  | <b>B1CIVIL1</b>  |                  |

  
**Time Table In-charge**

  
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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY- HYDERABAD -75  
DEPARTMENT OF ENGLISH**

**Time Table, Academic Year: 2019-20**

**SEM-VIII, Indian Constitutional Values CBIT/19EGV06**

**Name Of The Faculty: Dr. N.Madhunmadhu\_english@cbit.ac.innmadhu\_english@cbit.ac.in**

| Time Day | 9.10 - 10.10 | 10.10-11.10 | 11.15-12.15 |                                  | 1.00-2.00 | 2.00-3.00 | 3.05-4.05 |
|----------|--------------|-------------|-------------|----------------------------------|-----------|-----------|-----------|
| MON      |              |             |             | <b>L<br/>U<br/>N<br/>C<br/>H</b> |           |           |           |
| TUE      |              |             |             |                                  |           |           |           |
| WED      |              |             |             |                                  |           |           |           |
| THU      | B5 ECE 3     | B4 CE 2     |             |                                  |           |           |           |
| FRI      |              | B5 ECE 3    |             |                                  |           | B4 CE 2   |           |
| SAT      |              |             |             |                                  |           |           |           |

**Time Table In-charge**

**HoD  
Dept of English**

**Head  
Dept. of English  
CBIT (A), Hyderabad-75.**

| Subject: Indian Constitutional Values<br>Code: CBIT/19EGV06 2019 - 20 |                     | ODD SEM TOTAL=431 |
|-----------------------------------------------------------------------|---------------------|-------------------|
| S.No                                                                  | NAME                | ROLL NUMBER       |
| <b>VII SEM CSE -1</b>                                                 |                     |                   |
| 1                                                                     | BEULAH K            | 1601-16-733-001   |
| 2                                                                     | HEPHZIBAH S         | 1601-16-733-002   |
| 3                                                                     | JEEVANAD            | 1601-16-733-003   |
| 4                                                                     | KRISHNAVENI R       | 1601-16-733-004   |
| 5                                                                     | LAVANYA K           | 1601-16-733-005   |
| 6                                                                     | MADHURI G           | 1601-16-733-006   |
| 7                                                                     | MANEESHA REDDY G    | 1601-16-733-007   |
| 8                                                                     | MEGHANA REDDY CH    | 1601-16-733-008   |
| 9                                                                     | NAVYA G             | 1601-16-733-009   |
| 10                                                                    | PRASHANTI K         | 1601-16-733-010   |
| 11                                                                    | PREETHI K           | 1601-16-733-011   |
| 12                                                                    | SATYA PARIMALA R    | 1601-16-733-012   |
| 13                                                                    | SHALINI K           | 1601-16-733-013   |
| 14                                                                    | SHIVANI C           | 1601-16-733-014   |
| 15                                                                    | SHIVANI D           | 1601-16-733-015   |
| 16                                                                    | SIREESHA J          | 1601-16-733-016   |
| 17                                                                    | SPANDANA K          | 1601-16-733-017   |
| 18                                                                    | SRIPRIYA S          | 1601-16-733-018   |
| 19                                                                    | SUMANJALI           | 1601-16-733-019   |
| 20                                                                    | USHA RANI B         | 1601-16-733-020   |
| 21                                                                    | MAHITHA R           | 1601-16-733-021   |
| 22                                                                    | AKASH S             | 1601-16-733-022   |
| 23                                                                    | ANIRUDH REDDY G     | 1601-16-733-023   |
| 24                                                                    | CHANDRAMOULI P      | 1601-16-733-025   |
| 25                                                                    | DEVARAJ N           | 1601-16-733-026   |
| 26                                                                    | GAURAV CHOWDARY P   | 1601-16-733-027   |
| 27                                                                    | GOUTHAM A           | 1601-16-733-028   |
| 28                                                                    | GOWTHAM REDDY A     | 1601-16-733-029   |
| 29                                                                    | HARSHAVARDHAN CH    | 1601-16-733-030   |
| 30                                                                    | HARSHITH M          | 1601-16-733-031   |
| 31                                                                    | KARTHIK GOUD B      | 1601-16-733-032   |
| 32                                                                    | MALDANNA K          | 1601-16-733-034   |
| 33                                                                    | MOHAMMAD MAHABOOB   | 1601-16-733-036   |
| 34                                                                    | NALIN RAJ G         | 1601-16-733-037   |
| 35                                                                    | NIKITH R            | 1601-16-733-038   |
| 36                                                                    | PAVAN KUMAR REDDY K | 1601-16-733-039   |
| 37                                                                    | PRADEEP KUMAR T     | 1601-16-733-040   |
| 38                                                                    | PRADEEP P           | 1601-16-733-041   |
| 39                                                                    | PRANAV D            | 1601-16-733-042   |
| 40                                                                    | PRASAD SAKHAMURU K  | 1601-16-733-043   |
| 41                                                                    | PRASHANTH S         | 1601-16-733-044   |
| 42                                                                    | RAHUL M             | 1601-16-733-045   |
| 43                                                                    | SAHAS REDDY M       | 1601-16-733-046   |
| 44                                                                    | SAI AJAY KUMAR V    | 1601-16-733-047   |

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|----|------------------------|-----------------|
| 45 | SAI GNANA GUNA SAGAR J | 1601-16-733-048 |
| 46 | SAI KRISHNA ANUDEEP A  | 1601-16-733-050 |
| 47 | SAI KRISHNA CH         | 1601-16-733-051 |
| 48 | SAICHARAN V            | 1601-16-733-052 |
| 49 | SHAIK JUNAID MOHAMMAD  | 1601-16-733-053 |
| 50 | SIDDHARTHA A           | 1601-16-733-054 |
| 51 | SRI NARASIMHA NIHANTH  | 1601-16-733-055 |
| 52 | SUBHASH V V S S        | 1601-16-733-057 |
| 53 | SUCHANDRANATH B        | 1601-16-733-058 |
| 54 | SYED NAYAZ MOINUDDIN   | 1601-16-733-059 |
| 55 | YOGESH L               | 1601-16-733-060 |
| 56 | JAAHNAVI GOLI          | 1601-16-733-181 |
| 57 | U VEDA PRIYA           | 1601-16-733-184 |
| 58 | KUDALA SUMEERAJA       | 1601-16-733-301 |
| 59 | SUKKA PRASHANTH        | 1601-16-733-302 |
| 60 | KOLIPAKA SAGAR         | 1601-16-733-303 |
| 61 | CHANDANALA NISHANTH    | 1601-16-733-304 |
| 62 | NALLABOTHULA SWETHA    | 1601-16-733-306 |
| 63 | KADARI ROHITH          | 1601-16-733-307 |
| 64 | ANTHARVEDI             | 1601-16-733-308 |
| 65 | POTTALA BHARATHI       | 1601-16-733-310 |
| 66 | ESLAVATH NAGALAXMI     | 1601-16-733-311 |
| 67 | MAMIDALA SRIKANTH      | 1601-16-733-312 |
| 68 | HEMANTH SURYA THEJA CH | 1601-14-733-311 |

**VII SEM CSE -2**

|    |                       |                 |
|----|-----------------------|-----------------|
| 1  | ANEES FATIMA KHAN     | 1601-16-733-061 |
| 2  | BAVYA SRI J           | 1601-16-733-062 |
| 3  | BHAVYA P              | 1601-16-733-063 |
| 4  | JAGATH DEEPTHI B      | 1601-16-733-067 |
| 5  | LIKHITHA CH           | 1601-16-733-068 |
| 6  | MONIKA P              | 1601-16-733-069 |
| 7  | NIDHI VRAJ S          | 1601-16-733-070 |
| 8  | ROSHINI REDDY M       | 1601-16-733-071 |
| 9  | SAAKSHI GUPTA         | 1601-16-733-072 |
| 10 | SAI SAHITI CH         | 1601-16-733-073 |
| 11 | SATYASRILAKSHMI V     | 1601-16-733-074 |
| 12 | SWATHI M              | 1601-16-733-075 |
| 13 | VENKATA SAIMEGHANA S  | 1601-16-733-076 |
| 14 | VINUTHNA REDDY M      | 1601-16-733-077 |
| 15 | LALITHA T             | 1601-16-733-078 |
| 16 | SAI CHANDANA G        | 1601-16-733-079 |
| 17 | ADITYA K              | 1601-16-733-080 |
| 18 | AKHIL KRISHNA CH      | 1601-16-733-081 |
| 19 | AMMAR MOHAMMED        | 1601-16-733-082 |
| 20 | ANIL KUMAR K          | 1601-16-733-083 |
| 21 | AYYAPPA REDDY K       | 1601-16-733-084 |
| 22 | CHANAKEYA PHANINDRA G | 1601-16-733-085 |
| 23 | DATTA SAI TANUJ V     | 1601-16-733-086 |
| 24 | DEEKSHITH RAO V       | 1601-16-733-087 |

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ESHWAR CHAITANYA G

1601-16-733-089

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|    |                       |                 |
|----|-----------------------|-----------------|
| 26 | HAMSA RAJ T           | 1601-16-733-090 |
| 27 | HARSHA N              | 1601-16-733-092 |
| 28 | JACOB ABHISHEK T      | 1601-16-733-093 |
| 29 | ABHISHEK JAISWAL C    | 1601-16-733-094 |
| 30 | MANIKANTH REDDY M     | 1601-16-733-095 |
| 31 | MOHAMMED SYED AKBAR   | 1601-16-733-096 |
| 32 | NAGA OMKAR P          | 1601-16-733-097 |
| 33 | NEHITH YADAV B        | 1601-16-733-099 |
| 34 | RAMESH M              | 1601-16-733-101 |
| 35 | RAVI THEJA M          | 1601-16-733-102 |
| 36 | ADITHYA K N G         | 1601-16-733-103 |
| 37 | SAI MANIDEEP S        | 1601-16-733-104 |
| 38 | SAITEJA R             | 1601-16-733-105 |
| 39 | SATVIK KALYAN G       | 1601-16-733-106 |
| 40 | SHARATH CHANDRA B     | 1601-16-733-107 |
| 41 | SHIVA RITHIK REDDY Y  | 1601-16-733-108 |
| 42 | SHIVAM GUPTA          | 1601-16-733-109 |
| 43 | SRUJITH RAO A         | 1601-16-733-110 |
| 44 | SURYA S               | 1601-16-733-111 |
| 45 | SUSHANTH KUMAR P      | 1601-16-733-112 |
| 46 | VENKATA ASHOK REDDY K | 1601-16-733-113 |
| 47 | VENKATSAI K           | 1601-16-733-114 |
| 48 | VINEEL CH             | 1601-16-733-115 |
| 49 | VINEETH KUMAR A       | 1601-16-733-116 |
| 50 | VINEETH REDDY S       | 1601-16-733-117 |
| 51 | VISHAL V              | 1601-16-733-118 |
| 52 | YASHWANATH G          | 1601-16-733-119 |
| 53 | YASHWANATH REDDY K    | 1601-16-733-120 |
| 54 | PALREDDY DHARANISH    | 1601-16-733-182 |
| 55 | SURAM SAIHITH REDDY   | 1601-16-733-185 |
| 56 | P UDAY KUMAR          | 1601-16-733-313 |
| 57 | A SAI CHANDER         | 1601-16-733-314 |
| 58 | C JAYA CHANDRA KANTH  | 1601-16-733-315 |
| 59 | DAROOR SHARATH KUMAR  | 1601-16-733-316 |
| 60 | MOHAMMED              | 1601-16-733-317 |
| 61 | GUNNALA SRINATH       | 1601-16-733-318 |
| 62 | A.SAI SREE LASYA      | 1601-16-733-319 |
| 63 | MEDAM ANIL KUMAR      | 1601-16-733-320 |
| 64 | AMGOTH RAJU           | 1601-16-733-321 |
| 65 | MORAMPUDI MANISH      | 1601-16-733-322 |
| 66 | ESAMPALLY SWETHA      | 1601-16-733-323 |
| 67 | MOHAMMED ANAS ASHFAQ  | 1601-15-733-095 |
| 68 | MOHAMMED ABDUL        | 1601-14-733-102 |
| 69 | G ANITHA              | 1601-13-733-064 |
|    |                       |                 |
|    | <b>VII SEM CSE -3</b> |                 |
| 1  | ABHIJNA D             | 1601-16-733-121 |
| 2  | ALEKHYA RAO V         | 1601-16-733-122 |
| 3  | DEVIKA M              | 1601-16-733-125 |
| 4  | HARIKA SANTHOSHI P    | 1601-16-733-126 |

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HARINI RAO A

1601-16-733-127

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|    |                      |                 |
|----|----------------------|-----------------|
| 6  | HARIPRIYA R          | 1601-16-733-128 |
| 7  | HARSHITHA PATEL V    | 1601-16-733-129 |
| 8  | HARSHITHA REDDY T    | 1601-16-733-130 |
| 9  | LAVANYA K            | 1601-16-733-131 |
| 10 | MINI DEVAYANI D      | 1601-16-733-132 |
| 11 | MRUDULA U            | 1601-16-733-133 |
| 12 | NEHA AFROSE          | 1601-16-733-134 |
| 13 | PRATHYUSHA K         | 1601-16-733-135 |
| 14 | PRIYANKA GANDHI P    | 1601-16-733-136 |
| 15 | SAI HARIKA B         | 1601-16-733-137 |
| 16 | SANDHYA K            | 1601-16-733-138 |
| 17 | SHARVANI M           | 1601-16-733-139 |
| 18 | SHIVANI N            | 1601-16-733-140 |
| 19 | SHIVANI V            | 1601-16-733-141 |
| 20 | SHREYA RAJ K         | 1601-16-733-142 |
| 21 | SNIGDHA PRIYA T      | 1601-16-733-143 |
| 22 | SRAVANTHI A          | 1601-16-733-144 |
| 23 | SREEVANI D           | 1601-16-733-145 |
| 24 | SRISAIBHAVYA REDDY G | 1601-16-733-146 |
| 25 | SUBHASRI R           | 1601-16-733-147 |
| 26 | TAMEEMA FARHEEN      | 1601-16-733-148 |
| 27 | TEJASVI A            | 1601-16-733-149 |
| 28 | VAISHNAVI P          | 1601-16-733-150 |
| 29 | ANURAG D             | 1601-16-733-151 |
| 30 | ANURAG M             | 1601-16-733-152 |
| 31 | AVINASH L            | 1601-16-733-153 |
| 32 | BHANU TEJA K         | 1601-16-733-154 |
| 33 | DILEEP B             | 1601-16-733-155 |
| 34 | GANESH A             | 1601-16-733-156 |
| 35 | HEMANTH REDDY S      | 1601-16-733-157 |
| 36 | MANISH BHUSHAN P     | 1601-16-733-158 |
| 37 | MOHAMEMD HASIBUDDIN  | 1601-16-733-159 |
| 38 | MOHAMMED AQIB        | 1601-16-733-160 |
| 39 | NITHISH REDDY A      | 1601-16-733-161 |
| 40 | OMAR AHMED           | 1601-16-733-162 |
| 41 | PRANAY M             | 1601-16-733-163 |
| 42 | PRANEETH N           | 1601-16-733-164 |
| 43 | PRASHANTH KUMAR K    | 1601-16-733-165 |
| 44 | SAI KIRAN CH         | 1601-16-733-166 |
| 45 | SAI KOUSHIK G        | 1601-16-733-167 |
| 46 | SAI VEERA VENKATA    | 1601-16-733-168 |
| 47 | SANGEETH R           | 1601-16-733-170 |
| 48 | SHANTAN T            | 1601-16-733-171 |
| 49 | SOHAIL QURESHI       | 1601-16-733-172 |
| 50 | SRIKRISHNA PRADEEP J | 1601-16-733-173 |
| 51 | SRINIVAS M           | 1601-16-733-174 |
| 52 | SURAJ KUMAR J        | 1601-16-733-175 |
| 53 | SYED SHAKEEB ASSIL   | 1601-16-733-176 |
| 54 | TAMIZ B              | 1601-16-733-177 |
| 55 | VENKATA RAHUL G      | 1601-16-733-178 |

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YASHWANTHE

1601-16-733-179

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|    |                       |                 |
|----|-----------------------|-----------------|
| 57 | YESHWANTH RAO B       | 1601-16-733-180 |
| 58 | RAYUDU ROHIT SRIKAR   | 1601-16-733-187 |
| 59 | DAMERA LAXMAN RAJ     | 1601-16-733-325 |
| 60 | SINGIRIKONDA ROHITH   | 1601-16-733-326 |
| 61 | SHEELA LAXMAN         | 1601-16-733-327 |
| 62 | DAMERA RAM RAJ        | 1601-16-733-328 |
| 63 | BANDI NEWVEELA        | 1601-16-733-329 |
| 64 | PENTHALA SRAVAN       | 1601-16-733-330 |
| 65 | NITTURI SWASTHIK      | 1601-16-733-332 |
| 66 | SHASHI KUMAR GUNDALA  | 1601-16-733-333 |
| 67 | MANKALI PRABHANDHA    | 1601-16-733-334 |
| 68 | SURIGI SADHANA        | 1601-16-733-335 |
| 69 | PENDYALA NAVYA SREE   | 1601-16-733-336 |
| 70 | SACHETH REDDY M       | 1601-15-733-163 |
| 71 | N SHANTHAN RAO        | 1601-15-733-171 |
|    |                       |                 |
|    | <b>VII SEM IT -1</b>  |                 |
| 1  | ANUSHA SAI K          | 1601-16-737-001 |
| 2  | ARUNA P               | 1601-16-737-002 |
| 3  | DIXITHA K             | 1601-16-737-003 |
| 4  | FAHMIDA MAHMOOD       | 1601-16-737-004 |
| 5  | GOUTHAMI V            | 1601-16-737-005 |
| 6  | GOWTHAMI RADHA A      | 1601-16-737-006 |
| 7  | HARITHA CHOWDARY D    | 1601-16-737-007 |
| 8  | HARSHYATHI REDDY Y    | 1601-16-737-008 |
| 9  | HASWIKA B             | 1601-16-737-009 |
| 10 | KHUSHBHU JINDAL       | 1601-16-737-010 |
| 11 | KHYATI P              | 1601-16-737-011 |
| 12 | LAKSHMI HARIKA G      | 1601-16-737-013 |
| 13 | MAHIMA DEVI A         | 1601-16-737-014 |
| 14 | MEGHANA S             | 1601-16-737-015 |
| 15 | MITHULA REDDY S       | 1601-16-737-016 |
| 16 | NIKITHA K             | 1601-16-737-017 |
| 17 | NIKITHA K             | 1601-16-737-018 |
| 18 | PALLAVI REDDY B       | 1601-16-737-019 |
| 19 | PRANAVI M             | 1601-16-737-020 |
| 20 | ROSHNI G              | 1601-16-737-021 |
| 21 | SHREYA RAO N          | 1601-16-737-022 |
| 22 | SONA G                | 1601-16-737-023 |
| 23 | SONI G                | 1601-16-737-024 |
| 24 | SONIKAA SAI LAKSHMI P | 1601-16-737-025 |
| 25 | SPANDANA C            | 1601-16-737-026 |
| 26 | SRAVANTHI M           | 1601-16-737-027 |
| 27 | SREE LEKHA D          | 1601-16-737-028 |
| 28 | SRINIKITHA N          | 1601-16-737-029 |
| 29 | SUSHMA K              | 1601-16-737-030 |
| 30 | VARSHITHA CH          | 1601-16-737-031 |
| 31 | YASHASWIK             | 1601-16-737-032 |
| 32 | AASHRITH S            | 1601-16-737-033 |
| 33 | ANANTHA ROHAN P       | 1601-16-737-034 |

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BALAJI D

1601-16-737-035

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|----------------------|-----------------------|-----------------|
| 35                   | BHARGAV RAMANUJA      | 1601-16-737-036 |
| 36                   | DATTU REDDY M         | 1601-16-737-037 |
| 37                   | HARI HARAN R          | 1601-16-737-038 |
| 38                   | JAGADEESHWAR REDDY K  | 1601-16-737-039 |
| 39                   | KIRAN B               | 1601-16-737-040 |
| 40                   | KUSHAL REDDY P        | 1601-16-737-041 |
| 41                   | MANIDEEP CH           | 1601-16-737-042 |
| 42                   | MOHAMMED ZIAUDDIN     | 1601-16-737-043 |
| 43                   | NEELKANTH P           | 1601-16-737-044 |
| 44                   | NIKHIL KUMAR V        | 1601-16-737-045 |
| 45                   | NITHINREDDY L         | 1601-16-737-046 |
| 46                   | PRABHAS CHAKRAVARTHY  | 1601-16-737-047 |
| 47                   | PRANAV SAI M          | 1601-16-737-048 |
| 48                   | RAHUL REDDY B         | 1601-16-737-049 |
| 49                   | ROHAN B               | 1601-16-737-050 |
| 50                   | SAI KUMAR GOUD V      | 1601-16-737-051 |
| 51                   | SAI SANDEEP VARMA M   | 1601-16-737-052 |
| 52                   | SAIJANARDHAN REDDY R  | 1601-16-737-053 |
| 53                   | SAIKIRAN D            | 1601-16-737-054 |
| 54                   | SANTOSH REDDY T       | 1601-16-737-055 |
| 55                   | SATISH T              | 1601-16-737-056 |
| 56                   | SESHA SAI HEMANTH K   | 1601-16-737-057 |
| 57                   | SRINIVAS G            | 1601-16-737-058 |
| 58                   | VENKATA VAMSI M       | 1601-16-737-060 |
| 59                   | ANUSHA M              | 1601-16-737-123 |
| 60                   | Y ANANYA              | 1601-16-737-124 |
| 61                   | KESARI YESHWANT REDDY | 1601-16-737-301 |
| 62                   | SAKINALA AJAY         | 1601-16-737-302 |
| 63                   | M KEERTHANA REDDY     | 1601-16-737-303 |
| 64                   | G LINGAM              | 1601-16-737-305 |
| 65                   | GUJJA MACHENDAR       | 1601-16-737-306 |
| 66                   | KORE SUMAN            | 1601-16-737-307 |
| 67                   | M VENU KUMAR          | 1601-16-737-308 |
| <b>VII SEM IT -2</b> |                       |                 |
| 1                    | AKAANKSHA M           | 1601-16-737-062 |
| 2                    | BHAVANA J             | 1601-16-737-063 |
| 3                    | CHARITHA T            | 1601-16-737-064 |
| 4                    | HARIKA S              | 1601-16-737-065 |
| 5                    | HYNDAVI V             | 1601-16-737-066 |
| 6                    | KEERTHI A             | 1601-16-737-067 |
| 7                    | LAKSHMI AISWARYA J    | 1601-16-737-068 |
| 8                    | LIKHITHA T            | 1601-16-737-069 |
| 9                    | MADHURI E             | 1601-16-737-070 |
| 10                   | NAAZNEEN KAUSER       | 1601-16-737-071 |
| 11                   | NIKITHA CH            | 1601-16-737-072 |
| 12                   | NISHITHA G            | 1601-16-737-073 |
| 13                   | SAI DIVYA M           | 1601-16-737-074 |
| 14                   | SAI MONA D            | 1601-16-737-075 |
| 15                   | SAI NIKHITA N         | 1601-16-737-076 |

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| 16 | SAI SAMEERA P | 1601-16-737-077 |
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| 17                         | SANGEETHA R           | 1601-16-737-078 |
| 18                         | SHRUTHI A             | 1601-16-737-079 |
| 19                         | SNEHA P               | 1601-16-737-080 |
| 20                         | TEJASWIN              | 1601-16-737-081 |
| 21                         | VANITHA K             | 1601-16-737-082 |
| 22                         | VENKATA SAI SOUDAMINI | 1601-16-737-083 |
| 23                         | AASHISH PORWAL        | 1601-16-737-084 |
| 24                         | ADITYA K              | 1601-16-737-085 |
| 25                         | AVINASSH BHARADHWAJ   | 1601-16-737-086 |
| 26                         | BALAJI PHANI PRANAV P | 1601-16-737-087 |
| 27                         | CHANDRA SHEKHAR B     | 1601-16-737-088 |
| 28                         | DURGA PRASAD P        | 1601-16-737-089 |
| 29                         | MAHESH VARMA G        | 1601-16-737-091 |
| 30                         | MANOJ KUMAR REDDY J   | 1601-16-737-092 |
| 31                         | MUTHYAM REDDY M       | 1601-16-737-095 |
| 32                         | NITHESH B             | 1601-16-737-096 |
| 33                         | PAUL SAMPSON L        | 1601-16-737-097 |
| 34                         | PAVANKALYAN G         | 1601-16-737-098 |
| 35                         | PRANAY DATTA K        | 1601-16-737-099 |
| 36                         | PRANEETH PRASAD V     | 1601-16-737-100 |
| 37                         | PRATHYUSH K           | 1601-16-737-101 |
| 38                         | PRAVEEN KUMAR V       | 1601-16-737-102 |
| 39                         | REVANTH KUMAR R M     | 1601-16-737-104 |
| 40                         | SAI BHARGAVA R        | 1601-16-737-106 |
| 41                         | SAI PRAVEEN R         | 1601-16-737-107 |
| 42                         | SAI RUTHWIK K         | 1601-16-737-108 |
| 43                         | SHARATH SEN REDDY V   | 1601-16-737-109 |
| 44                         | SREE HARSHA E         | 1601-16-737-110 |
| 45                         | SUSHANTH KUMAR REDDY  | 1601-16-737-112 |
| 46                         | SUSHANTH REDDY L      | 1601-16-737-113 |
| 47                         | THARUN V              | 1601-16-737-114 |
| 48                         | UMA MAHESHWAR A       | 1601-16-737-115 |
| 49                         | VARMA V S V S         | 1601-16-737-117 |
| 50                         | VENKAT TEJA V         | 1601-16-737-118 |
| 51                         | VISHWANATH R B        | 1601-16-737-119 |
| 52                         | YADAVENDRA REDDY S    | 1601-16-737-120 |
| 53                         | YASHWANTH A           | 1601-16-737-121 |
| 54                         | DIVYANSHU (ANC)       | 1601-16-737-122 |
| 55                         | GUNNA BHASKARREDDY    | 1601-16-737-313 |
| 56                         | REDDABOINA CHANDU     | 1601-16-737-314 |
| 57                         | KALLEPU MEENAKUMARI   | 1601-16-737-315 |
| 58                         | CHILUVERU VAMSHI      | 1601-16-737-317 |
| 59                         | THUMALAPALLY LAVANYA  | 1601-16-737-318 |
| 60                         | KODAKANDLA PRIYANKA   | 1601-16-737-320 |
| 61                         | BILLA SANJAY          | 1601-16-737-321 |
| 62                         | A SUPRIYA             | 1601-16-737-322 |
|                            |                       |                 |
| <b>VII SEM CHEMICAL -I</b> |                       |                 |
| 1                          | ANJANI M              | 1601-16-802-001 |
| 2                          | CHANDANA K            | 1601-16-802-002 |

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|                           |                      |                 |
|---------------------------|----------------------|-----------------|
| 4                         | KEERTHANA REDDY CH   | 1601-16-802-006 |
| 5                         | MEENA P              | 1601-16-802-007 |
| 6                         | NIKHILA L            | 1601-16-802-008 |
| 7                         | POOJITHA REDDY G     | 1601-16-802-010 |
| 8                         | SAI PRAFULLA T       | 1601-16-802-011 |
| 9                         | SAJITHA B            | 1601-16-802-012 |
| 10                        | SAMHITHA REDDY K     | 1601-16-802-013 |
| 11                        | SATHWIKA A           | 1601-16-802-014 |
| 12                        | SRI NAVYA REDDY P    | 1601-16-802-015 |
| 13                        | SRILEKHA M           | 1601-16-802-016 |
| 14                        | SUJITHA J            | 1601-16-802-017 |
| 15                        | SWARNA LATHA B       | 1601-16-802-018 |
| 16                        | AKASH REDDY M        | 1601-16-802-020 |
| 17                        | BHARATH REDDY K      | 1601-16-802-021 |
| 18                        | CHAITANYA PRUDVI B   | 1601-16-802-022 |
| 19                        | CHAITANYA V          | 1601-16-802-023 |
| 20                        | GOPI T               | 1601-16-802-024 |
| 21                        | GOWTHAM B            | 1601-16-802-025 |
| 22                        | HARSHITH M           | 1601-16-802-026 |
| 23                        | HARSH BHARAT YADAV   | 1601-16-802-030 |
| 24                        | MOHAMMED IBRAHIM ALI | 1601-16-802-032 |
| 25                        | PRATHIK KUMAR K      | 1601-16-802-038 |
| 26                        | SAI SAMPATH K        | 1601-16-802-042 |
| 27                        | SAI TEJA T           | 1601-16-802-043 |
| 28                        | SAI LENDRA REDDY A   | 1601-16-802-044 |
| 29                        | SANDEEP KUMAR K      | 1601-16-802-045 |
| 30                        | SANDEEP P            | 1601-16-802-046 |
| 31                        | VADITHYA ROHITH NAIK | 1601-16-802-049 |
| 32                        | VAMSHI KRISHNA B     | 1601-16-802-050 |
| 33                        | VARSHIT C V          | 1601-16-802-051 |
| 34                        | VARUN TEJA M         | 1601-16-802-052 |
| 35                        | VINEETH SAI A        | 1601-16-802-053 |
| 36                        | KARANAM SRI HARI     | 1601-16-802-301 |
| 37                        | MALKAPUR NAGARAJU    | 1601-16-802-302 |
| 38                        | VANKUDOTH SAI KUMAR  | 1601-16-802-303 |
| 39                        | BADDA SOLMON RAJU    | 1601-16-802-304 |
| 40                        | THOTA SHIVA          | 1601-16-802-305 |
| 41                        | AKKALADEVI VINEETH   | 1601-16-802-307 |
| 42                        | ADULAPURAM BHARATH   | 1601-16-802-309 |
| 43                        | YENUBARI SUGUNA      | 1601-16-802-312 |
| 44                        | V SHREYA REDDY       | 1601-15-802-012 |
| 45                        | ANKINTH MAGANTI      | 1601-15-802-017 |
| 46                        | MOHD MUJTABA HUSSAIN | 1601-15-802-030 |
| 47                        | MOTHE RAKESH         | 1601-15-802-311 |
| 48                        | MOHAMMAD AHMAD       | 1601-14-802-028 |
| <b>VII SEM BIOTECH -1</b> |                      |                 |
| 1                         | AARYA SREE K         | 1601-16-805-001 |
| 2                         | AKSHITA K            | 1601-16-805-002 |
| 3                         | ANANYA S             | 1601-16-805-003 |

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| 4 | APOORVA SARAH P | 1601-16-805-004 |
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|----|-----------------------|-----------------|
| 5  | BRINDA D              | 1601-16-805-005 |
| 6  | CHANDANA K            | 1601-16-805-006 |
| 7  | GAYATHRI G            | 1601-16-805-008 |
| 8  | KAVYA Y               | 1601-16-805-009 |
| 9  | LAKSHMI NEHA U        | 1601-16-805-010 |
| 10 | LAVANYA M             | 1601-16-805-011 |
| 11 | MAHEE V               | 1601-16-805-012 |
| 12 | MEENAKSHI B           | 1601-16-805-013 |
| 13 | MEGHANA REDDY S       | 1601-16-805-014 |
| 14 | NAGA HARSHITHA B      | 1601-16-805-016 |
| 15 | NARMADA I             | 1601-16-805-017 |
| 16 | NIHARIKA B            | 1601-16-805-018 |
| 17 | PREETHI N             | 1601-16-805-019 |
| 18 | RAGA PRIYA K          | 1601-16-805-020 |
| 19 | RESHMITA G            | 1601-16-805-021 |
| 20 | SAI CHARITHA B        | 1601-16-805-023 |
| 21 | SANA THABASSUM        | 1601-16-805-024 |
| 22 | SANJANA G             | 1601-16-805-026 |
| 23 | SANJANA V             | 1601-16-805-027 |
| 24 | SHRADDHA M            | 1601-16-805-028 |
| 25 | SOUMYA R              | 1601-16-805-029 |
| 26 | SRAVYA B              | 1601-16-805-030 |
| 27 | SREYA V               | 1601-16-805-031 |
| 28 | SRI KEERTHI BHAVANI G | 1601-16-805-032 |
| 29 | SRI VIDYA P           | 1601-16-805-033 |
| 30 | SUMERA FAIZ           | 1601-16-805-034 |
| 31 | ZAINAB                | 1601-16-805-036 |
| 32 | ARVIND B              | 1601-16-805-037 |
| 33 | EPHIN MONICHAN        | 1601-16-805-038 |
| 34 | HARSHAVARDHAN V       | 1601-16-805-039 |
| 35 | NAGA SAI Y            | 1601-16-805-042 |
| 36 | SAI SRIJEETH REDDY K  | 1601-16-805-044 |
| 37 | SAIVENU P             | 1601-16-805-045 |
| 38 | SUMANTH S             | 1601-16-805-048 |
| 39 | VIVEKREDDY R          | 1601-16-805-049 |
| 40 | MUTTAQI AHMAD ALLADIN | 1601-16-805-050 |
| 41 | BYAGARI SREEKANTH     | 1601-15-805-052 |

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| Subject: Indian Constitutional Values<br>Code: CBIT/19EGV06 2019 - 20 |                       | EVEN SEM TOTAL=307 |
|-----------------------------------------------------------------------|-----------------------|--------------------|
| S.No                                                                  | NAME                  | ROLL NUMBER        |
| <b>VIII SEM CIVIL -I</b>                                              |                       |                    |
| 1                                                                     | AKANKSHA REDDY L      | 1601-16-732-001    |
| 2                                                                     | ALEKHYA P             | 1601-16-732-002    |
| 3                                                                     | LAASYA M              | 1601-16-732-003    |
| 4                                                                     | MANISHA D             | 1601-16-732-004    |
| 5                                                                     | NIKHILA K             | 1601-16-732-005    |
| 6                                                                     | RADHIKA BRINDAVANI G  | 1601-16-732-006    |
| 7                                                                     | RAMYA VARSHINI A      | 1601-16-732-007    |
| 8                                                                     | RITHIKA K             | 1601-16-732-008    |
| 9                                                                     | SAMPOORNA P           | 1601-16-732-009    |
| 10                                                                    | SHIVANI B             | 1601-16-732-011    |
| 11                                                                    | SHIVANI S             | 1601-16-732-012    |
| 12                                                                    | SRI RAGHA SAI PRIYA N | 1601-16-732-013    |
| 13                                                                    | SUPRIYA N C           | 1601-16-732-014    |
| 14                                                                    | VISHNU PRIYA P        | 1601-16-732-016    |
| 15                                                                    | YAMINI GUPTA          | 1601-16-732-017    |
| 16                                                                    | ANIL KUMAR B          | 1601-16-732-018    |
| 17                                                                    | ANIRUDH REDDY A       | 1601-16-732-019    |
| 18                                                                    | ANJANI KUMAR NAIK B   | 1601-16-732-020    |
| 19                                                                    | AVINASH V             | 1601-16-732-022    |
| 20                                                                    | BHANU KIRAN G         | 1601-16-732-024    |
| 21                                                                    | BHARADWAJ B           | 1601-16-732-025    |
| 22                                                                    | DINESHWAR D           | 1601-16-732-026    |
| 23                                                                    | GANESH B              | 1601-16-732-027    |
| 24                                                                    | HRUTHIK REDDY N       | 1601-16-732-030    |
| 25                                                                    | ITHIHAS K             | 1601-16-732-031    |
| 26                                                                    | JAGADISH REDDY T      | 1601-16-732-032    |
| 27                                                                    | KARAN BHARAT M        | 1601-16-732-033    |
| 28                                                                    | MOHAMMED MUSTAFA      | 1601-16-732-035    |
| 29                                                                    | NIKHIL B              | 1601-16-732-036    |
| 30                                                                    | PAVAN KUMAR J         | 1601-16-732-038    |
| 31                                                                    | PHANI KRISHNA REDDY P | 1601-16-732-039    |
| 32                                                                    | PRAVEEN CH            | 1601-16-732-040    |
| 33                                                                    | PRAVEEN M             | 1601-16-732-041    |
| 34                                                                    | RAHUL N               | 1601-16-732-042    |
| 35                                                                    | RAMESH S              | 1601-16-732-044    |
| 36                                                                    | RISHIK REDDY R        | 1601-16-732-045    |
| 37                                                                    | SAI CHARAN K          | 1601-16-732-046    |
| 38                                                                    | SAI RUGVEDH K         | 1601-16-732-047    |
| 39                                                                    | SREE RITISH SUNDAR M  | 1601-16-732-049    |
| 40                                                                    | SUBASH REDDY B        | 1601-16-732-050    |
| 41                                                                    | TIRUMAL KUMAR A       | 1601-16-732-051    |
| 42                                                                    | UTTAM NAIK J          | 1601-16-732-052    |
| 43                                                                    | VEERESH K             | 1601-16-732-054    |
| 44                                                                    | VINAY YADAV J         | 1601-16-732-055    |

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|--------------------------|------------------------|-----------------|
| 45                       | VINITH KUMAR P         | 1601-16-732-056 |
| 46                       | VISHWAKSENA REDDY K    | 1601-16-732-058 |
| 47                       | ZACHARIAH BENJAMIN K   | 1601-16-732-060 |
| 48                       | SURAKANTI DIVYA        | 1601-16-732-301 |
| 49                       | NAGAMALLA DILEEP       | 1601-16-732-302 |
| 50                       | DEVARUPPALA DIVYA      | 1601-16-732-303 |
| 51                       | EJJIGIRI PRASHANTH     | 1601-16-732-304 |
| 52                       | CHIMMANI HARISH KUMAR  | 1601-16-732-305 |
| 53                       | NAYENI MANIKANTA GOUD  | 1601-16-732-306 |
| 54                       | MOHD MAJID QAYYUM      | 1601-16-732-307 |
| <b>VIII SEM CIVIL -2</b> |                        |                 |
| 1                        | MOHAMMED TALHA         | 1601-15-732-038 |
| 2                        | RAMATENKI SRIKANTH     | 1601-15-732-053 |
| 3                        | CH VIVEK REDDY         | 1601-13-732-060 |
| 4                        | ASHWITHA V             | 1601-16-732-061 |
| 5                        | BHAVANIBINDUSRI P      | 1601-16-732-062 |
| 6                        | GEETHAM K              | 1601-16-732-063 |
| 7                        | MAMATHA M              | 1601-16-732-064 |
| 8                        | NIROSHA N              | 1601-16-732-065 |
| 9                        | RISHITA K              | 1601-16-732-066 |
| 10                       | SATWIKA V              | 1601-16-732-068 |
| 11                       | SINDHU L               | 1601-16-732-069 |
| 12                       | SONIYA SREE S          | 1601-16-732-070 |
| 13                       | SRAVANI M              | 1601-16-732-071 |
| 14                       | SUKRUTHI M             | 1601-16-732-072 |
| 15                       | YAMINI N               | 1601-16-732-073 |
| 16                       | ABHINAV Y              | 1601-16-732-074 |
| 17                       | AJAY A                 | 1601-16-732-076 |
| 18                       | AJAY R                 | 1601-16-732-077 |
| 19                       | ANJANEYULU K           | 1601-16-732-078 |
| 20                       | ARAVIND P              | 1601-16-732-079 |
| 21                       | HARISH VARMA V         | 1601-16-732-082 |
| 22                       | KRISHNA VIKAS A        | 1601-16-732-085 |
| 23                       | MAHESHWAR REDDY K      | 1601-16-732-086 |
| 24                       | MOHAMMED IBRAHIM TAQHI | 1601-16-732-088 |
| 25                       | MOHAMMED RIZWAN        | 1601-16-732-089 |
| 26                       | MOHAMMED TAQI JUNAID   | 1601-16-732-090 |
| 27                       | NIHAL REDDY N          | 1601-16-732-091 |
| 28                       | PAVAN KALYAN Y         | 1601-16-732-092 |
| 29                       | PHANEENDHRA BHARGAV S  | 1601-16-732-094 |
| 30                       | PRASHANTH KUMAR K      | 1601-16-732-096 |
| 31                       | RAGHU VANDIT REDDY A   | 1601-16-732-098 |
| 32                       | RAHUL KUMAR G          | 1601-16-732-099 |
| 33                       | RAJENDHAR B            | 1601-16-732-100 |
| 34                       | RINEESH REDDY P        | 1601-16-732-101 |
| 35                       | SAI BHARADWAJ M        | 1601-16-732-104 |
| 36                       | SAI BHUVANA CHANDRA    | 1601-16-732-105 |
| 37                       | SAI VARUN K            | 1601-16-732-107 |
| 38                       | SHAHAZAD KHAN AYUBI    | 1601-16-732-109 |

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39 SHAIK IRFAN

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|-----------------|------------------------|-----------------|
| 40              | SHASHIDHAR N           | 1601-16-732-111 |
| 41              | SHASHIDHAR REDDY S     | 1601-16-732-112 |
| 42              | SHIVA KUMAR N          | 1601-16-732-113 |
| 43              | SRIMAN P               | 1601-16-732-117 |
| 44              | VEDA VYAS N            | 1601-16-732-119 |
| 45              | NARABOYINA RAJKUMAR    | 1601-16-732-313 |
| 46              | REESU SAI SUPRIYA      | 1601-16-732-315 |
| 47              | M A KAREEM QUADRI      | 1601-16-732-316 |
| 48              | JANGALA NAVEEN YADAV   | 1601-16-732-317 |
| 49              | DEGAVATH KALYAN KUMAR  | 1601-16-732-318 |
| 50              | DUNNAPOTHULA VENKATESH | 1601-16-732-319 |
| VIII SEM ECE -I |                        |                 |
| 1               | AISHWARYA K            | 1601-16-735-001 |
| 2               | ANITHA Y               | 1601-16-735-002 |
| 3               | ASHWINI R              | 1601-16-735-003 |
| 4               | BHARGAVI G             | 1601-16-735-004 |
| 5               | BHAVANA L              | 1601-16-735-005 |
| 6               | CHINMAYEE P            | 1601-16-735-006 |
| 7               | GEETHIKA C H           | 1601-16-735-007 |
| 8               | HARSHINI SRI LALITHA P | 1601-16-735-008 |
| 9               | LAKSHMI SARVANI K      | 1601-16-735-009 |
| 10              | LOHITHA M              | 1601-16-735-010 |
| 11              | MAHENZA AMREEN         | 1601-16-735-011 |
| 12              | PREETHI V              | 1601-16-735-012 |
| 13              | SAHITHI B              | 1601-16-735-013 |
| 14              | SAI PRANATHI V         | 1601-16-735-014 |
| 15              | SHAGUFTA ANJUM S       | 1601-16-735-015 |
| 16              | SHIVANI SHRADDHA B     | 1601-16-735-016 |
| 17              | SOHILA KRISHNA P       | 1601-16-735-017 |
| 18              | SREEJA P               | 1601-16-735-018 |
| 19              | SRI DIVYA B            | 1601-16-735-019 |
| 20              | SUSMITHA G             | 1601-16-735-020 |
| 21              | VAISHNAVIN             | 1601-16-735-021 |
| 22              | VIJAYA LAKSHMI K       | 1601-16-735-022 |
| 23              | YOSHITHA G             | 1601-16-735-023 |
| 24              | ASHISH K               | 1601-16-735-024 |
| 25              | BHARGHAV R             | 1601-16-735-025 |
| 26              | BHAVIK PERSHAD P       | 1601-16-735-026 |
| 27              | CHAITAN N              | 1601-16-735-027 |
| 28              | DEEPAK SAMEER S        | 1601-16-735-028 |
| 29              | DILEEPAKUMAR V         | 1601-16-735-029 |
| 30              | DILIP E                | 1601-16-735-030 |
| 31              | GNANA SAMPATH J        | 1601-16-735-031 |
| 32              | HARUN RASHEED MOHAMMAD | 1601-16-735-032 |
| 33              | KARTHIK P              | 1601-16-735-033 |
| 34              | KIRAN KUMAR B          | 1601-16-735-034 |
| 35              | MAHESH N               | 1601-16-735-035 |
| 36              | MD KHALID MUDASSIR     | 1601-16-735-036 |
| 37              | MOHAMMAD SAAD          | 1601-16-735-037 |

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| 38 | NAGESH K | 1601-16-735-038 |
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|------------------------|------------------------|-----------------|
| 39                     | PARSHARAMULU M         | 1601-16-735-039 |
| 40                     | PAVANKUMAR REDDY CH    | 1601-16-735-040 |
| 41                     | RISHI R                | 1601-16-735-041 |
| 42                     | SAI CHAKRI T           | 1601-16-735-042 |
| 43                     | SAI PRANAV D           | 1601-16-735-043 |
| 44                     | SAI SOHAM R            | 1601-16-735-044 |
| 45                     | SAITEJA G              | 1601-16-735-045 |
| 46                     | SATISH KUMAR M         | 1601-16-735-046 |
| 47                     | SHALOMJI U             | 1601-16-735-047 |
| 48                     | SHIVAKUMAR G           | 1601-16-735-048 |
| 49                     | SHIVANK AGARWAL        | 1601-16-735-049 |
| 50                     | SREE NARESH KRISHNA CH | 1601-16-735-050 |
| 51                     | SRI HARI CH            | 1601-16-735-051 |
| 52                     | SRIKAR G               | 1601-16-735-052 |
| 53                     | SUKESH REDDY N         | 1601-16-735-054 |
| 54                     | SURESH K               | 1601-16-735-055 |
| 55                     | VAMSI KRISHNA M        | 1601-16-735-056 |
| 56                     | VARUN KUMAR REDDY K    | 1601-16-735-057 |
| 57                     | VARUN P                | 1601-16-735-058 |
| 58                     | VEERA TEJA B           | 1601-16-735-059 |
| 59                     | VINITH KUMAR K         | 1601-16-735-060 |
| 60                     | SRI RAMOJU SHRAVANI    | 1601-16-735-301 |
| 61                     | ANISHA BOMMA           | 1601-16-735-302 |
| 62                     | T S RAHUL              | 1601-16-735-303 |
| 63                     | J VINAY KUMAR          | 1601-16-735-304 |
| 64                     | RASAGNA VEMULA         | 1601-16-735-305 |
| 65                     | SHARATH KUMAR          | 1601-16-735-306 |
| 66                     | AYESHANIKHATH          | 1601-16-735-307 |
| 67                     | KOTA KAVYA             | 1601-16-735-308 |
| 68                     | VADLA NAVANEETHA       | 1601-16-735-309 |
| 69                     | GUGULOTH LAKPATHI      | 1601-16-735-310 |
| 70                     | THADAGONDA REETA       | 1601-16-735-311 |
| 71                     | NAUSHEEN               | 1601-16-735-312 |
| 72                     | GUMMADAVELLI ANJALI    | 1601-15-735-303 |
| <b>VIII SEM ECE -2</b> |                        |                 |
| 1                      | AMTUL MOHIMIN TAHA     | 1601-16-735-061 |
| 2                      | AYESHA SAMREEN         | 1601-16-735-062 |
| 3                      | BHAVANA S              | 1601-16-735-063 |
| 4                      | BLESSY N               | 1601-16-735-064 |
| 5                      | SAI NEEHARIKA P        | 1601-16-735-065 |
| 6                      | HARINI A               | 1601-16-735-066 |
| 7                      | KEERTHI P              | 1601-16-735-067 |
| 8                      | LIKHITA Y              | 1601-16-735-068 |
| 9                      | MAMATHA K              | 1601-16-735-069 |
| 10                     | MANMITHA J             | 1601-16-735-070 |
| 11                     | NAGA SANTOSHI N        | 1601-16-735-071 |
| 12                     | PALLAVI REDDY P        | 1601-16-735-072 |
| 13                     | PRIYANKA B             | 1601-16-735-073 |
| 14                     | RAMYATHA P             | 1601-16-735-074 |

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| 15 | RISHITHA REDDY K | 1601-16-735-075 |
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|----|----------------------|-----------------|
| 16 | SIRISHA J            | 1601-16-735-076 |
| 17 | SNEHITHA MADHURIMA M | 1601-16-735-077 |
| 18 | SPANDANA R           | 1601-16-735-078 |
| 19 | SREYA K              | 1601-16-735-079 |
| 20 | SRINIDHI G           | 1601-16-735-080 |
| 21 | SUSHMA N             | 1601-16-735-081 |
| 22 | VANAJA S             | 1601-16-735-082 |
| 23 | VARTIKA              | 1601-16-735-083 |
| 24 | VENKATA LAVANYA Y    | 1601-16-735-084 |
| 25 | VIDYA L              | 1601-16-735-085 |
| 26 | ABHILASH K           | 1601-16-735-086 |
| 27 | AJITH V              | 1601-16-735-087 |
| 28 | AKHIL A              | 1601-16-735-088 |
| 29 | AKHIL KUMAR V        | 1601-16-735-089 |
| 30 | AKHIL N              | 1601-16-735-090 |
| 31 | ANJANEYAPRASAD K     | 1601-16-735-091 |
| 32 | ARUN KUMAR M         | 1601-16-735-093 |
| 33 | BHANU PRASAD M       | 1601-16-735-094 |
| 34 | BHAVANI SAI SUNEEL P | 1601-16-735-095 |
| 35 | KAUSHIK B            | 1601-16-735-096 |
| 36 | KRISHNA ABHISHITH P  | 1601-16-735-097 |
| 37 | MOHAMMED RASHED      | 1601-16-735-098 |
| 38 | NIKHIL RAJ K         | 1601-16-735-100 |
| 39 | PRAKASH REDDY A      | 1601-16-735-101 |
| 40 | PRANAV TEJASVI A     | 1601-16-735-102 |
| 41 | RAVI TEJA S          | 1601-16-735-103 |
| 42 | ROHITH REDDY M       | 1601-16-735-104 |
| 43 | SAI CHARAN P         | 1601-16-735-105 |
| 44 | SAI TEJA K           | 1601-16-735-107 |
| 45 | SAI VIKAS R          | 1601-16-735-108 |
| 46 | SAI VISHWA TEJA T    | 1601-16-735-109 |
| 47 | SAIKIRAN K           | 1601-16-735-110 |
| 48 | SHASHANK KUMAR M     | 1601-16-735-111 |
| 49 | SRINIVAS TEJA B      | 1601-16-735-112 |
| 50 | TARUNENDRA M         | 1601-16-735-114 |
| 51 | UDAY KIRAN M         | 1601-16-735-115 |
| 52 | VAMSHI KRISHNA CH    | 1601-16-735-116 |
| 53 | VISHWANATH REDDY Y   | 1601-16-735-118 |
| 54 | YATINDRA ROHIT CH    | 1601-16-735-119 |
| 55 | KORUMILLI RAGA SAI   | 1601-16-735-313 |
| 56 | GOLLAGADDA ROOPALI   | 1601-16-735-314 |
| 57 | POLISHETTY SREYA     | 1601-16-735-315 |
| 58 | KOLE VENKATESH       | 1601-16-735-316 |
| 59 | RANGU MEGHANA        | 1601-16-735-317 |
| 60 | GAJABEEMKAR SUPRIYA  | 1601-16-735-318 |
| 61 | SANGEM MANASA        | 1601-16-735-319 |
| 62 | ALUGOJU ANIL KUMAR   | 1601-16-735-320 |
| 63 | RAAGULA VENKATESH    | 1601-16-735-321 |
| 64 | G AKHIL KUMAR        | 1601-16-735-322 |
| 65 | MYSA SHEEBA RANI     | 1601-16-735-323 |

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|    |                          |                 |
|----|--------------------------|-----------------|
| 1  | AKHILA CH                | 1601-16-735-121 |
| 2  | ANWESHA KAR              | 1601-16-735-122 |
| 3  | DEEPTHI SRI LAASYA G     | 1601-16-735-123 |
| 4  | GEETHA VAISHNAVI B       | 1601-16-735-124 |
| 5  | HEMA BHARAT JANI         | 1601-16-735-125 |
| 6  | JAHNAVI R                | 1601-16-735-126 |
| 7  | LAHARI R                 | 1601-16-735-127 |
| 8  | MADHUMITHA C             | 1601-16-735-128 |
| 9  | MADHUMITHA D             | 1601-16-735-129 |
| 10 | MANESHA M                | 1601-16-735-130 |
| 11 | NEHABEGUM                | 1601-16-735-131 |
| 12 | NIHARIKA K               | 1601-16-735-132 |
| 13 | NIKHITA K                | 1601-16-735-133 |
| 14 | PRAVALIKA V              | 1601-16-735-134 |
| 15 | PURNIMA B                | 1601-16-735-135 |
| 16 | REVATHI S                | 1601-16-735-136 |
| 17 | SHREYA LOKRAY            | 1601-16-735-137 |
| 18 | SREYA SREE S             | 1601-16-735-138 |
| 19 | SRI SANJANA VIRAJITA P   | 1601-16-735-139 |
| 20 | SRI VANI B               | 1601-16-735-140 |
| 21 | SRIJA P                  | 1601-16-735-141 |
| 22 | VAISHNAVI S              | 1601-16-735-142 |
| 23 | ADITYA K                 | 1601-16-735-143 |
| 24 | AKHIL G                  | 1601-16-735-144 |
| 25 | ANURAG V                 | 1601-16-735-145 |
| 26 | CHAITANYA KRISHNA P      | 1601-16-735-146 |
| 27 | CHANDRA SAI KIRAN K      | 1601-16-735-147 |
| 28 | DEEKSHITH M              | 1601-16-735-148 |
| 29 | HIMAMSU M                | 1601-16-735-149 |
| 30 | KAMESWARA PAVAN ADITYA N | 1601-16-735-150 |
| 31 | KOUSHIK NATH REDDY M     | 1601-16-735-151 |
| 32 | MD JANI PASHA            | 1601-16-735-153 |
| 33 | MOHAMMED ABDUL IRFAN     | 1601-16-735-154 |
| 34 | NAVANEETH M              | 1601-16-735-155 |
| 35 | NIKHIL D                 | 1601-16-735-156 |
| 36 | NIKHIL K                 | 1601-16-735-157 |
| 37 | PAVAN KUMAR B            | 1601-16-735-158 |
| 38 | PAVAN PREETHAM Y         | 1601-16-735-159 |
| 39 | PRANAY K                 | 1601-16-735-160 |
| 40 | PRASAD K                 | 1601-16-735-161 |
| 41 | PRUDHVI M                | 1601-16-735-162 |
| 42 | RAHUL REDDY K            | 1601-16-735-163 |
| 43 | RAJ KUMAR G              | 1601-16-735-164 |
| 44 | RAJASHEKAR REDDY M       | 1601-16-735-166 |
| 45 | SAI TEJA B               | 1601-16-735-168 |
| 46 | SAI VIKAS M              | 1601-16-735-169 |
| 47 | SATHISH K                | 1601-16-735-170 |
| 48 | SHIVAKUMAR P             | 1601-16-735-171 |
| 49 | SIVA KRISHNA B           | 1601-16-735-172 |

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|    |                      |                 |
|----|----------------------|-----------------|
| 51 | SRUJAN P             | 1601-16-735-174 |
| 52 | SUMANTH NAIDU M      | 1601-16-735-175 |
| 53 | SYED JAWAD MOHIUDDIN | 1601-16-735-176 |
| 54 | THANOJKUMAR G        | 1601-16-735-177 |
| 55 | VEDAVYAS K           | 1601-16-735-178 |
| 56 | VISHNU VARDHAN O     | 1601-16-735-179 |
| 57 | VISWA SOURAB K       | 1601-16-735-180 |
| 58 | APPAM SHIVA KUMAR    | 1601-16-735-326 |
| 59 | CHIPPA AVINASH TEJA  | 1601-16-735-327 |
| 60 | DURGAM LALITH        | 1601-16-735-329 |
| 61 | BODDU SAI HARISH     | 1601-16-735-330 |
| 62 | BOGAM KIRAN KUMAR    | 1601-16-735-331 |
| 63 | DARUGULA SRIKANTH    | 1601-16-735-332 |
| 64 | GANDRAKOTA PRADEEP   | 1601-16-735-333 |
| 65 | SHAGANTI NAVYA       | 1601-16-735-334 |
| 66 | ERGADINDLA SUSHMITHA | 1601-16-735-335 |

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| Subject: Indian Constitutional Values<br>Code: CBIT/19EGV06 2019 - 20 |                          | EVEN SEM TOTAL=198 |
|-----------------------------------------------------------------------|--------------------------|--------------------|
| S.No                                                                  | NAME                     | ROLL NUMBER        |
| <b>VIII SEM PROD -1</b>                                               |                          |                    |
| 1                                                                     | AMULYA U                 | 1601-16-738-001    |
| 2                                                                     | BALA LAKSHMI PRASANNA K  | 1601-16-738-002    |
| 3                                                                     | GIRIJA Y SL              | 1601-16-738-004    |
| 4                                                                     | NANDANA CH               | 1601-16-738-008    |
| 5                                                                     | PURNIMA E                | 1601-16-738-009    |
| 6                                                                     | RICHASREE A              | 1601-16-738-011    |
| 7                                                                     | SHRIYA REDDY B           | 1601-16-738-012    |
| 8                                                                     | SINDHUJA SAI B           | 1601-16-738-013    |
| 9                                                                     | SOWMMYA J                | 1601-16-738-014    |
| 10                                                                    | VIDYA SREE V             | 1601-16-738-015    |
| 11                                                                    | ANURAG B                 | 1601-16-738-022    |
| 12                                                                    | BALA KRISHNA REDDY H     | 1601-16-738-023    |
| 13                                                                    | CHANDRA KIRAN REDDY K    | 1601-16-738-025    |
| 14                                                                    | KIRAN KUMAR G            | 1601-16-738-030    |
| 15                                                                    | KISHORE KUMAR M          | 1601-16-738-031    |
| 16                                                                    | KOUSHIK S                | 1601-16-738-032    |
| 17                                                                    | KRUPAKAR REDDY M         | 1601-16-738-033    |
| 18                                                                    | NITESH KUMAR REDDY V     | 1601-16-738-036    |
| 19                                                                    | PRABHAKAR J              | 1601-16-738-037    |
| 20                                                                    | PRANEETH DATH B          | 1601-16-738-038    |
| 21                                                                    | PRASHANTH T              | 1601-16-738-039    |
| 22                                                                    | SAI KARTHIK K            | 1601-16-738-043    |
| 23                                                                    | SAI KRISHNA PRANEETH A   | 1601-16-738-044    |
| 24                                                                    | SAI PRAKASH J            | 1601-16-738-045    |
| 25                                                                    | SAINATH B                | 1601-16-738-046    |
| 26                                                                    | SHAIK MUBASHEERUDDIN     | 1601-16-738-049    |
| 27                                                                    | SHIVA KUMAR GOUD S       | 1601-16-738-050    |
| 28                                                                    | UTTAM VIJAYWARGIYA       | 1601-16-738-052    |
| 29                                                                    | VENKATA SAI SRIKAR P     | 1601-16-738-054    |
| 30                                                                    | VIKRAM NAYAK M           | 1601-16-738-058    |
| 31                                                                    | VISHUNUVARDHAN REDDY B   | 1601-16-738-059    |
| 32                                                                    | RUKMANGADHA REDDY B      | 1601-16-738-060    |
| 33                                                                    | ANIL REDDY               | 1601-16-738-301    |
| 34                                                                    | KADUDURI UDAYKIRAN       | 1601-16-738-302    |
| 35                                                                    | KOTA HEMANTH             | 1601-16-738-303    |
| 36                                                                    | HEMANTH REDDY KOMPALLY   | 1601-16-738-304    |
| 37                                                                    | MOHAMMED SUFIYAN AHMED   | 1601-16-738-305    |
| 38                                                                    | GURRAM SAI GANESH        | 1601-16-738-306    |
| 39                                                                    | GUNDETI NAVEEN KUMAR     | 1601-16-738-308    |
| 40                                                                    | ABDUL SALMAN             | 1601-16-738-309    |
| 41                                                                    | S CHANDRA SHEKER         | 1601-16-738-310    |
| 42                                                                    | MORRY SUMANTH KUMAR      | 1601-16-738-311    |
| 43                                                                    | DUBBAGULLA SAMPATH KUMAR | 1601-16-738-312    |

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| 44 P HEMA CHANDER | 1601-15-738-019 |
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|                          |                         |                 |
|--------------------------|-------------------------|-----------------|
| 45                       | A DEEPAK NAIK           | 1601-15-738-309 |
| <b>VIII ISEM Mech -1</b> |                         |                 |
| 1                        | ANULEKHA RAVI N         | 1601-16-736-001 |
| 2                        | BHARANI B               | 1601-16-736-002 |
| 3                        | DIVYA JYOTHI M          | 1601-16-736-003 |
| 4                        | JHANSI REDDY D          | 1601-16-736-004 |
| 5                        | NANDHINI S              | 1601-16-736-005 |
| 6                        | PAVANI M                | 1601-16-736-006 |
| 7                        | PRIYANKA A              | 1601-16-736-007 |
| 8                        | RACHANA V               | 1601-16-736-008 |
| 9                        | SHARANYA N              | 1601-16-736-009 |
| 10                       | SOWMYA V                | 1601-16-736-010 |
| 11                       | SUSMITHA Y              | 1601-16-736-011 |
| 12                       | TEJASWIL                | 1601-16-736-013 |
| 13                       | AKHILESH K              | 1601-16-736-015 |
| 14                       | ANIRUDH KISHAN K        | 1601-16-736-016 |
| 15                       | ANISH REDDY M           | 1601-16-736-017 |
| 16                       | ANKITH G                | 1601-16-736-018 |
| 17                       | BALA VINEETH REDDY T    | 1601-16-736-019 |
| 18                       | CHAITANYA KUMAR P       | 1601-16-736-020 |
| 19                       | DANIEL PETER            | 1601-16-736-021 |
| 20                       | DAYAKAR K               | 1601-16-736-022 |
| 21                       | DILIP G                 | 1601-16-736-023 |
| 22                       | GHULAM SAMDANI          | 1601-16-736-024 |
| 23                       | JAGADISH CH             | 1601-16-736-025 |
| 24                       | KALYAN G                | 1601-16-736-026 |
| 25                       | KALYAN P                | 1601-16-736-027 |
| 26                       | KARTHIKEYA REDDY V      | 1601-16-736-028 |
| 27                       | MANIDEEP G              | 1601-16-736-029 |
| 28                       | MOHAMMED SAMEER HUSSAIN | 1601-16-736-030 |
| 29                       | MOHAMMED SIDDIQ HUSSAIN | 1601-16-736-031 |
| 30                       | PRABHAKAR RAO CH        | 1601-16-736-033 |
| 31                       | PRAJWAL T               | 1601-16-736-034 |
| 32                       | PRANAY L                | 1601-16-736-035 |
| 33                       | RAHMAN MA               | 1601-16-736-036 |
| 34                       | RAHUL REDDY B           | 1601-16-736-037 |
| 35                       | RAKSHITH REDDY S        | 1601-16-736-038 |
| 36                       | RAMBABU NAIK T          | 1601-16-736-040 |
| 37                       | RAVICHANDRA D           | 1601-16-736-041 |
| 38                       | SACHIN M R              | 1601-16-736-042 |
| 39                       | SAI CHANDAN B           | 1601-16-736-043 |
| 40                       | SAI HARSHA P            | 1601-16-736-044 |
| 41                       | SAI KRISHNA P           | 1601-16-736-046 |
| 42                       | SAI PREETHAM REDDY A    | 1601-16-736-047 |
| 43                       | SAI VARUN S             | 1601-16-736-049 |
| 44                       | SAIMANIDEEP B           | 1601-16-736-050 |

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| 45 SANDEEP B | 1601-16-736-051 |
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|                         |                               |                 |
|-------------------------|-------------------------------|-----------------|
| 46                      | SHIVA SAI K                   | 1601-16-736-052 |
| 47                      | SHIVAKARAN P                  | 1601-16-736-053 |
| 48                      | SRIRAAG G                     | 1601-16-736-054 |
| 49                      | VENKATA SUDHEER KUMAR REDDY V | 1601-16-736-057 |
| 50                      | VIJAYA BHANU DEEPAK S         | 1601-16-736-058 |
| 51                      | VINEEL KUMAR V                | 1601-16-736-059 |
| 52                      | VINEETH SAI RAM VARMA K       | 1601-16-736-060 |
| 53                      | KUMMARI KRISHNA VAMSHI        | 1601-16-736-301 |
| 54                      | AKKENAPALLY RANJEETH REDDY    | 1601-16-736-302 |
| 55                      | ANANTHULA ANVESH              | 1601-16-736-303 |
| 56                      | KALLEM PAVANKALYAN            | 1601-16-736-304 |
| 57                      | EDIDHINENI KARTHIK            | 1601-16-736-305 |
| 58                      | CHIRRA PRUDHVI RAJ            | 1601-16-736-306 |
| 59                      | GUNDU MOUNISHA                | 1601-16-736-307 |
| 60                      | LAKAVATH VENNELA              | 1601-16-736-308 |
| 61                      | CHOUDARY SAITEJA              | 1601-16-736-309 |
| 62                      | SAPAVAT BANGHA                | 1601-16-736-310 |
| 63                      | P SHANMUKHI VANDANA           | 1601-16-736-311 |
| 64                      | RAVULA BIINDU SHANKAR         | 1601-16-736-312 |
| 65                      | J AVANINDRA RAO               | 1601-15-736-018 |
| 66                      | MD JUNAID                     | 1601-15-736-028 |
| 67                      | SAHIL SHAHZAD KHAN            | 1601-15-736-037 |
| 68                      | SREETEJ REDDY B               | 1601-15-736-043 |
| <b>VIII SEM Mech -2</b> |                               |                 |
| 1                       | AHLADA CH                     | 1601-16-736-061 |
| 2                       | ANUSHA B                      | 1601-16-736-062 |
| 3                       | HIMALAYA K                    | 1601-16-736-063 |
| 4                       | KAVYA SREE CH                 | 1601-16-736-064 |
| 5                       | PRANAVATHMIKA Y               | 1601-16-736-066 |
| 6                       | PRATYUSHA J                   | 1601-16-736-067 |
| 7                       | RASHMI G                      | 1601-16-736-068 |
| 8                       | SAHARTHI T                    | 1601-16-736-069 |
| 9                       | SAIPRIYA U                    | 1601-16-736-070 |
| 10                      | SANIYA FARHEEN P              | 1601-16-736-071 |
| 11                      | SHRAVANI J                    | 1601-16-736-072 |
| 12                      | SHRAVYA N                     | 1601-16-736-073 |
| 13                      | SPOORTHY SHREE A              | 1601-16-736-074 |
| 14                      | SUREKHA K                     | 1601-16-736-075 |
| 15                      | ABHIJEET SHREEP PURKAR        | 1601-16-736-076 |
| 16                      | ABHISHEK REDDY M              | 1601-16-736-077 |
| 17                      | AKHIL KUMAR REDDY T           | 1601-16-736-078 |
| 18                      | AKHIL SAI P                   | 1601-16-736-079 |
| 19                      | BHARGAVA RAJA SEK HAR REDDY K | 1601-16-736-081 |
| 20                      | DEEPAK SAI SUSHANT A          | 1601-16-736-082 |
| 21                      | GAURAV GOYAL                  | 1601-16-736-083 |
| 22                      | HANEESH G                     | 1601-16-736-084 |

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| 23 | HEMANTH REDDY U | 1601-16-736-085 |
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|                 |                        |
|-----------------|------------------------|
| 1601-16-736-086 | 24 JESHWANTH REDDY A   |
| 1601-16-736-088 | 25 MAHENDHAR A         |
| 1601-16-736-089 | 26 MANISH E            |
| 1601-16-736-090 | 27 MD MUBASHIR AHMED   |
| 1601-16-736-091 | 28 MIRZA ISMAIL BAIG   |
| 1601-16-736-092 | 29 MURALI KRISHNA M    |
| 1601-16-736-093 | 30 NARMADH REDDY A     |
| 1601-16-736-094 | 31 NATWAR KRISHNA K    |
| 1601-16-736-095 | 32 NAVEEN KUMAR N      |
| 1601-16-736-096 | 33 NAYAN REDDY K       |
| 1601-16-736-097 | 34 NIKHIL G            |
| 1601-16-736-098 | 35 PAVAN KALYAN K      |
| 1601-16-736-099 | 36 PAVAN KRISHNA SAI K |
| 1601-16-736-100 | 37 PETER PAUL D        |
|                 | VIII SEM EEE -1        |
| 1601-16-734-001 | 1 AKANKSHA YADAV B     |
| 1601-16-734-002 | 2 AKHILA J             |
| 1601-16-734-003 | 3 CHITKALA M           |
| 1601-16-734-004 | 4 GAYATHRI M           |
| 1601-16-734-005 | 5 GEETHA BHARGAVI K    |
| 1601-16-734-007 | 6 KEERTHI REDDY K      |
| 1601-16-734-008 | 7 LASYA G              |
| 1601-16-734-009 | 8 LAVANYA M            |
| 1601-16-734-010 | 9 MOUNIKA G            |
| 1601-16-734-011 | 10 PRADEPA CH          |
| 1601-16-734-012 | 11 PRAVALLIKA V        |
| 1601-16-734-013 | 12 SAI PRIYANKA T      |
| 1601-16-734-014 | 13 SHAIK AISHA         |
| 1601-16-734-015 | 14 SHASHIKALA M        |
| 1601-16-734-016 | 15 SHIVANI RAJU T      |
| 1601-16-734-017 | 16 SHRAVYA M           |
| 1601-16-734-018 | 17 SHREEJHA M          |
| 1601-16-734-019 | 18 SHRUTHI REDDY G     |
| 1601-16-734-020 | 19 SHRUTHI SRI T       |
| 1601-16-734-021 | 20 SRILEKHA CH         |
| 1601-16-734-022 | 21 SRINIDHI REDDY B    |
| 1601-16-734-023 | 22 SRIVIDYA B          |
| 1601-16-734-025 | 23 VENNELA REDDY K     |
| 1601-16-734-026 | 24 ABHISHEK NARAYANA D |
| 1601-16-734-027 | 25 ANWESH K            |
| 1601-16-734-028 | 26 ARUNKUMAR GOUD S    |
| 1601-16-734-029 | 27 BALAKRISHNA REDDY K |
| 1601-16-734-030 | 28 BARGAV CHAITANYA G  |
| 1601-16-734-031 | 29 HEMANTHKUMAR E      |
| 1601-16-734-032 | 30 INDRA KUMAR REDDY Y |
| 1601-16-734-034 | 31 JOHN MEDWIN V       |

32 LALITH CHANDRIL REDDY M

1601-16-734-036

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|    |                       |                 |
|----|-----------------------|-----------------|
| 33 | MOHAMMED MOIZUDDIN    | 1601-16-734-037 |
| 34 | MOHAMMED PARVEZ AMAIR | 1601-16-734-038 |
| 35 | MUKESH S              | 1601-16-734-039 |
| 36 | NAGA BRAHMA C         | 1601-16-734-040 |
| 37 | PAVAN KUMAR M         | 1601-16-734-042 |
| 38 | PAVAN P               | 1601-16-734-043 |
| 39 | RAVIVARMA A           | 1601-16-734-044 |
| 40 | RUTHVIK P             | 1601-16-734-045 |
| 41 | SAI BHARATH N         | 1601-16-734-046 |
| 42 | SAI NIKHIL RAO G      | 1601-16-734-047 |
| 43 | SAI SASANK REDDY A    | 1601-16-734-048 |
| 44 | SAI SUNAYAN G         | 1601-16-734-049 |
| 45 | SAIDEBAJI SK          | 1601-16-734-050 |
| 46 | SAITEJA E             | 1601-16-734-051 |
| 47 | SHIVA CHARAN PRASAD J | 1601-16-734-053 |
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**TITLE OF THE VALUE-ADDED COURSE: -  
ANCIENT INDIAN KNOWLEDGE**

**COURSE CODE: -  
18EEV01**

# 18EEV01

## Ancient Indian knowledge

### Syllabus:

#### Module-I:

**Introduction to Culture:** Culture, civilization, culture and heritage, general characteristics of culture, Indian Culture, Ancient India, Medieval India, Modern India

#### Module-II

**Indian Languages, Culture and Literature:** Indian Languages and Literature-I: the role of Sanskrit, significance of scriptures to current society, Indian philosophies, other Sanskrit literature,

#### Module-III

**Religion and Philosophy:** Religion and Philosophy in ancient India, Religion and Philosophy in Medieval India, Religious Reform Movements in Modern India (selected movements only)

#### Module-IV

**Fine arts in India (Art, Technology & Engineering):** Indian Painting, Indian handicrafts, Indian Architecture (ancient, medieval and modern), Science and Technology in India, development of science in ancient, medieval and modern India

#### Module V

**Education system in India:** Education in ancient, medieval and modern India, aims of education, subjects, languages, Science and Scientists of Ancient India, Science and Scientists of Medieval India, Scientists of Modern India.

#### Essential Readings:

1. Kapil Kapoor, Text and Interpretation: The Indian Tradition, ISBN: 81246033375, 2005
2. Samskrita Bharati, Science in Samskrit, ISBN-13: 978-8187276333, 2007
3. Satya Prakash, Founders of sciences in Ancient India, Govindram Hasanand, ISBN-10: 8170770009, 1989
4. Brajendranath Seal, The Positive Sciences of the Ancient Hindus, Motilal Banarasidass, ISBN-10: 8120809254, 1915
5. Kancha Ilaiah, Turning the Pot, Tilling the Land: Dignity of Labour in Our Times

#### Suggested Readings:

1. Swami Vivekananda, Caste, Culture and Socialism, Advaita Ashrama, Kolkata ISBN-9788175050280
2. Swami Lokeshwarananda, Religion and Culture, Advaita Ashrama, Kolkata ISBN-9788185843384
3. Kapil Kapoor, Language, Linguistics and Literature: The Indian Perspective, ISBN-10: 8171880649, 1994.
4. Karan Singh, A Treasury of Indian Wisdom: An Anthology of Spiritual Learn, ISBN: 978-0143426158, 2016
5. Swami Vivekananda, The East and the West, Advaita Ashrama, Kolk

**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY**  
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**TITLE OF THE VALUE-ADDED COURSE: -  
ENVIRONMENTAL IMPACT AND MONITORING**

**COURSE CODE: -  
CBIT/19CEV01**

## ENVIRONMENTAL IMPACT AND MONITORING

**Course Objectives:** To enable the student

1. Identify environmental problems arising due to engineering and technological activities and the science behind those problems.
2. Become aware about the importance of eco system and biodiversity for maintaining ecological balance
3. To identify the importance of interlinking of food chain
4. Learn about various attributes of pollution management and waste management practices.
5. To make the students contribute for capacity building of nation for arresting and/or managing environmental disasters.

**Course Outcomes:** At the end of the course, the student should have learnt

1. To define environment, identify the natural resources and ecosystems and contribute for the conservation of bio-diversity.
2. To suggest suitable remedial measure for the problems of environmental pollution and contribute for the framing of legislation for protection of environment.
3. To relate the social issues and the environment and contribute for the sustainable development.
4. To follow the environmental ethics.
5. To contribute for the mitigation and management of environmental disasters.

**UNIT – I:**

**Environmental Studies:** Definition, Scope and importance, need for public awareness.

**Natural resources:** Use and over utilization of Natural Resources - Water resources, Food resources, Forest resources, Mineral resources, Energy resources, Land resources.

**UNIT – II:**

**Ecosystems:** Concept of an ecosystem, structure and function of an ecosystem, role of producers, consumers and decomposers, energy flow in an ecosystem, food chains, food webs, ecological pyramids, Nutrient cycling, Bio-geo chemical cycles, Terrestrial and Aquatic ecosystems.

**UNIT – III:**

**Biodiversity:** Genetic, species and ecosystem biodiversity, Bio-geographical classification of India, India as a Mega diversity nation. Values of biodiversity, hot-spots of biodiversity.

**UNIT – IV:**

**Environmental Pollution:** Cause, effects and control measures of air pollution, water pollution, marine pollution, soil pollution, noise pollution and Solid waste management, nuclear hazards

**UNIT – V:**

**Social issues and the environment:** Water conservation methods: Rain water harvesting and watershed management, Environmental ethics, Sustainable development and Climate change: Global warming, Ozone layer depletion, forest fires, and Contemporary issues.

**Text Books:**

1. Y. Anjaneyulu, "Introduction to Environmental Science", B S Publications, 2004.
2. Suresh K. Dhameja, "Environmental Studies", S. K. Kataria & Sons, 2009.

**Suggested Reading:**

1. C. S. Rao, "Environmental Pollution Control Engineering", Wiley, 1991.
2. S. S. Dara, "A Text Book of Environmental Chemistry & Pollution Control", S. Chand Limited, 2006.



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| 44                                                                   | SAI SUNAYAN G           | 1601-16-734-049  |

*Amey*

Head  
Dept. of English  
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| 46 | SAITEJA E             | 1601-16-734-051 |
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| 48 | SUDHEER A             | 1601-16-734-054 |
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| 50 | THARUN R              | 1601-16-734-057 |

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| 7                                                                    | GEETHIKA C H           | 1601-16-735-007    |
| 8                                                                    | HARSHINI SRI LALITHA P | 1601-16-735-008    |
| 9                                                                    | LAKSHMI SARVANI K      | 1601-16-735-009    |
| 10                                                                   | LOHITHA M              | 1601-16-735-010    |
| 11                                                                   | MAHENAZ AMREEN         | 1601-16-735-011    |
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| 18                                                                   | SREEJA P               | 1601-16-735-018    |
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19 SREYA K

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10 SHIVANI B

1601-16-732-011

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| 38 | SAI RUGVEDH K         | 1601-16-732-047 |
| 39 | SREE RITISH SUNDAR M  | 1601-16-732-049 |
| 40 | SUBASH REDDY B        | 1601-16-732-050 |
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| 45 | VINITH KUMAR P        | 1601-16-732-056 |
| 46 | VISHWAKSENA REDDY K   | 1601-16-732-058 |
| 47 | ZACHARIAH BENJAMIN K  | 1601-16-732-060 |
| 48 | SURAKANTI DIVYA       | 1601-16-732-301 |
| 49 | NAGAMALLA DILEEP      | 1601-16-732-302 |
| 50 | DEVARUPPALA DIVYA     | 1601-16-732-303 |

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**TITLE OF THE VALUE-ADDED COURSE: -  
ENVIRONMENTAL IMPACT AND MONITORING**

**COURSE CODE: -  
CBIT/19CEV01**

## ENVIRONMENTAL IMPACT AND MONITORING

**Course Objectives:** To enable the student

1. Identify environmental problems arising due to engineering and technological activities and the science behind those problems.
2. Become aware about the importance of eco system and biodiversity for maintaining ecological balance
3. To identify the importance of interlinking of food chain
4. Learn about various attributes of pollution management and waste management practices.
5. To make the students contribute for capacity building of nation for arresting and/or managing environmental disasters.

**Course Outcomes:** At the end of the course, the student should have learnt

1. To define environment, identify the natural resources and ecosystems and contribute for the conservation of bio-diversity.
2. To suggest suitable remedial measure for the problems of environmental pollution and contribute for the framing of legislation for protection of environment.
3. To relate the social issues and the environment and contribute for the sustainable development.
4. To follow the environmental ethics.
5. To contribute for the mitigation and management of environmental disasters.

**UNIT – I:**

**Environmental Studies:** Definition, Scope and importance, need for public awareness.

**Natural resources:** Use and over utilization of Natural Resources - Water resources, Food resources, Forest resources, Mineral resources, Energy resources, Land resources.

**UNIT – II:**

**Ecosystems:** Concept of an ecosystem, structure and function of an ecosystem, role of producers, consumers and decomposers, energy flow in an ecosystem, food chains, food webs, ecological pyramids, Nutrient cycling, Bio-geo chemical cycles, Terrestrial and Aquatic ecosystems.

**UNIT – III:**

**Biodiversity:** Genetic, species and ecosystem biodiversity, Bio-geographical classification of India, India as a Mega diversity nation. Values of biodiversity, hot-spots of biodiversity.

**UNIT – IV:**

**Environmental Pollution:** Cause, effects and control measures of air pollution, water pollution, marine pollution, soil pollution, noise pollution and Solid waste management, nuclear hazards

**UNIT – V:**

**Social issues and the environment:** Water conservation methods: Rain water harvesting and watershed management, Environmental ethics, Sustainable development and Climate change: Global warming, Ozone layer depletion, forest fires, and Contemporary issues.

**Text Books:**

1. Y. Anjaneyulu, "Introduction to Environmental Science", B S Publications, 2004.
2. Suresh K. Dhameja, "Environmental Studies", S. K. Kataria & Sons, 2009.

**Suggested Reading:**

1. C. S. Rao, "Environmental Pollution Control Engineering", Wiley, 1991.
2. S. S. Dara, "A Text Book of Environmental Chemistry & Pollution Control", S. Chand Limited, 2006.

**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY**  
**ENVIRONMENTAL IMPACT AND MONITORING - CBIT/20CEV01**  
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| 160118732063 | SIMRA JABEEN                |
| 160118732064 | SUREDDY MADHUMITHA          |
| 160118732065 | P REBECCA FLORENCE          |
| 160118732066 | MADUGULA SANKEERTHANA       |
| 160118732067 | ALJAPUR SHIVANI             |

## Department of Biotechnology

### 1.3 Curriculum Enrichment 2019-20

List of value added courses completed by BTech Biotechnology students during 2019-20

| S.No | Title of the course                                     | Code           |
|------|---------------------------------------------------------|----------------|
| 1    | Biomedical Nanotechnology                               | CBIT/19BTV007  |
| 2    | Dairy and Food process and products technology          | CBIT/19BT V002 |
| 3    | Introduction to Mechanobiology                          | CBIT/19BT V006 |
| 4    | Organic farming for sustainable Agricultural production | CBIT/19BT V005 |
| 5    | Thermal processing of foods                             | CBIT/19BT V003 |

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**TITLE OF THE VALUE-ADDED COURSE:**

**Biomedical Nanotechnology (CBIT/19BTV007)**

**No. of enrolled Participants- 3**

**Duration of the Course: 4 WEEKS**

**ACADEMIC YEAR:2019-20**

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| <b>Name of the value added courses (with 30 or more contact hours) offered</b> | <b>Course code(if any)</b> | <b>Year of offering</b> | <b>No. of times offered during the same year</b> | <b>Duration of course in Hours</b> | <b>Number of students enrolled in the year</b> | <b>Number of Students completing the course in the year</b> |
|--------------------------------------------------------------------------------|----------------------------|-------------------------|--------------------------------------------------|------------------------------------|------------------------------------------------|-------------------------------------------------------------|
| Biomedical Nanotechnology                                                      | CBIT/19BTV007              | 2020                    | 1                                                | 90hours                            | 3                                              | 3                                                           |

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## Syllabus

### Biomedical Nanotechnology

(CBIT/19BTV007)

**Course Duration: 4 Week**

**Credits : 1**

**Week 1:** Introduction to nano, Nano-biomimicry, Synthesis of nanomaterials by physical and chemical methods, Synthesis of nanomaterials by biological methods, Characterisation of nanomaterials.

**Week 2:** DNA nanotechnology, Protein & glyco nanotechnology, Lipid nanotechnology, Bio-nanomachines, Carbon nanotube and its bio-applications.

**Week 3:** Nanomaterials for cancer diagnosis, Nanomaterials for cancer therapy, Nanotechnology in tissue engineering, Nano artificial cells, Nanotechnology in organ printing.

**Week 4:** Nanotechnology in point-of-care diagnostics, Nano pharmacology & drug targeting, Cellular uptake mechanisms of nanomaterials, In vitro methods to study antibacterial and anticancer properties of nanomaterials, Nanotoxicology.

#### Books and references:

1. Malsch, N.H., "Biomedical Nanotechnology", CRC Press. (2005).
2. Mirkin, C.A. and Niemeyer, C.M., "Nanobiotechnology II: More Concepts and Applications", Wiley-VCH. (2007).
3. Kumar, C. S. S. R., Hormes, J. and Leuschner C., "Nanofabrication Towards Biomedical Applications: Techniques, Tools, Applications, and Impact", WILEY -VCH Verlag GmbH & Co. (2005).
4. Lamprecht, A., "Nanotherapeutics: Drug Delivery Concepts in Nanoscience", Pan Stanford Publishing Pte. Ltd. (2009).
5. Jain, K.K., "The Handbook of Nanomedicine", Humana press. (2008).

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### List of participants

| S.No | Name of the student      | Roll No      |
|------|--------------------------|--------------|
| 1    | Malishetty Vijay Bhargav | 160118805043 |
| 2    | S Deepak Mohan Reddy     | 160118805034 |
| 3    | A. Jahnvi                | 160118805010 |

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**TITLE OF THE VALUE-ADDED COURSE:**

**Dairy and Food Process and Products Technology**

(CBIT/19BT V002)

**No. of enrolled Participants- 5**

**Duration of the Course: 12 WEEKS**

**ACADEMIC YEAR:2019-20**

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| Name of the value-added courses (with 30 or more contact hours) offered | Course code(if any) | Year of offering | No. of times offered during the same year | Duration of course in Hours | Number of students enrolled in the year | Number of Students completing the course in the year |
|-------------------------------------------------------------------------|---------------------|------------------|-------------------------------------------|-----------------------------|-----------------------------------------|------------------------------------------------------|
| Dairy and Food process and products technology                          | CBIT/19BT V002      | 2020             | 1                                         | 12 WEEKS                    | 5                                       | 5                                                    |

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## Syllabus

### Dairy and Food process and productstechnology (CBIT/19BT V002)

**Course Duration: 12 Weeks**

**Credits : 3**

**Week 1:** Basic principles and methods of food processing and preservation. Emerging Technologies in food processing. Food additives and preservatives.

**Week 2 :** Food laws and standards. Effect of processing on acceptability and nutritive value of food.

**Week 3:** Physico-chemical properties and structure of milk and milk constituents.

**Week 4:** Chemical and microbial spoilage of milk and milk products; Fluid milk Processing, packaging and distribution.

**Week 5:** Common dairy processes – cream separation (standardization), pasteurization, sterilization and Homogenization.

**Week 6:** Process technology for manufacture of evaporated milk, condensed milk, dried milk, malted milk, infant and baby foods, ice-cream, cheese, butter, fermented milk and indigenous dairy products.

**Week 7 :** Methods and procedures for sampling and testing of milk and milk products. Laws and standards for milk and milk products.

**Week 8 :** Technological processes for industrially manufactured foods of commercial importance, from plant and animal origin.

**Week 9:** Cereals, vegetables, fruits, meats, poultry and egg products; Bakery, pasta and confectionary products, ready to eat foods, fermented foods, alcoholic and non- alcoholic Beverages, tea, coffee and cocoa, fabricated foods.

**Week 10** Packaging materials; Characteristics, properties and their design. Packaging requirement for Different processed and unprocessed foods.

**Week 11:** Working Principles of various type offillers: form-fill- seal machine.

**Week 12:** Gas packaging and modified atmosphere Package design. Shelf-life prediction of foods in packages. Quality control in Food packaging. Product safety and packaging regulations.

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**Books and references**

Nil

**List of participants**

| <b>S. No</b> | <b>Name of the student</b>  | <b>Roll No</b> |
|--------------|-----------------------------|----------------|
| <b>1</b>     | A Jahanavi                  | 160118805010   |
| <b>2</b>     | Krishna Priya V             | 160118805014   |
| <b>3</b>     | Sucheta Rajaraman           | 160118805026   |
| <b>4</b>     | Malishetty Vijay<br>Bhargav | 160118805043   |
| <b>5</b>     | Nalli Deepika               | 160118805005   |



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**TITLE OF THE VALUE-ADDED COURSE:**

**Introduction to Mechanobiology**

(CBIT/19BT V006)

**No. of enrolled Participants- 1**

**Duration of the Course: 8 WEEKS**

**ACADEMIC YEAR:2019-20**

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| Name of the value-added courses (with 30 or more contact hours) offered | Course code (if any) | Year of offering | No. of times offered during the same year | Duration of course in Hours | Number of students enrolled in the year | Number of Students completing the course in the year |
|-------------------------------------------------------------------------|----------------------|------------------|-------------------------------------------|-----------------------------|-----------------------------------------|------------------------------------------------------|
| Introduction to Mechanobiology                                          | CBIT/19BT V006       | 2020             | 1                                         | 8 WEEKS                     | 1                                       | 1                                                    |

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## Syllabus

### Introduction to Mechanobiology (CBIT/19BT V006)

**Course Duration: 8 Weeks**

**Credits : 3**

#### Week 1

- Lecture 1: Need to study Mechanobiology
- Lecture 2: Cell as a Tent, individual components
- Lecture 3: Cell-ECM crosstalk
- Lecture 4: ECM proteins: Collagen
- Lecture 5: Measuring properties of collagen networks

#### Week 2

- Lecture 6: Properties of collagen networks
- Lecture 7: Rheology
- Lecture 8: Rheology of biopolymer networks
- Lecture 9: Atomic Force Microscopy (AFM)
- Lecture 10: Design of protein constructs for AFM

#### Week 3

- Lecture 11: Protein unfolding using AFM
- Lecture 12: Protein unfolding using AFM
- Lecture 13: Focal adhesions: focal adhesion proteins
- Lecture 14: Focal adhesion organization
- Lecture 15: Focal adhesions: role of forces

#### Week 4

- Lecture 16: Cytoskeleton: Actin
- Lecture 17: Force-velocity relationships of actin networks
- Lecture 18: Mesenchymal cell migration
- Lecture 19: Actin dynamics during mesenchymal migration
- Lecture 20: Actin dynamics during mesenchymal migration

#### Week 5

- Lecture 21: Adhesion Independent Migration
- Lecture 22: Adhesion Independent & Collective Cell Migration
- Lecture 23: Collective Cell Migration
- Lecture 24: Mechanobiology of Stem Cell Fate - I
- Lecture 25: Mechanobiology of Stem Cell Fate - II

#### Week 6

- Lecture 26: Mechanobiology of Stem Cell Fate - III

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Lecture 27: Mechanobiology of Diseases: Cancer I  
Lecture 28: Mechanobiology of Diseases: Cancer II  
Lecture 29: Mechanobiology of Diseases: Cancer III  
Lecture 30: Mechanobiology of Diseases: Atherosclerosis & Hypertension

**Week 7**

Lecture 31: Mechanobiology of Diseases: Muscular Dystrophy  
Lecture 32: Nuclear Mechanotransduction: LINC complex  
Lecture 33: Nuclear Mechanotransduction: LINC complex in cell migration  
Lecture 34: Nuclear Mechanotransduction: Gene regulation  
Lecture 35: Mechanical Forces & DNA damage

**Week 8**

Lecture 36: Techniques in Mechanobiology: Hydrogels  
Lecture 37: Techniques in Mechanobiology: AFM  
Lecture 38: Techniques in Mechanobiology: Traction Force Microscopy, Trypson Deadhesion  
& Laser Ablation  
Lecture 39: Techniques in Mechanobiology: Microfabrication  
Lecture 40: Techniques in Mechanobiology: FRE

**Books and references:**

1. Introduction to Cell mechanics and Mechanobiology, Christopher. R. Jacobs (Garland Science)
2. Cellular and biomolecular mechanics and mechanobiology, Editors: Gefen, Amit (Springer)

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### List of participants

| S. No | Name of the student       | Roll No      |
|-------|---------------------------|--------------|
| 1     | Shamshabad<br>Vishwanutha | 160118805031 |

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**TITLE OF THE VALUE-ADDED COURSE:**

**Organic Farming for Sustainable Agricultural Production**

(CBIT/19BT V005)

**No. of enrolled Participants- 5**

**Duration of the Course: 8 WEEKS**

**ACADEMIC YEAR:2019-20**

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| <b>Name of the value-added courses (with 30 or more contact hours) offered</b> | <b>Course code (if any)</b> | <b>Year of offering</b> | <b>No. of times offered during the same year</b> | <b>Duration of course in Hours</b> | <b>Number of students enrolled in the year</b> | <b>Number of Students completing the course in the year</b> |
|--------------------------------------------------------------------------------|-----------------------------|-------------------------|--------------------------------------------------|------------------------------------|------------------------------------------------|-------------------------------------------------------------|
| Organic farming for sustainable Agricultural production                        | CBIT/19BT<br>V005           | 2020                    | 1                                                | <b>8 WEEKS</b>                     | 5                                              | 5                                                           |

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## Syllabus

### Organic farming for Sustainable Agricultural Production (CBIT/19BT V005)

**Course Duration: 8 Weeks**

**Credits : 2**

**Week 1:** Organic Farming: Concepts and principles of organic farming

**Week 2 :** Key indicators of sustainable agriculture, organic farming and climate change

**Week 3:** Input management; compost production, vermicomposting, Compost quality, Compost utilization and marketing

**Week 4 :** Organic crop management: field crops, horticulture and plantation crops

**Week 5 :** Plant protection measures, biopesticides, natural predators, cultural practice

**Week 6 :** Rotation design for organic system, Transition to organic agriculture, farming system

**Week 7 :** Quality analysis of organic foods, Antioxidants and their natural source, organic food and human health

**Week 8 :** Standards of organic food and marketing

**Books and references:** Nil

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### List of participants

| S. No | Name of the student | Roll No      |
|-------|---------------------|--------------|
| 1     | Krishna Priya V     | 160118805014 |
| 2     | Mohith Arikatla     | 160118805037 |
| 3     | Sucheta Rajaraman   | 160118805026 |
| 4     | A. Jahnavi          | 160118805010 |
| 5     | Nalli Deepika       | 160118805005 |

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**TITLE OF THE VALUE-ADDED COURSE:**

**Thermal Processing of Foods**

(CBIT/19BT V003)

**No. of enrolled Participants- 2**

**Duration of the Course: 12 WEEKS**

**ACADEMIC YEAR:2019-20**

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| Name of the value-added courses (with 30 or more contact hours) offered | Course code (if any) | Year of offering | No. of times offered during the same year | Duration of course in Hours | Number of students enrolled in the year | Number of Students completing the course in the year |
|-------------------------------------------------------------------------|----------------------|------------------|-------------------------------------------|-----------------------------|-----------------------------------------|------------------------------------------------------|
| Thermal processing of foods                                             | BIT/19BT V003        | 2020             | 1                                         | 12 WEEKS                    | 2                                       | 2                                                    |

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## Syllabus

### Thermal Processing of foods (CBIT/19BT V005)

**Course Duration: 12 Weeks**

**Credits: 3**

**Week 1** :Food microbiology: microbial growth and concerns in various foods, Blanching, Pasteurization, Ultra-pasteurization, Hot fill and UHT

**Week 2** :Thermal processing equipment, Milk pasteurization, Canning operations

**Week 3** :Temperature distribution and heat penetration, Kinetics of reactions, F value and process Requirements

**Week 4** :Quality considerations and process optimization, Shelf-life studies, Validation of heat Processes

**Week 5** :Fundamentals of aseptic processing, Aseptic equipment design, Aseptic process design

**Week 6** :Microwave and radio frequency heating, Ohmic heating, Overview of non-thermal processing technologies

**Week 7** :Advanced separation processes, High pressure, dialysis, ultrafiltration and reverse osmosis, Nanofiltration, electro dialysis and membrane separation

**Week 8** :Various types of heat exchangers for food process engineering, Various types of driers for food process engineering

**Week 9** : Importance and applications of extrusion technology in food processing, Changes of properties and functional components of extruded foods

**Week 10** : Food biosensors, Types of functional foods: Probiotics and nutraceuticals

**Week 11** : Packaging considerations: Barrier and mechanical properties of different food packaging materials, Bio composite/bio nanocomposite materials for food packaging applications

**Week 12** : Sanitary components and requirements, Regulatory considerations

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**Books and references:**

1. Chan, E. C. S., Pelczar, M. J., Jr. Krieg N. R. 2010. Microbiology. 5th edition. Tata McGraw Hill, Delhi.
1. 2. Banwart, G.J. 1989. Basic Food Microbiology. 2nd edition. Chapman & Hall, New York.
2. Meyer, L.H. 2004. Food Chemistry. 1st edition. CBS Publishers & Distributors, Delhi.
3. McCabe, W. L., Smith J., Harriot P. 2014. Unit Operations of Chemical Engineering. 7th edition. McGraw - Hill, International.
4. Nelson, P.E. (Editor). 2010. Principles of Aseptic Processing and Packaging. 3rd edition. Purdue university press.
5. Sun, D. (Editor). 2005. Emerging Technologies for Food Processing. Elsevier Academic Press.
6. Metaxas, A.C., Meredith, R.J. 1993. Industrial Microwave Heating. Peter Pergrinus Ltd., London.
7. Soroka, W. 1999. Fundamentals of Packaging Technology. Institute of Packaging Professionals.
8. Curtis, P.A. 2005. Guide to food laws regulations. Blackwell Publishing.

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### List of participants

| S. No | Name of the student  | Roll No      |
|-------|----------------------|--------------|
| 1     | Mohith Arikatla      | 160118805037 |
| 2     | S Deepak Mohan Reddy | 160118805034 |

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### 1.3 Curriculum Enrichment 2019-20

#### List of value added courses completed by B.E (IT) students during 2019-20

| Name of the value added courses offered                            | Code          |
|--------------------------------------------------------------------|---------------|
| Programming with python                                            | CBIT/19ITV002 |
| Artificial Intelligence                                            | CBIT/19ITV003 |
| Big data                                                           | CBIT/19ITV004 |
| Ethical Hacking and cyber security                                 | CBIT/19ITV005 |
| Design and Analysis of Algorithms                                  | CBIT/19ITV006 |
| Machine learning                                                   | CBIT/19ITV007 |
| Web development                                                    | CBIT/19ITV008 |
| Programming for Everybody (Getting Started with Python)            | CBIT/19ITV009 |
| Technical Support Fundamentals                                     | CBIT/19ITV010 |
| AWS Fundamentals: Addressing Security Risks                        | CBIT/19ITV011 |
| AWS: Building Serverless Applications                              | CBIT/19ITV012 |
| AWS Fundamentals:Migrating to the cloud                            | CBIT/19ITV013 |
| AWS: Going Cloud Native                                            | CBIT/19ITV014 |
| Block Chain                                                        | CBIT/19ITV015 |
| SQL Fundamentals course                                            | CBIT/19ITV016 |
| Java tutorial course                                               | CBIT/19ITV017 |
| Python 3 tutorial course                                           | CBIT/19ITV018 |
| Cloud computing basics                                             | CBIT/19ITV019 |
| Core java                                                          | CBIT/19ITV020 |
| Google Analytics for beginners                                     | CBIT/19ITV021 |
| AI for everyone                                                    | CBIT/19ITV022 |
| Introduction to HTML5                                              | CBIT/19ITV023 |
| Interactivity with javascript                                      | CBIT/19ITV024 |
| Python Data Structures                                             | CBIT/19ITV025 |
| Capstone: Retrieving, Processing, and Visualizing Data with Python | CBIT/19ITV026 |
| C for everyone:Programming Fundamentals                            | CBIT/19ITV027 |
| Build Your First Android App                                       | CBIT/19ITV028 |
| Using python access the web data                                   | CBIT/19ITV029 |
| Using databases with python                                        | CBIT/19ITV030 |
| Carrer Edge-knockdown the lockdown                                 | CBIT/19ITV031 |
| Artificial Intelligence, Machine learning & Internet of Things     | CBIT/19ITV032 |
| Introduction to Data Science in Python                             | CBIT/19ITV033 |

  
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| <b>Name of the value added courses offered</b>      | <b>Code</b>   |
|-----------------------------------------------------|---------------|
| Machine learning for all                            | CBIT/19ITV034 |
| Operating systems and you                           | CBIT/19ITV035 |
| Fundamentals of Visualization with Tableau          | CBIT/19ITV036 |
| Introduction to Search Engine Optimization          | CBIT/19ITV037 |
| Crash course on python                              | CBIT/19ITV038 |
| Use wordpress to create a blog for business         | CBIT/19ITV039 |
| Python basics                                       | CBIT/19ITV040 |
| Introduction to CSS3                                | CBIT/19ITV041 |
| Python 3 programming                                | CBIT/19ITV042 |
| Introduction to Software Product Management         | CBIT/19ITV043 |
| Excel skills for business:essentials                | CBIT/19ITV044 |
| Finance for Non Financial Professionals             | CBIT/19ITV045 |
| Introduction to Cybersecurity Tools & Cyber Attacks | CBIT/19ITV046 |
| COSC                                                | CBIT/19ITV047 |
| Full Stack Development                              | CBIT/19ITV048 |
| Java and python                                     | CBIT/19ITV049 |
| TensorFlow In Practice                              | CBIT/19ITV050 |
| Advanced Styling with Responsive Design             | CBIT/19ITV051 |

  
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## SUMMARY REPORT OF VALUE-ADDED COURSES – 2019-20

### **Course 1: Programming with Python**

**Code:** CBIT/19ITV001

**Duration:** 30 Hours (July 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1.  | Jyothi Swaroopa Jinka               | <b>04</b>                                    |
| 2.  | Misbah Uddin                        |                                              |
| 3.  | Usha Goud                           |                                              |
| 4.  | ALLA BINDHU SREE REDDY              |                                              |

### **Syllabus**

Week 1: Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.

Week 2: Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming.

Week 3: Introduction to Python: Structure of a Python Program, Elements of Python, Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings and Operators.

Week 4: Conditional Statements and Looping: Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.

Week 5: String Manipulation: Understanding string, Accessing Strings, Basic Operations, String slices, Function and Methods.

Week 6: List: Introduction to list, Accessing list, list operations, Working with lists, Function and Methods.

Week 7: Tuples: Introduction to tuple, Accessing tuples, Operations, Working, Functions and Methods.

Week 8: Dictionary: Introduction to dictionaries, Accessing values in dictionaries, Working with dictionaries, Properties, Functions.

Week 9: Python Functions: Defining a function, Calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables, Organizing python codes using functions.

Week 10: Python Modules: Organizing python projects into modules, Importing own module as well as external modules, Understanding Packages, modules and external packages.

Week 11: Input-Output: Printing on screen , Reading data from keyboard , Opening and closing file , Reading and writing files , Functions.

  
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Week 12: Exception Handling: Introduction to Exception, Exception Handling, Except clause, Try ? finally clause, User Defined Exceptions.

### Text Books & References

1. A. B. Downey, Think Python, 2e: How to Think Like a Computer Scientist, O'Reilly, 2015.
2. Z. Shaw, LEARN PYTHON 3 THE HARD WAY, Addison-Wesley, 2017.
3. Arockia Mary P, Problem Solving and Python Programming, Shanlax Publications, 2021.
4. C. Morris, "<https://www.kaggle.com/learn/python>," [Online].
5. "<https://docs.python.org/3/tutorial/index.html>," [Online].

### Course 2: Artificial Intelligence

Code: CBIT/19ITV002

Duration: 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Ms. Manavi Reddy Vemula             | 03                                           |
| 2   | Dineesha                            |                                              |
| 3   | MOHAMMED MUMTAZ AHMED ALI           |                                              |

### Syllabus

Week 1: Introduction to financial markets: Risk-Return Analysis in Investment Decisions – Measures of Risk and Return, understanding value of a firm, goals of a firm, cash flow discounting, making investment decisions, valuation of fixed income securities and common stocks, introduction to portfolio theory and asset pricing models, cost of capital.

Week 2: Overview of AI and machine learning models: Probability modelling, inferential statistics, Supervised and Unsupervised learning algorithms, regression and classification algorithms.

Week 3: Introduction to R Programming, R Fundamentals, Exploratory data analysis and data visualization with R. Statistical Analysis with R, Inferential statistics and hypothesis testing with R.

Week 4: Market Microstructure and Liquidity: Order-driven vs. Quote-driven markets, Market efficiency, Risk preferences, Limit order books, market microstructure types, economic theory of choice, interest rate compounding

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Week 5: Portfolio construction: Portfolio risk and expected returns for two securities and multiple securities, risk diversification with portfolios, correlation structure, mean-variance framework, portfolio construction with R

Week 6: Portfolio Optimization: Portfolio Possibility curve, Efficient frontier, Minimum Variance portfolios, Introduction to risk-free lending and borrowing, market risk and beta, portfolio optimization with R

Week 7: Asset Pricing Models: Capital Asset Pricing Model (CAPM), Capital Market Line, Security Market Line, Fallings of CAPM, Single-Index and Multi-Index models, Expected Risk and Return with Index models, 3-Factor Fama-French Model

Week 8: Portfolio Management and Performance Evaluation: Portfolio Management strategies, Active vs Passive Portfolio Management, Value vs Growth investing, One-parameter performance measures Timing & Selection performance measures, application of asset pricing models in performance management

Week 9: Introduction to Algorithmic Trading: Technical analysis and trend determination, Dow Theory, Moving averages, Momentum indicators, Classical price patterns.

Week 10: AI and machine learning in Trading execution and portfolio management: Regression and Classification algorithm applications in security analysis, forecasting, and prediction, Case Study examples

Week 11: Advanced time-series regression algorithms: Panel regression quantile regression, ARMA/ARIMA models, Mean reverting trading strategies with vector error correction models and cointegration, model risk management, back testing, model validation, and stress testing with R



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Week 12: Advanced time-series algorithms for financial risk-management: Value-at-risk, Expected Shortfall, ARCH/GARCH models, implementation with R

**Books and references**

1. Machine Learning in Finance by M. Dixon, I Halperin, and P. Bilokon, Springer, 1st Edition
2. Advances in Financial Machine Learning, Marcos Lopez, Wiley, 1st Edition
3. Machine Learning for Asset Managers, Marcos Lopez, Cambridge University Press, 1st Edition
4. Machine Learning for Algorithmic Trading, Stefan Jansen, 2nd Edition, Packt
5. Elton & Gruber, "Modern Portfolio Theory", Wiley, 9th Edition
6. Reilly, Frank,K., "Investment Analysis and Portfolio Management," 5th Edition, Dryden.

**Course 3: Big data**

**Code:** CBIT/19ITV003

**Duration:** 30 Hours

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   |                                     | 01                                           |

**Syllabus**

WEEK 1

Welcome to the Big Data Specialization! We're excited for you to get to know us and we're looking forward to learning about you!

Big Data: Why and Where

Data -- it's been around (even digitally) for a while. What makes data "big" and where does this big data come from?

WEEK 2

Characteristics of Big Data and Dimensions of Scalability

You may have heard of the "Big Vs". We'll give examples and descriptions of the commonly discussed 5. But, we want to propose a 6th V and we'll ask you to practice writing Big Data questions targeting this V -- value.

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## Data Science: Getting Value out of Big Data

We love science and we love computing, don't get us wrong. But the reality is we care about Big Data because it can bring value to our companies, our lives, and the world. In this module we'll introduce a 5 step process for approaching data science problems.

### WEEK 3

#### Foundations for Big Data Systems and Programming

Big Data requires new programming frameworks and systems. For this course, we don't programming knowledge or experience -- but we do want to give you a grounding in some of the key concepts.

#### Systems: Getting Started with Hadoop

Let's look at some details of Hadoop and MapReduce. Then we'll go "hands on" and actually perform a simple MapReduce task in the Cloudera VM. Pay attention - as we'll guide you in "learning by doing" in diagramming a MapReduce task as a Peer Review.

### Course 4: Ethical Hacking and cyber security

Code: CBIT/19ITV004

Duration: 1 Week (Aug 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Syed Danish Hussaini                | 01                                           |

#### Syllabus

Week 1: Introduction to ethical hacking. Fundamentals of computer networking. TCP/IP protocol stack.


Week 2: IP addressing and routing. TCP and UDP. IP subnets.

Week 3: Routing protocols. IP version 6.

Week-4: Installation of attacker and victim system. Information gathering using advanced google search, archive.org, netcraft, whois, host, dig, dnsenum and NMAP tool.

Week-5: Vulnerability scanning using NMAP and Nessus. Creating a secure hacking environment.

System Hacking: password cracking, privilege escalation, application execution. Malware and

  
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Virus. ARP spoofing and MAC attack.

Week 6: Introduction to cryptography, private-key encryption, public-key encryption.

Week 7: Cryptographic hash functions, digital signature and certificate, applications.

Week 8: Steganography, biometric authentication, network-based attacks, DNS and Email security.

Week-9: Packet sniffing using wireshark and burpsuite, password attack using burp suite. Social engineering attacks and Denial of service attacks.

Week 10: Elements of hardware security: side-channel attacks, physical inclinable functions, hardware trojans.

Week-11: Different types of attacks using Metasploit framework: password cracking, privilege escalation, remote code execution, etc. Attack on web servers: password attack, SQL injection, cross site scripting.

Week 12: Case studies: various attacks scenarios and their remedies.

### **Books and references**

1. Data and Computer Communications -- W. Stallings.
2. Data Communication and Networking -- B. A. Forouzan
3. TCP/IP Protocol Suite -- B. A. Forouzan
4. UNIX Network Programming -- W. R. Stallings
5. Introduction to Computer Networks and Cybersecurity -- C-H. Wu and J. D. Irwin
6. Cryptography and Network Security: Principles and Practice -- W. Stallings
7. \*\* Various web resources \*\*



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## Course5: Design and Analysis of Algorithms

Code: CBIT/19ITV005

Duration: 30 Hours

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   |                                     | 01                                           |

### Syllabus

#### Week 1

Module 1: Introduction

Module 2: Examples and motivation

Module 3: Examples and motivation

Module 4: Asymptotic complexity: informal concepts

Module 5: Asymptotic complexity: formal notation

Module 6: Asymptotic complexity: examples

Assignments MCQ/Fill in blanks (unique answer)

#### Week 2

Module 1: Searching in list: binary search

Module 2: Sorting: insertion sort

Module 3: Sorting: selection sort

Module 4: Sorting: merge sort

Module 5: Sorting: quicksort

Module 6: Sorting: stability and other issues

Assignments MCQ/Fill in blanks, programming assignment

#### Week 3

Module 1: Graphs: Motivation

Module 2: Graph exploration: BFS

Module 3: Graph exploration: DFS

Module 4: DFS numbering and applications

Module 5: Directed acyclic graphs

Module 6: Directed acyclic graphs

Assignments MCQ/Fill in blanks, programming assignment

#### Week 4

Module 1: Shortest paths: unweighted and weighted

Module 2: Single source shortest paths: Dijkstra

Module 3: Single source shortest paths: Dijkstra

Module 4: Minimum cost spanning trees: Prim's algorithm

Module 5: Minimum cost spanning trees: Kruskal's Algorithm

Module 6: Union-Find data structure

Assignments MCQ/Fill in blanks, programming assignment

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Week 5

Module 1: Divide and conquer: counting inversions

Module 2: Divide and conquer: nearest pair of points

Module 3: Priority queues, heaps

Module 4: Priority queues, heaps

Module 5: Dijkstra/Prims revisited using heaps

Module 6: Search Trees: Introduction

Assignments MCQ/Fill in blanks, programming assignment

Week 6

Module 1: Search Trees: Traversals, insertions, deletions

Module 2: Search Trees: Balancing

Module 3: Greedy : Interval scheduling

Module 4: Greedy : Proof strategies

Module 5: Greedy : Huffman coding

Module 6: Dynamic Programming: weighted interval scheduling

Assignments MCQ/Fill in blanks, programming assignment

Week 7

Module 1: Dynamic Programming: memoization

Module 2: Dynamic Programming: edit distance

Module 3: Dynamic Programming: longest ascending subsequence

Module 4: Dynamic Programming: matrix multiplication

Module 5: Dynamic Programming: shortest paths: Bellman Ford

Module 6: Dynamic Programming: shortest paths: Floyd Warshall

Assignments MCQ/Fill in blanks, programming assignment

Week 8

Module 1: Intractability: NP completeness

Module 2: Intractability: reductions

Module 3: Intractability: examples

Module 4: Intractability: more examples

Module 5: Misc topics

Module 6: Misc topics

Assignments MCQ/Fill in blanks



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## Course 6: Machine learning

Code: CBIT/19ITV006

Duration: 30 Hours (Sep 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Suhaas Doddapaneni                  | 05                                           |
| 2   | Kothapalli Sri Yagna                |                                              |
| 3   | Dineesha                            |                                              |
| 4   | MOHAMMED MUMTAZ AHMED ALI           |                                              |
| 5   | NEELKANTH POOSA                     |                                              |

### Syllabus

Week 0: Probability Theory, Linear Algebra, Convex Optimization - (Recap)

Week 1: Introduction: Statistical Decision Theory - Regression, Classification, Bias Variance

Week 2: Linear Regression, Multivariate Regression, Subset Selection, Shrinkage Methods, Principal Component Regression, Partial Least squares

Week 3: Linear Classification, Logistic Regression, Linear Discriminant Analysis

Week 4: Perceptron, Support Vector Machines

Week 5: Neural Networks - Introduction, Early Models, Perceptron Learning, Backpropagation, Initialization, Training & Validation, Parameter Estimation - MLE, MAP, Bayesian Estimation

Week 6: Decision Trees, Regression Trees, Stopping Criterion & Pruning loss functions, Categorical Attributes, Multiway Splits, Missing Values, Decision Trees - Instability Evaluation Measures

Week 7: Bootstrapping & Cross Validation, Class Evaluation Measures, ROC curve, MDL, Ensemble Methods - Bagging, Committee Machines and Stacking, Boosting

Week 8: Gradient Boosting, Random Forests, Multi-class Classification, Naive Bayes, Bayesian Networks

Week 9: Undirected Graphical Models, HMM, Variable Elimination, Belief Propagation

Week 10: Partitional Clustering, Hierarchical Clustering, Birch Algorithm, CURE Algorithm, Density-based Clustering

Week 11: Gaussian Mixture Models, Expectation Maximization

Week 12: Learning Theory, Introduction to Reinforcement Learning, Optional videos (RL framework, TD learning, Solution Methods, Applications)

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## Books and references

1. The Elements of Statistical Learning, by Trevor Hastie, Robert Tibshirani, Jerome H. Friedman (freely available online)
2. Pattern Recognition and Machine Learning, by Christopher Bishop (optional)

## Course7: Web development

Code: CBIT/19ITV007

Duration: 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Manavi Reddy Vemula                 | 04                                           |
| 2   | srija chitikesi                     |                                              |
| 3   | ALLA BINDHU SREE REDDY              |                                              |
| 4   | Pabba Varshith                      |                                              |

## Syllabus

### WEEK 1

#### Course Overview and Website Structure and Hosting

This first module provides an overview of how websites function, their structure, and the ins and outs of choosing a website name and selecting an online host to house your website. By the end of this module, you'll be able to: find and select a web hosting company; choose an effective domain name; use the host to manage your websites; and discuss how networks and the internet function at a high level.

#### Designing Your Own Website: HTML Basics

In this module, we'll begin to explore how to design and create websites by exploring the base language used to power all websites: HTML. By the end of this lesson, you'll be able to: identify and use common HTML tags; add an image to a webpage; create HTML-formatted tables; use hyperlinks to connect a series of webpages; upload your finished HTML pages to a web host; and, learn some tips and tricks for styling pages and practicing your coding.

#### Introduction to Programming Using JavaScript



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Now that you know some basic HTML, it's time to turn our attention to another common scripting language used to make websites dynamic - that is allowing users to interact with your webpages - JavaScript. While learning about JavaScript, you'll also gain some foundational knowledge common to all programming languages. By the end of this module, you'll be able to: discuss what is meant by dynamic content; perform essential programming language tasks; create simple JavaScript programs; use JavaScript to set up alerts and respond to events, to read input, and to change HTML; and conduct basic JavaScript testing.

### Websites with Style: CSS Properties, Colors and Fonts

While HTML and JavaScript are very useful for web development, they don't exactly make websites look attractive - that's where cascading style sheets, or CSS, comes into play. While HTML is used to build the structure of our pages and JavaScript is used to provide interactive functionality, CSS is used to graphically design and layout webpages. By the end of this module, you'll be able to: discuss common mistakes in designing a website; identify and apply CSS basics like purpose and syntax; use CSS properties to control fonts, colors, layouts, and other common properties; differentiate between in-line, internal, and external CSS; and practice and test your cascading style sheets.

### Course8: Programming for Everybody (Getting Started with Python)

Code: CBIT/19ITV008

Duration: 30 Hours (Jun 2020)

| SNO | Registered & completed student Name     | Total no. of students registered & completed |
|-----|-----------------------------------------|----------------------------------------------|
| 1   | Bandaru Anusha                          | 15                                           |
| 2   | vamshikrishna Aitha                     |                                              |
| 3   | MANAVI REDDY VEMULA                     |                                              |
| 4   | Ritika Yarlagadda                       |                                              |
| 5   | Harsha Vardhan Bashavathini             |                                              |
| 6   | Poornima Siddineni                      |                                              |
| 7   | Mohammed Mumtaz Ahmed Ali               |                                              |
| 8   | BHUKYA AKHILA                           |                                              |
| 9   | srija chitikesi                         |                                              |
| 10  | Chidura Sai Sirichandana                |                                              |
| 11  | Kothapalli Sri Yagna                    |                                              |
| 12  | Madhika Dosapati                        |                                              |
| 13  | Swetha Singireddy                       |                                              |
| 14  | Tirumalaraju Venkata Dharma Nivas Varma |                                              |
| 15  | Ishika Gupta<br>Programming             |                                              |

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## Syllabus

### Chapter One - Why we Program?

These are the course-wide materials as well as the first part of Chapter One where we explore what it means to write programs. We finish Chapter One and have the quiz and first assignment in the third week of the class. Throughout the course you may want to come back and look at these materials. This section should not take you an entire week.

### Installing and Using Python

In this module you will set things up so you can write Python programs. Not all activities in this module are required for this class so please read the "Using Python in this Class" material for details.

### Chapter One: Why We Program (continued)

In the first chapter we try to cover the "big picture" of programming so you get a "table of contents" of the rest of the book. Don't worry if not everything makes perfect sense the first time you hear it. This chapter is quite broad and you would benefit from reading the chapter in the book in addition to watching the lectures to help it all sink in. You might want to come back and re-watch these lectures after you have finished a few more chapters.

### Chapter Two: Variables and Expressions

In this chapter we cover how a program uses the computer's memory to store, retrieve and calculate information.

## Course9: Technical Support Fundamentals

Code: CBIT/19ITV009

Duration: 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | MANAVI REDDY VEMULA                 | 02                                           |
| 2   | MAMIDI SAI BHARGAVI                 |                                              |

## Syllabus



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## WEEK 1

### Introduction to IT

Welcome to Technical Support Fundamentals, the first course of the IT Support Professional Certificate! By enrolling in this course, you are taking the first step to kickstarting your career in tech. In the first week of the course, we'll learn about how computers were invented, how they've evolved over time, and how they work today. We will also learn about what an "IT Support Specialist" is and what they do in their job. By the end of this module, you will know how to count like a computer using binary and understand why these calculations are so powerful for society. So let's get started!

## WEEK 2

### Hardware

In the second week of this course, we'll learn about what's inside a computer. We'll learn all about the hardware components or different pieces inside a computer. We'll discover what each component does and how they work together to make a computer function. By the end of this module, you will also know how to build a computer from scratch!

## WEEK 3

### Operating System

In the third week of the course we will become familiar with operating systems. We discuss the operating systems that are most widely used today and learn how an operating system interacts with computer hardware. We will learn about the startup process of an operating system and show you how to install the Windows, Linux and Mac OS X operating systems from scratch. At the end of this module you will interact directly with the Windows and Linux operating systems via the Qwiklabs environment.

## WEEK 4

### Networking

In the fourth week of this course, we'll learn about computer networking. We'll explore the history of the Internet and what "The Web" actually is. We'll also discuss topics like Internet privacy, security, and what the future of the Internet may look like. You'll also understand why the Internet has limitations even today. By the end of this module, you will know how the Internet works and recognize both the positive and negative impacts the Internet has had on the world.

## Course10: AWS Fundamentals: Addressing Security Risks

Code: CBIT/19ITV010

Duration: 30 Hours (Apr 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | NEELKANTH POOSA                     | 01                                           |

### Syllabus

Week - 1

1. Introduction to Cyber Space
2. Introduction to Information Systems
3. Need for Cyber Security

Week - 2

4. Introduction to Cyber Attacks
5. Classification of Cyber Attacks
6. Classification of Malware, Threats

Week - 3

7. Vulnerability Assessment
8. Intrusion Detection Systems
9. Intrusion Prevention Systems

Week - 4

10. Introduction to User Authentication Methods
11. Biometric Authentication Methods
12. Biometric Systems

Week - 5

13. Different Security Models and Security Mechanisms
14. Information Security and Network Security
15. Operating System Security

Week - 6

16. Web Security
17. Email Security
18. Mobile Device Security, Cloud Security

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Week - 7

- 19. IoT Security
- 20. Cyber Physical System Security
- 21. Social Media Security

Week - 8

- 22. Virtual Currency
- 23. Block Chain Technology
- 24. Security Auditing

Week - 9

- 25. Cyber Crimes
- 26. Different Types of Cyber Crimes, Scams and Frauds

Week - 10

- 27. Analysis of Crimes, Human Behavior
- 28. Stylometry, Incident Handling

Week - 11

- 29. Investigation Methods
- 30. Criminal Profiling, Cyber Trails

Week - 12

- 31. Digital Forensics, History, Challenges
- 32. Branches of Digital Forensics

Week - 13

- 33. Digital Forensic Investigation Methods
- 34. Reporting, Management of Evidence

Week - 14

- 35. Cyber Law-Basics
- 36. Information Technology Act 2000
- 37. Amendments to IT Act 2000



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Week - 15

38. Evidentiary value of Email/SMS, Cybercrimes and Offenses dealt with IPC

39. RBI Act and IPR Act in India

40. Jurisdiction of Cyber Crime, Cyber Security Awareness Tips

### Books and references

1. [https://heimdalsecurity.com/pdf/cyber\\_security\\_for\\_beginners\\_ebook.pdf](https://heimdalsecurity.com/pdf/cyber_security_for_beginners_ebook.pdf)

2. <http://larose.staff.ub.ac.id/files/2011/12/Cyber-Criminology-Exploring-Internet-Crimes-and-Criminal-Behavior.pdf>

3. <http://docshare04.docshare.tips/files/21900/219006870.pdf>

4. <http://index-of.co.uk/Hacking-Coleccion/Insider%20Attack%20&%20Cyber%20Security%20-%20Beyond%20the%20Hacker.pdf>

5. <http://www.uou.ac.in/sites/default/files/slm/FCS.pdf>

6. [https://cyber-cops.com/book\\_detail](https://cyber-cops.com/book_detail)

### Course 11: AWS: Building Serverless Applications

Code: CBIT/19ITV011

Duration: 30 Hours (Apr 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | NEELKANTH POOSA                     | 01                                           |

### Syllabus

Module 0: Introduction □ Introduction to the application you will build □ Access to course resources (Student Guide, Lab Guide, and Online Course Supplement)

Module 1: Thinking Serverless □ Best practices for building modern serverless applications □ Event-driven design □ AWS services that support event-driven serverless applications  
Module 2: API-Driven Development and Synchronous Event Sources □ Characteristics of standard request/response API-based web applications □ How Amazon API Gateway fits into serverless applications □ Try-it-out exercise: Set up an HTTP API endpoint integrated with a Lambda function □ High-level comparison of API types (REST/HTTP, WebSocket, GraphQL)

Module 3: Introduction to Authentication, Authorization, and Access Control □ Authentication vs. Authorization □ Options for authenticating to APIs using API

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Gateway □ Amazon Cognito in serverless applications □ Amazon Cognito user pools vs. federated identities

Module 4: Serverless Deployment Frameworks □ Overview of imperative vs. declarative programming for infrastructure as code □ Comparison of CloudFormation, AWS CDK, Amplify, and AWS SAM frameworks □ Features of AWS SAM and the AWS SAM CLI for local emulation and testing

Module 5: Using Amazon EventBridge and Amazon SNS to Decouple Components □ Development considerations when using asynchronous event sources □ Features and use cases of Amazon EventBridge □ Try-it-out exercise: Build a custom EventBridge bus and rule □ Comparison of use cases for Amazon Simple Notification Service (Amazon SNS) vs. EventBridge □ Try-it-out exercise: Configure an Amazon SNS topic with filtering

Module 6: Event-Driven Development Using Queues and Streams □ Development considerations when using polling event sources to trigger Lambda functions □ Distinctions between queues and streams as event sources for Lambda □ Selecting appropriate configurations when using Amazon Simple Queue Service (Amazon SQS) or Amazon Kinesis Data Streams as an event source for Lambda □ Try-it-out exercise: Configure an Amazon SQS queue with a dead-letter queue as a Lambda event source Hands-On Labs □

Hands-On Lab 1: Deploying a Simple Serverless Application □ Hands-On Lab 2: Message Fan-Out with Amazon EventBridge

Day 2

Module 7: Writing Good Lambda Functions □ How the Lambda lifecycle influences your function code □ Best practices for your Lambda functions □ Configuring a function □ Function code, versions and aliases □ Try-it-out exercise: Configure and test a Lambda function □ Lambda error handling □ Handling partial failures with queues and streams

Module 8: Step Functions for Orchestration □ AWS Step Functions in serverless architectures □ Try-it-out exercise: Step Functions states □ The callback pattern □ Standard vs. Express Workflows □ Step Functions direct integrations □ Try-it-out exercise: Troubleshooting a Standard Step Functions workflow

Module 9: Observability and Monitoring □ The three pillars of observability □ Amazon CloudWatch Logs and Logs Insights □ Writing effective log files □ Try-it-out exercise: Interpreting logs □ Using AWS X-Ray for observability □ Try-it-out exercise: Enable X-Ray and interpret X-Ray traces □ CloudWatch metrics and embedded metrics format □ Try-it-out exercise: Metrics and alarms

□ Try-it-out exercise: ServiceLens Hands-On Labs □ Hands-On Lab 3: Workflow Orchestration Using AWS Step Functions □

Hands-On Lab 4: Observability and Monitoring

Day 3

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Module 10: Serverless Application Security □ Security best practices for serverless applications □ Applying security at all layers □ API Gateway and application security □ Lambda and application security □ Protecting data in your serverless data stores □ Auditing and traceability

Module 11: Handling Scale in Serverless Applications □ Scaling considerations for serverless applications □ Using API Gateway to manage scale □ Lambda concurrency scaling □ How different event sources scale with Lambda

Module 12: Automating the Deployment Pipeline □ The importance of CI/CD in serverless applications □ Tools in a serverless pipeline □ AWS SAM features for serverless deployments □ Best practices for automation □ Course wrap-up Hands-On Labs □ Hands-On Lab 5: Securing Serverless Applications □ Hands-On Lab 6: Serverless CI/CD on AWS

### **Course12: AWS Fundamentals:Migrating to the cloud**

**Code:** CBIT/19ITV012

**Duration:** 30 Hours (Apr 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | NEELKANTH POOSA                                | <b>01</b>                                               |

### **Syllabus**

#### **Week 1**

Week 1 of this course introduces the concept of migration and some background material, and we also discuss the format that the rest of the course will follow. You learn about why migration is an important topic, different migration types, and the three-phase migration structure. You also learn about some tools that can help you with learn more about migrations and how to plan them (such as AWS Prescriptive Guidance).

#### **Week 2**

Week 2 dives into the assess phase of the migration structure. This week focuses on understanding and evaluating your current infrastructure. Tools such as AWS Migration Evaluator and AWS Migration Hub are crucial to this step of your migration, and discussions with your organization about your business needs for migrating are also critical. Additionally, you should take the time to learn about how your utilization in your on-premises environment translates to AWS services and tools.

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### Week 3

Week 3 focuses on the mobilize phase of the migration. This week, you learn about the methods and tools that are useful for building a refined migration plan. We discuss getting your team and applications ready for migration, look at services like AWS Application Discovery Service, and cover how the AWS Partner Network (APN) can help you establish your migration plan. To close this section, you learn about AWS Management and Governance, AWS Control Tower, and AWS Landing Zone—tools that can help you prepare for the actual work of migrating applications while also prioritizing security and dependability.

### Week 4

In the final week of this course, you focus on the migrate and modernize phase of the migration structure. During week 4, you learn about migrating specific types of components and the services that assist with their migration: AWS Application Migration Service, AWS Database Migration Service, AWS DataSync, AWS Storage Gateway, and the AWS Snow Family. This week closes with some additional resources so that you can continue your self-paced study with AWS.

### Course13: AWS: Going Cloud Native

**Code:** CBIT/19ITV013

**Duration:** 30 Hours (Apr 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | NEELKANTH POOSA                     | 01                                           |

### Course14: Block Chain

**Code:** CBIT/19ITV014

**Duration:** 30 Hours (Jan 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | NEELKANTH POOSA                     | 01                                           |



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## Syllabus

### MODULE 1:

Introduction  
Introduction: Overview of Block chain, History of Blockchain, Peer to Peer Network, Smart Contract, Wallet , Digital Currency, Ledgers, Types of Blockchain Platfrom .

### MODULE 2:

Consensus Mechanism

Permissioned Blockchain, Permissionless Blockchain , Different Consensus Mechanism- Proof of Work, Proof of Stake, Proof of Activity, Proof of Burn, Proof of Elapsed Time, Proof of Authority, Proof of Importance.

### MODULE 3:

Crypto currency and Wallet

Types of Wallet, Desktop Wallet, App based Wallet, Browser based wallet, Metamask, Creating a account in Metamask, Use of faucet to fund wallet, transfer of cryptocurrency in metamask.

### MODULE 4:

Smart contract and Ethereum

Overview of Ethereum, Writing Smart Contract in Solidity, Remix IDE , Different networks of ethereum, understanding blocks practically at blockhchain.com, how to compile and deploy smart contract in remix.

### MODULE 5:

Understanding Hyperledger Fabric

Overview of Open source Hyperledger project, Hyperledger Fabric- Architecture, Identities and Policies, Membership and Access Control, Channels, Transaction Validation, Writing smart contract using Hyperledger Fabric.

### MODULE 6:

Use Cases



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Enterprise application of Block chain: Cross border payments, Know Your Customer (KYC), Food Security, Block chain enabled Trade, We Trade – Trade Finance Network, Supply Chain Financing, Identity on Block chain, Blockchain in energy sector, Blockchain in governance

### Books and references

- 1) Blockchain: Blueprint for a New Economy by Melanie Swan
- 2) Mastering Blockchain: Deeper insights into decentralization, cryptography, Bitcoin, and popular Blockchain frameworks by Imran Bashier
- 3) Mastering Ethereum: Building Smart Contracts and DApps by Andrews

### Course15: SQL Fundamentals course

**Code:** CBIT/19ITV015

**Duration:** 30 Hours (May 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Poornima siddineni                  | 01                                           |

### Course16: Java tutorial course

**Code:** CBIT/19ITV016

**Duration:** 30 Hours (Apr 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Poornima siddineni                  | 01                                           |



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## Syllabus

### Introduction to Java

Java is a free and open source high level programming language. It is simple as well as object oriented language. Till date, the Java platform has attracted more than 6.5 million software developers. Java Platform, Standard Edition (Java SE) lets you develop and deploy Java applications on desktops and servers, as well as today's demanding Embedded and Real-Time environments.

From laptops to mobile phones, game consoles to scientific supercomputers, music players to the Internet, Set-top boxes to printers, web-cams to medical devices - that is a huge list, Java is everywhere!!!!

This set of tutorials will cover features and usage of Java version 1.6.x Please see the associated text box of individual spoken tutorials on the website to decide the versions of Java and OS to which it is applicable.

The Spoken Tutorial effort for Java is contributed jointly by TalentSprint, Hyderabad and the Spoken Tutorial Team, IIT Bombay. Other contributors who helped in the creation of the scripts are Prathamesh Salunke, Arya Ratish, Ashwini Patil. The team received ample guidance from Mr. Ashok Pichai from TalentSprint, Hyderabad.

Books and references


<https://spoken-tutorial.org/>

### Course17: Python 3 tutorial course

**Code:** CBIT/19ITV017

**Duration:** 30 Hours (Aug 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Thota Ivan                          | 01                                           |

  
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## Syllabus

Introduction

to

Python-3.4.3

IIT Bombay is leading the effort to popularise Python for Scientific Computing in India. This is part of the Free and Open source Software for Science and Engineering Education (<https://fossee.in>) project, supported by the National Mission on Education through ICT of MHRD.

IIT Bombay is using Spoken Tutorials (<https://spoken-tutorial.org>) to create learning material for FOSS. This is the main page for the organisation of the scripts required for a standard two day workshop we conduct on "Python for Scientific Computing" spoken tutorials.

The Spoken Tutorial effort for Python-3.4.3 was led by Prof Prabhu Ramchandran from IIT BOMBAY. He guided the team and vetted the Course Outline.

Other Contributors : Prathamesh Salunke, Ankit, Nirmala Venkat, Priya and Nancy Varkey.

### Books and references

<https://spoken-tutorial.org>

### Course18: Cloud computing basics

Code: CBIT/19ITV018

Duration: 30 Hours (May 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | NEELKANTH POOSA                     | 01                                           |

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## **Syllabus**

Week 1: Introduction to Cloud Computing

Week 2: Cloud Computing Architecture

Week 3: Service Management in Cloud Computing

Week 4: Data Management in Cloud Computing

Week 5: Resource Management in Cloud

Week 6: Cloud Security

Week 7: Open Source and Commercial Clouds, Cloud Simulator

Week 8: Research trend in Cloud Computing, Fog Computing

Week 9: VM Resource Allocation, Management and Monitoring

Week 10: Cloud-Fog-Edge enabled Analytics

Week 11: Serverless Computing and FaaS Model

Week 12: Case Studies and Recent Advancements

## **Books and references**


1. Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wiley, 2011
2. Enterprise Cloud Computing - Technology, Architecture, Applications, Gautam Shroff, Cambridge University Press, 2010
3. Cloud Computing Bible, Barrie Sosinsky, Wiley-India, 2010
4. Cloud Security: A Comprehensive Guide to Secure Cloud Computing, Ronald L. Krutz, Russell Dean Vines, Wiley- India, 2010

## **Course19: Core java**

**Code:** CBIT/19ITV019

**Duration:** 30 Hours (Jun 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | <b>Chidura Sai Sirichandana</b>                | <b>02</b>                                               |
| <b>2</b>   | <b>Singireddy Swetha</b>                       |                                                         |

  
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**Syllabus**

Week 1 : Overview of Object-Oriented Programming and Java

Week 2 : Java Programming Elements

Week 3 : Input-Output Handling in Java

Week 4 : Encapsulation

Week 5 : Inheritance

Week 6 : Exception Handling

Week 7 : Multithreaded Programming

Week 8 : Java Applets and Servlets

Week 9 : Java Swing and Abstract

Windowing Toolkit (AWT)

Week 10 : Networking with Java

Week 11: Java Object Database Connectivity (ODBC)

Week 12: Interface and Packages for Software Development

**Books and references**

1. Java: The Complete Reference Hebert Schildt, Mc Graw Hill

2. Object-Oriented Programming with C++ and Java Debasis Samanta, Prentice Hall India.

**Course20: Google Analytics for beginners**

**Code:** CBIT/19ITV020

**Duration:** 30 Hours (May 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | SKM Aqeel                                      | <b>01</b>                                               |

**Course21: AI for everyone**

**Code:** CBIT/19ITV021

**Duration:** 30 Hours (Jun 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | BHUKYA AKHILANDESWARI                          | <b>02</b>                                               |
| <b>2</b>   | Mohammed Mumtaz Ahmed Ali                      |                                                         |

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## Syllabus

WEEK 1

**What is AI?**

WEEK 2

**Building AI Projects**

WEEK 3

**Building AI In Your Company**

WEEK 4

**AI and Society**

## Course22: Introduction to HTML5

**Code:** CBIT/19ITV022

**Duration:** 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Ritika Yarlagadda                   | 03                                           |
| 2   | Rajendar Meti                       |                                              |
| 3   | Ishika Gupta                        |                                              |


## Syllabus

### Week One

This week we will uncover the "mystery" behind the Internet. What happens when you type a URL into your browser so that a webpage magically appears? What is HTML5 and what happened to HTML 1 - 4? We will also cover some practical concepts that you need to master before you begin coding your own pages.

### Week Two

This week you will need to take a deep breath and jump into coding. I will cover a large number of HTML tags, but it is important that you do more than just

  
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listen to these video and read the text book material. You need to practice (and fail!) in order to learn. Believe it or not, once you master the basic idea of using tags and attributes you will know everything you need to use any HTML5 tag. The page may not look the way you want it to look yet, but you will be able to use text, links, images, tables, and even music and videos! If you want to refer to a textbook this week for reinforcement of concepts, we will be using the Shay Howe online textbook as a reference. I will include links after the lectures, but some students prefer to read before the videos. (My preferred approach is to read/watch/read again.)

### Week Three

Okay, you created a file...what now? This week we will begin by covering the important but often overlooked concepts of validation and accessibility. Did you follow the DOM structure when you created your page? Did you use semantic tags to make sure that page viewers can access all of the information, even if they have physical or cognitive disabilities? This is knowledge you can use if you would like to pursue a career as a web accessibility specialist. Finally I will briefly cover the steps needed to post your site to the web. There are many free and paid services that you can use to get your work off your computer and on to the Internet.

**Course23:** Interactivity with javascript

**Code:** CBIT/19ITV023


**Duration:** 30 Hours (July 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Ritika Yarlagadda                   | 03                                           |
| 2   | Saurabh Challawar                   |                                              |
| 3   | Ishika Gupta                        |                                              |

### Syllabus

#### Week One: Introduction to JavaScript

If you haven't use a traditional programming language before, this first week is key. Before we begin with the how, we will talk about the why, mainly why we want to use JavaScript. The main reason is that it is very easy for JavaScript to work with the DOM. And easy is always a great way to start. Speaking of starting out, it is also always more fun when our code actually does something we can see, so we will jump quickly into different ways we can generate output. It won't be flashy yet, but it will be a great way to get your feet wet with

  
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traditional programming. After that we go back to the basics of how a computer uses data. We begin with variables, expressions, and operators.

### **Week Two: Reacting to Your Audience**

If you have written HTML code in the past, hopefully you have fallen into the great habit of validating your code -- making sure that you close all of your open tags. There are other rules that you may or may not have been following as well, for instance the importance of using each id attribute only once per page. This is called writing "clean" code. The reasoning and importance of following these rules becomes clear as we begin to manipulate the different components of your webpage based on the the actions of the person interacting with your page. In particular you will learn about the JavaScript Mouse Events and Touch Events. This week's materials will end with a photo gallery example that you can create along with me.

### **Week Three: Arrays and Looping**

This week we will delve into more complex programming concepts: arrays and looping. Arrays allow you to represent groups of related information. Looping provides efficiency and flexibility to your programs. Using both we will expand upon the photo gallery example.

### **Week Four: Validating Form Data**

This week we will put a number of the concepts from this course together to tackle a new project - creating and validating input entered into an HTML5 form. Forms are extremely common elements used to input and send data to via a webpage. We will look at how you can use JavaScript to add options to your forms, to pre-fill data based on previous input, and even to check that passwords match.

### **Course24: Python Data Structures**

**Code:** CBIT/19ITV024

**Duration:** 30 Hours (Apr 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | <b>Ritika Yarlagadda</b>                       | <b>08</b>                                               |
| <b>2</b>   | <b>Harsha Vardhan Bashavathini</b>             |                                                         |
| <b>3</b>   | <b>BHUKYA AKHILANDESWARI</b>                   |                                                         |
| <b>4</b>   | <b>Ishika Gupta</b>                            |                                                         |
| <b>5</b>   | <b>Kothapalli Sri Yagna</b>                    |                                                         |
| <b>6</b>   | <b>Madhvika Dosapati</b>                       |                                                         |
| <b>7</b>   | <b>srija chitikesi</b>                         |                                                         |
| <b>8</b>   | <b>Saurabh Challawar</b>                       |                                                         |

  
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## Syllabus

### Week 1:

Informal introduction to programming, algorithms and data structures via gcd  
Downloading and installing Python  
gcd in Python: variables, operations, control flow - assignments, condition-als, loops, functions

### Week 2:

Python: types, expressions, strings, lists, tuples  
Python memory model: names, mutable and immutable values  
List operations: slices etc  
Binary search  
Inductive function definitions: numerical and structural induction  
Elementary inductive sorting: selection and insertion sort  
In-place sorting

### Week 3:

Basic algorithmic analysis: input size, asymptotic complexity,  $O()$  notation  
Arrays vs lists  
Merge sort  
Quicksort  
Stable sorting

### Week 4:

Dictionaries  
More on Python functions: optional arguments, default values  
Passing functions as arguments  
Higher order functions on lists: map, lter, list comprehension

### Week 5:

Exception handling  
Basic input/output  
Handling files  
String processing

### Week 6:

Backtracking: N Queens, recording all solutions  
Scope in Python: local, global, nonlocal names  
Nested functions  
Data structures: stack, queue  
Heaps

### Week 7:

Abstract datatypes

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Classes and objects in Python  
"Linked" lists: find, insert, delete  
Binary search trees: find, insert, delete  
Height-balanced binary search trees

Week 8:  
Efficient evaluation of recursive definitions: memoization  
Dynamic programming: examples  
Other programming languages: C and manual memory management  
Other programming paradigms: functional programming

### **Course25: Capstone: Retrieving, Processing, and Visualizing Data with Python**

**Code:** CBIT/19ITV025

**Duration:** 30 Hours (July 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | Harsha Vardhan Bashavathini                    | <b>02</b>                                               |
| <b>2</b>   | Ishika Gupta                                   |                                                         |

### **Syllabus**

WEEK 1

#### **Welcome to the Capstone**

Congratulations to everyone for making it this far. Before you begin, please view the Introduction video and read the Capstone Overview. The Course Resources section contains additional course-wide material that you may want to refer to in future weeks.

WEEK 2

#### **Building a Search Engine**

This week we will download and run a simple version of the Google PageRank Algorithm and practice spidering some content. The assignment is peer-graded, and the first of three optional Honors assignments in the course. This is a continuation of the material covered in Course 4 of the specialization, and is based on Chapter 16 of the textbook.

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### WEEK 3

#### **Exploring Data Sources (Project)**

The optional Capstone project is your opportunity to select, process, and visualize the data of your choice, and receive feedback from your peers. The project is not graded, and can be as simple or complex as you like. This week's assignment is to identify a data source and make a short discussion forum post describing the data source and outlining some possible analysis that could be done with it. You will not be required to use the data source presented here for your actual analysis.

### WEEK 4

#### **Spidering and Modeling Email Data**

In our second optional Honors assignment, we will retrieve and process email data from the Sakai open source project. Video lectures will walk you through the process of retrieving, cleaning up, and modeling the data.

#### **Course26: C for everyone:Programming Fundamentals**

**Code:** CBIT/19ITV026

**Duration:** 30 Hours (May 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | SWATHI JAISHETTY                    | 01                                           |

#### **Syllabus**

WEEK 01:  
THE ART OF PROGRAMMING METHODOLOGY  
Part A: Problem Solving – Flow Chart for Structured Programming – Program Charts – System Charts – Variables, data names, programming statements – Flow Chart Symbols – Terminal Symbols – I/O – Comments – Connectors – Process – Decision - Loops – Flow Charts of Fundamental Algorithms (mentioned in Part B)

Part B: Algorithm Design – Problem Solving Aspect – Top Down Design – Formal Conventions – Writing Algorithms – Fundamental Algorithms (Discuss the Design of Algorithms only).



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02:

WEEK THE ART OF PROGRAMMING METHODOLOGY  
Part C: Program, Characteristics of a good program - Modular Approach - Programming style - Documentation and Program Maintenance - Compilers and Interpreters - Running and Debugging Programs - Syntax Errors - Run-Time Errors - Logical Errors - Concept of Structured Programming.

### C-FUNDAMENTALS

Fundamental facts about computer and computer languages - Machine language, symbolic languages, high level languages - keywords in C - basic data types - variables, constants, statements and the scope of variables in C programmes etc.

03

WEEK MANIPULATING DATA OPERATORS AND EXPRESSIONS

Expressions and operators - Binary arithmetical operators, unary arithmetical operators, assignment operators, relational and logical operators, conditional operators - Hierarchy or the order in which operators work when many of them are in use simultaneously. Library functions and their uses

#### INPUT AND OUTPUT IN C PART -1

Standard input and output library - C input functions like getchar, gets, getch, scanf, etc - The header file 'stdio.h'.

#### Week 04: INPUT AND OUTPUT IN C PART -2

Standard input and output library (STDIO) - Console input/output library (CONIO) - The function printf - Function 'puts' - sprintf and sscanf functions - The conio library functions such as clrscr, getch, getche, gotoxy, textbackground, textcolor etc

#### CONTROL STRUCTURES IN C PART - I

Structured programming language - Control instructions - Flow of control - Conditional and Unconditional control structures - selective constructs such as Conditional expression, if - else, switch-case etc.

#### Week 05: CONTROL STRUCTURES IN C PART - II

Loop control statements - Entry controlled loop (pre-test loop) - Exit controlled loop (post-test loop) - while - do while - for - Break, continue, goto, label statements

  
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WEEK  
C PROGRAMMING WITH ARRAYS

Scalar data types - Derived data types - Arrays - one-dimensional array - two-dimensional array - Multidimensional array - Character arrays.

FUNCTIONS IN 'C'

Modular Programming Approach - Built-in functions or user-defined functions - main () - formal parameters and actual parameters - Function Call - passing by value, passing by reference (address) - void - recursion - Recursive Functions

WEEK-06  
STORAGE CLASSES OF VARIABLES IN C

Storage class - auto, static, extern, register and typedef - scope of variables - Static variables - extern variables - Register variables - typedef variables

WEEK  
POINTERS IN C PART - I

Pointer variables - & operator - \* operator - Arrays and pointers - Array of pointers - Pointer to an array - Character arrays.


POINTERS IN C PART - II

Declaration of the pointer variable - Static and dynamic memory allocation - malloc (), calloc () functions - free () - main () - Standard parameters argc and \*argv[ ].

Week 08:

STRUCTURE AND UNION IN C

Structure data type - 'struct' data type - Prototype of the structure - Structure variable. dot (.) operator, Nested structure - Array of structures operator -> Union

  
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## FILE MANAGEMENT IN C PART -1

File - fopen() - read ( r ) , write ( w ) , and append ( a ) - fprintf() - putc() - fclose()

## WEEK-09

### FILE MANAGEMENT IN C PART - 2

fscanf() function - end of file character (EOF ) - Fgets() function - NULL character - Database files - fseek() , feof(), fread()

## COMPILATION AND EXECUTION

Compilation and execution of a programme - Editor used to write the source code - Pre-processor - Compiler - Assembler - Linker - Library object files - Executable code - Integrated development environments (IDE) - Turbo C - The concept of prototyping - syntax errors

## WEEK-10

### LOW LEVEL PROGRAMMING AND SOME ADDITIONAL FEATURES OF C

# define statement - C pre-processor - facts related to macros in C, Wrong macros, register variables, bit fields and bitwise operations, enumeration and enum type variables - Command line arguments - Bitwise operations - Enumeration constants in C - Command line parameters

### **Books and references**

B. W. Kernighan and D. M. Ritchie, The C Programming Language, Prentice-Hall

Yashavant Kanetkar; Let us C, BPB Publications, New Delhi.


Greg Perry, Absolute Beginners' guide to C, SAMS Publishing

### **Course27: Build Your First Android App**

**Code:** CBIT/19ITV027

**Duration:** 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Machendar Gujja                     | 01                                           |

  
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## **Syllabus**

Android app using Kotlin

Android is an open source and Linux-based Operating System for mobile devices such as smartphones and tablet computers.

Android Studio is the official IDE for android application development. App development on Android was almost exclusively done using the Java programming language.

Kotlin is a new open source programming language built by JetBrains, known for IntelliJ IDEA (Android Studio is based on IntelliJ IDEA). Kotlin is a language that runs on the JVM (Java Virtual Machine).

Google has announced Kotlin as an official language on Android. Kotlin, is a statically typed programming language for the JVM, Android and the browser. It's deep interoperability with Java, which attracts more Java developers. It is tools-friendly as IDE gives suggestions for Kotlin code, can convert Java code to Kotlin code. It is expressive and makes your code more readable and understandable.

The Android app, source code and the content for this tutorial was contributed by Abhishek Shah, a 2018 FOSSEE intern of the Spoken-Tutorial Project from Birla Vishvakarma Mahavidyalaya Engineering College, Gujarat.

The Spoken Tutorial effort for Android app using Kotlin has been contributed by Nirmala Venkat and supported by Saurabh Adhikary and Nancy Varkey from Spoken Tutorial roject, IIT Bombay.



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## **Course28: Using python access the web data**

**Code:** CBIT/19ITV028

**Duration:** 30 Hours (Sep 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| 1          | Rohithkumar Keshetti                           | <b>03</b>                                               |
| 2          | Harsha Vardhan Bashavathini                    |                                                         |
| 3          | Ishika Gupta                                   |                                                         |

### **Syllabus**

WEEK 1

#### **Getting Started**

In this section you will install Python and a text editor. In previous classes in the specialization this was an optional assignment, but in this class it is the first requirement to get started. From this point forward we will stop using the browser-based Python grading environment because the browser-based Python environment (Skulpt) is not capable of running the more complex programs we will be developing in this class.

WEEK 2

#### **Regular Expressions**

Regular expressions are a very specialized language that allow us to succinctly search strings and extract data from strings. Regular expressions are a language unto themselves. It is not essential to know how to use regular expressions, but they can be quite useful and powerful.

WEEK 3

#### **Networks and Sockets**

In this section we learn about the protocols that web browsers use to retrieve documents and web applications use to interact with Application Program Interfaces (APIs).

WEEK 4

#### **Programs that Surf the Web**

In this section we learn to use Python to retrieve data from web sites and APIs over the Internet.

  
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## Course29: Using databases with python

Code: CBIT/19ITV029

Duration: 30 Hours (July 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Harsha Vardhan Bashavathini         | 01                                           |

### Syllabus

WEEK 1

#### Object Oriented Python

To start this class out we cover the basics of Object Oriented Python. We won't be writing our own objects, but since many of the things we use like BeautifulSoup, strings, dictionaries, database connections all use Object Oriented (OO) patterns we should at least understand some of its patterns and terminology.

WEEK 2

#### Basic Structured Query Language

We learn the four core CRUD operations (Create, Read, Update, and Delete) to manage data stored in a database.

WEEK 3

#### Data Models and Relational SQL

In this section we learn about how data is stored across multiple tables in a database and how rows are linked (i.e., we establish relationships) in the database.

WEEK 4

#### Many-to-Many Relationships in SQL

In this section we explore how to model situations like students enrolling in courses where each course has many students and each student is enrolled in many courses.



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**Course30: Capstone: Retrieving, Processing, and Visualizing Data with Python**

**Code:** CBIT/19ITV030

**Duration:** 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Harsha Vardhan Bashavathini         | 02                                           |
| 2   | Ishika Gupta                        |                                              |

**Course31: Carrer Edge-knockdown the lockdown**


**Code:** CBIT/19ITV031

**Duration:** 30 Hours (May 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Kalyani Manda                       | 03                                           |
| 2   | Shravani thumukunta                 |                                              |
| 3   | Gayathri vavilala                   |                                              |

**Syllabus**

- DAY 1: Communicate to Impress
- DAY 2: Deliver Presentations with Impact
- DAY 3: Develop Soft Skills for the Workplace
- DAY 4: Gain Guidance from Career Gurus
- DAY 5: Write a Winning Resume and Cover Letter
- DAY 6: Stay Ahead in Group Discussions
- DAY 7: Ace Corporate Interviews
- DAY 8: Learn Corporate Etiquette
- DAY 9: Write Effective Emails
- DAY 10: Learn Corporate Telephone Etiquette
- DAY 11: Understand Accounting Fundamentals
- DAY 12: Gain Foundational Skills in IT
- DAY 13: Understand Artificial Intelligence (AI) - Part 1
- DAY 14: Understand Artificial Intelligence (AI) - Part 2
- DAY 15: Assessment

  
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**Course32: Artificial Intelligence, Machine learning & Internet of Things**

**Code:** CBIT/19ITV032

**Duration:** 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Dineesha                            | 02                                           |
| 2   | MOHAMMED MUMTAZ AHMED ALI           |                                              |

**Course33: Introduction to Data Science in Python**

**Code:** CBIT/19ITV033

**Duration:** 30 Hours (June 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | SONA GUDUR                          | 02                                           |
| 2   | Rohithkumar Keshetti                |                                              |

**Syllabus**

Week 1:


BASICS OF PYTHON SPYDER (TOOL)

- Introduction Spyder
- Setting working Directory
- Creating and saving a script file
- File execution, clearing console, removing variables from environment, clearing environment
- Commenting script files
- Variable creation
- Arithmetic and logical operators
- Data types and associated operations

Week 2:

Sequence data types and associated operations

- Strings
- Lists

  
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- Arrays
- Tuples
- Dictionary
- Sets
- Range

NumPy

- ndarray

Week 3:

Pandas dataframe and dataframe related operations on Toyota Corolla dataset

1. Reading files
2. Exploratory data analysis
3. Data preparation and preprocessing

Data visualization on Toyota Corolla dataset using matplotlib and seaborn libraries

4. Scatter plot
5. Line plot
6. Bar plot
7. Histogram
8. Box plot
9. Pair plot

Control structures using Toyota Corolla dataset

10. if-else family
11. for loop
12. for loop with if break
13. while loop

Functions

Week 4: CASE STUDY

Regression


14. Predicting price of pre-owned cars

Classification

15. Classifying personal income

### **Books and references**

1. Introduction to linear algebra - by Gilbert Strang
2. Applied statistics and probability for engineers – by Douglas Montgomery
3. Mastering python for data science, Samir Madhavan

  
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**Course34: Machine learning for all****Code:** CBIT/19ITV034**Duration:** 30 Hours (May 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Kothapalli Sri Yagna                | 01                                           |

**Syllabus**

Week 0: Probability Theory, Linear Algebra, Convex Optimization - (Recap)

Week 1: Introduction: Statistical Decision Theory - Regression, Classification, Bias Variance

Week 2: Linear Regression, Multivariate Regression, Subset Selection, Shrinkage Methods, Principal Component Regression, Partial Least squares

Week 3: Linear Classification, Logistic Regression, Linear Discriminant Analysis

Week 4: Perceptron, Support Vector Machines

Week 5: Neural Networks - Introduction, Early Models, Perceptron Learning, Backpropagation, Initialization, Training & Validation, Parameter Estimation - MLE, MAP, Bayesian Estimation

Week 6: Decision Trees, Regression Trees, Stopping Criterion & Pruning loss functions, Categorical Attributes, Multiway Splits, Missing Values, Decision Trees - Instability Evaluation Measures

Week 7: Bootstrapping & Cross Validation, Class Evaluation Measures, ROC curve, MDL, Ensemble Methods - Bagging, Committee Machines and Stacking, Boosting


Week 8: Gradient Boosting, Random Forests, Multi-class Classification, Naive Bayes, Bayesian Networks

Week 9: Undirected Graphical Models, HMM, Variable Elimination, Belief Propagation

Week 10: Partitional Clustering, Hierarchical Clustering, Birch Algorithm, CURE Algorithm, Density-based Clustering

Week 11: Gaussian Mixture Models, Expectation Maximization

Week 12: Learning Theory, Introduction to Reinforcement Learning, Optional videos (RL framework, TD learning, Solution Methods, Applications)

  
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## Books and references

1. The Elements of Statistical Learning, by Trevor Hastie, Robert Tibshirani, Jerome H. Friedman (freely available online)
2. Pattern Recognition and Machine Learning, by Christopher Bishop (optional)

## Course35: Operating systems and you

**Code:** CBIT/19ITV035

**Duration:** 30 Hours (July 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | MAMIDI SAI BHARGAVI                 | 02                                           |

## Syllabus

WEEK 1

### Navigating the System

Welcome to the Operating Systems course of the IT Support Professional Certificate! In the first week of this course, we will cover the basics of Windows and Linux operating systems (OS). We will learn about how directories and files work in Windows and Linux OS. You will also learn practical ways to manipulate files and directories in the Windows graphical user interface (GUI), Windows command line interface (CLI), and Linux shell. By the end of this module, you will interact with files and directories and perform basic text manipulation in Windows and Linux OS.

WEEK 2

### Users and Permissions

In the second week of this course, we'll learn about configuring users and permissions in Windows and Linux OS. As an IT Support Specialist, it's important to know how to grant the appropriate permissions to users and groups for both Windows and Linux OS. By the end of this module, you will know how to add, modify, and remove users for a computer and for specific files and folders by using the Windows GUI, Windows CLI, and Linux shell.

WEEK 3

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## Package and Software Management

In the third week of this course, we'll learn about package and software management in Windows and Linux OS. It's important to know how package installs work and how devices and drivers are managed within these operating systems. We will also learn about different packaging and file compression methods. By the end of this module, you will know how to create, update, and remove software by using the Windows GUI, Windows CLI and Linux shell.

WEEK 4

## Filesystems

In the fourth week of this course, we'll learn about how filesystems work for Windows and Linux OS. We'll learn about filesystem types and why they're different for certain OS. We'll learn about disk partitioning and virtual memory and why these are so important for an IT Support Specialist's role. We'll also cover ways mount and unmount filesystems, read disk usage, and repair filesystems. By the end of this module, you will partition and format a disk drive yourself in both Windows and Linux.

## Course36: Fundamentals of Visualization with Tableau

**Code:** CBIT/19ITV036

**Duration:** 30 Hours (May 2020)


| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | SKM AQEEL                           | 01                                           |

## Syllabus

WEEK 1

### Data Visualization and Its Importance

In this module, you will be able to define what data visualization is and discuss why it's so important. You will listen to an interview with Dr. Ben Shneiderman, a modern pioneer of data visualization. You will be able to define interactive visualization and install Tableau Public so you can start to get acquainted with it for the next module. You will be able to make a simple viz so you can clearly see what skills are used in the process.

  
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WEEK 2

### **Getting to Know Tableau for Data Visualization**

In this module, you will be able to identify and describe the various parts that make up the welcome screen, worksheet screen, and dashboard screen.

WEEK 3

### **Let's Make a Viz!**

In this module, you'll be able to identify potential questions to answer with a given dataset. You will be able to make three different charts: a line chart, a tree map, and a bar chart. You will be able to create a dashboard with those charts, and be able to add some simple dashboard interactions.

WEEK 4

### **Tableau Community Projects and Visualization Best Practices**

In this module, you will be able to discuss where to get help. You will also be able to discuss where to go for inspiration and how to get involved in the Tableau community. You will be able to discuss and apply 5 data visualization best practice and participate in a Makeover Monday project.

### **Course37: Introduction to Search Engine Optimization**

**Code:** CBIT/19ITV037

**Duration:** 30 Hours (Apr 2020)


| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | M Keerthana Reddy                              | <b>02</b>                                               |

### **Syllabus**

WEEK 1

### **Introduction to Optimizing a Website for Google Search**

Welcome to week 1! As you may remember from Module 4 within the last course, Search Engine Optimization Fundamentals, keywords are an extremely important tool for helping your customers find you in an often crowded field. Effective use of keywords on your optimized website can result in free targeted traffic to your site, helping you to reach your business goals. In this module, you will use the keyword research you conducted in the last course and you will learn a process for selecting the best keywords to optimize your website in

  
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search results. We will look at concepts like relevancy to the site, keyword intent, how competitive the keyword is in organic search, and how well that term might convert once it receives traffic. We'll also discuss how to identify and evaluate competitors, how to map keywords to pages, and how to create a keyword map for your clients and your own site. There is a lot to discuss in our first module, so if you are taking this course without learning the materials of module 4 within the SEO Fundamentals course, I highly recommend you complete that module before diving into this one. So, let's get started learning how to apply keyword research!

WEEK 2

### **Advanced SEO Strategies**

Welcome to module 2! While keywords help users locate relevant web pages, it's the content itself that determines whether a click converts to a sale or increased site traffic. In many corners of the SEO world, the expression "Content is King" is a generally accepted rule, and in this module we'll examine content from many perspectives: how to analyze it, organize it, create it, make it great and build it into our strategies. You'll also learn how to conduct effective competitive content analysis and internal content audits. You'll learn how to create a site-wide content strategy building on the data we uncover in our study and analysis of content. And finally, you'll review the topic of local SEO, what local SEO is, and how it is both similar to and different from regular SEO tactics and best practices. Let's get started!

WEEK 3


### **Mobile/App SEO and Metrics & KPIs**

Welcome to module 3! We will go over mobile/app SEO and Metrics and KPIs. You will learn how to optimize your app in app stores and incorporate keywords and keyword tags. You will also understand what A/B testing is and how it applies to app optimization. We will discuss the value of screenshots and how they play a role in user downloads. We will then review reasons why KPIs impact SEO efforts and how ROI is used to determine if a project was profitable. Lastly, we will discuss survey findings and how they help prepare you for successes and challenges in a career in SEO and why forecasting SEO impact is vital. We have a lot to cover, so let's get started!

WEEK 4

### **Creating an SEO Campaign**

Welcome to module 4! In this module, we are going to discuss the human factor of SEO - how to manage your relationship with clients. We'll talk about what should be discussed in the critical first meetings, how to manage your

  
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client's expectations, and how to track and report on progress toward your client's goals. By the end of this module, you'll have developed a solid approach for achieving a productive and successful relationship with your client.

### **Course38: Crash course on python**

**Code:** CBIT/19ITV038

**Duration:** 30 Hours (May 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | ALLA BINDHU SREE REDDY                         | <b>01</b>                                               |

### **Syllabus**

WEEK 1

#### **Hello Python!**

In this module we'll introduce you to the Coursera platform and the course format. Then, we'll dive into the basics of programming languages and syntax, as well as automation using scripting. We'll also introduce you to the Python programming language and some of the benefits it offers. Last up, we'll cover some basic functions and keywords of the language, along with some arithmetic operations.

WEEK 2


#### **Basic Python Syntax**

In this module you'll learn about different data types in Python, how to identify them, and how to convert between them. You'll also learn how to use variables to assign data and to reference variables. You'll deep dive into functions: how to define them, pass them parameters, and have them return information. You'll explore the concepts of code reuse, code style, and refactoring complex code, along with effectively using code comments. Finally, you'll learn about comparing data using equality and logical operators, and leveraging these to build complex branching scripts using if statements.

WEEK 3

#### **Loops**

In this module you'll explore the intricacies of loops in Python! You'll learn how to use while loops to continuously execute code, as well as how to identify infinite loop errors and how to fix them. You'll also learn to use for loops to

  
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iterate over data, and how to use the range() function with for loops. You'll also explore common errors when using for loops and how to fix them.

WEEK 4

### Strings, Lists and Dictionaries

In this module you'll dive into more advanced ways to manipulate strings using indexing, slicing, and advanced formatting. You'll also explore the more advanced data types: lists, tuples, and dictionaries. You'll learn to store, reference, and manipulate data in these structures, as well as combine them to store complex data structures.

### Course39: Use wordpress to create a blog for business

Code: CBIT/19ITV039

Duration: 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | ALLA BINDHU SREE REDDY              | 02                                           |

### Course40: Python basics

Code: CBIT/19ITV040

Duration: 30 Hours (May 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Ritika Yarlagadda                   | 01                                           |

### Syllabus

WEEK 1

#### General Introduction

In week one you will be introduced to programming in python through lectures and the Runestone textbook - an interactive online textbook built for this course. By the end of the module, you will have run your first python program, and learned how to draw images by writing a program.

WEEK 2

#### Sequences and Iteration

In week two you will use the lectures and the Runestone textbook to understand the basics of a few python data types - lists, strings, tuples - as

  
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well as a control structure - for loops. By the end of this week, you will be able to write more complex programs that create drawings by incorporating for loops. Finally, we will present the basics of an accumulation pattern to you, which will be expanded on in each week for the rest of the course.

### WEEK 3

#### **Booleans and Conditionals**

In week three you will learn a new python data type - the boolean - as well as another control structure - conditional execution. Through the use of video lectures and the Runestone textbook, you will learn what Binary, Unary, Nested, and Chained Conditionals are, as well as how to incorporate conditionals within an accumulation pattern.

### WEEK 4

#### **Sequence Mutation and Accumulation Patterns**

In week four we will present deeper knowledge on using lists, strings, and python objects in general. We will also cover how to use the accumulation pattern with lists and with strings. The final assignment will test your knowledge and skills through application, much like previous assessments and assignments did, though with a more difficult set of tasks now that you have learned the basics.

#### **Course41: Introduction to Data Science in Python**

**Code:** CBIT/19ITV041

**Duration:** 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Dineesha                            | 02                                           |
| 2   | MOHAMMED MUMTAZ AHMED ALI           |                                              |

#### **Course42: Python 3 programming**

**Code:** CBIT/19ITV042

**Duration:** 30 Hours (Jun 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | MOHAMMED TOUHEED PATEL              | 02                                           |

  
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**Course43: Introduction to Software Product Management****Code:** CBIT/19ITV043**Duration:** 30 Hours (Apr 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | M Keerthana Reddy                   | 02                                           |

**Syllabus**

WEEK 1

**Module 1: Software Product Management - The Discipline**

Are you ready to start? Our starting point will be the goal of software product management, and that is to build better software. We will delve into the role of the software product manager, where you will hear from software industry representatives. This module will also cover the path which you will take through this specialization, which offers to prepare you for taking on a software product manager role.

WEEK 2

**Module 2: Foundations of Software Product Management**

Welcome to the second half of Introduction to Software Product Management. In this module you will learn the philosophy, core values, and principles of Agile software development. The Agile philosophy has reshaped modern software development. Challenge yourself by thinking about how you would deliver a successful software product within the “triangle” of (a) meeting client needs, (b) delivering on schedule, and (c) staying within budget. This module will also preview software product management in four foundational areas: establishing a process, defining requirements, planning the work, and monitoring development. You’ll see the important role they play in producing better software.

**Course44: Excel skills for business:essentials****Code:** CBIT/19ITV044**Duration:** 30 Hours (Aug 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | ALLA BINDHU SREE REDDY              | 02                                           |

  
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## **Syllabus**

WEEK 1

### **Critical Core of Excel**

In this module, you will learn about key foundational features of Excel: The Excel user interface, basic Excel terminology, how to operate essential navigational controls in Excel and how to perform basic data entry with Excel spreadsheets.

WEEK 2

### **Performing calculations**

The syntax of formulas is very important in Excel. In this module, you will get introduced to formulas and functions - learn how to write them, use them to perform calculations and understand the different cell references.

WEEK 3

### **Formatting**

Formatting helps to highlight key messages and make the data presentable. This module covers several formatting tools like font formatting, borders, alignment, number formatting, as well as the Excel styles and themes.

WEEK 4

### **Working with Data**


This module is all about working with data – and making it easy to work with. This week you will learn how you can manage your spreadsheets – find data with Filter and Sort, retrieve and change data using Find and Replace, and use Conditional Formatting to highlight specific data.

## **Course45: Finance for Non Financial Professionals**

**Code:** CBIT/19ITV045

**Duration:** 30 Hours (Jun 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | <b>Anusha Prakash Dasari</b>                   | <b>02</b>                                               |

  
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## **Syllabus**

WEEK 1

### **Foundations of Finance and Accounting**

WEEK 2

### **Costing**

WEEK 3

### **Financial Ratios**

WEEK 4

### **Valuation**

## **Course46: Introduction to Cybersecurity Tools & Cyber Attacks**

**Code:** CBIT/19ITV046

**Duration:** 30 Hours (May 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | <b>Saurabh Challawar</b>                       | <b>02</b>                                               |

## **Syllabus**

WEEK 1

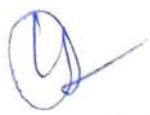
### **History of Cybersecurity**

This module will give you a brief overview of the history of cybersecurity. You will also learn key terms and roles in cybersecurity.

WEEK 2

### **A brief overview of types of actors and their motives**

This module will provide you with a brief overview of types of actors and their motives. You will also understand different types of attacks and their impact on an organization and individuals. You will also learn about tools that are available to you to assist in any cybersecurity investigation.

  
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### WEEK 3

#### **An overview of key security concepts**

This module will describe various key security concepts that are important in any cybersecurity position. The CIA Triad will be further explained. You will also begin to learn the significance of incident response and frameworks around cybersecurity. Finally, you will get an overview of IT Governance best practices and compliance.

### WEEK 4

#### **An overview of key security tools**

In this module, you will be introduced to key security tools including firewalls, anti-virus and cryptography. You will explore penetration testing and digital forensics. You will learn where you can get resources on industry and current threats to assist in further research around cybersecurity.

#### **Course47: COSC**

**Code:** CBIT/19ITV047

**Duration:** 30 Hours (Aug 2020)

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | SREEVANI PASAM                      | 01                                           |

#### **Course48: Full Stack Development**

**Code:** CBIT/19ITV048

**Duration:** 30 Hours (July 2020)


| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
| 1   | Rohithkumar Keshetti                | 02                                           |

#### **Syllabus**

### WEEK 1

#### **Get started with web development**

In this module, you will learn about the different types of web developers and the roles and responsibilities of front-end, back-end, and full-stack developers.

  
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You will take a first look at the core technologies of HTML, CSS, and Javascript and explore the concepts that underpin how the internet works.

WEEK 2

### **Introduction to HTML and CSS**

In this module you will learn how to construct HTML documents and add basic styling and layout using CSS.

WEEK 3

### **UI Frameworks**

In this module you will learn how to use the Bootstrap framework to build responsive interfaces and the benefits of working with UI frameworks.

WEEK 4

### **End-of-Course Graded Assessment**

In this module, you will be assessed on the key skills covered in the Course.

### **Course49: Java and python**

**Code:** CBIT/19ITV049

**Duration:** 30 Hours (Aug 2020)


| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | Shreya Oruganti                                | <b>02</b>                                               |

### **Course50: TensorFlow In Practice**

**Code:** CBIT/19ITV050

**Duration:** 30 Hours (May 2020)

| <b>SNO</b> | <b>Registered &amp; completed student Name</b> | <b>Total no. of students registered &amp; completed</b> |
|------------|------------------------------------------------|---------------------------------------------------------|
| <b>1</b>   | NEELKANTH POOSA                                | <b>02</b>                                               |

  
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## **Syllabus**

### **WEEK 1**

#### **A New Programming Paradigm**

Welcome to this course on going from Basics to Mastery of TensorFlow. We're excited you're here! In Week 1, you'll get a soft introduction to what Machine Learning and Deep Learning are, and how they offer you a new programming paradigm, giving you a new set of tools to open previously unexplored scenarios. All you need to know is some very basic programming skills, and you'll pick the rest up as you go along. To get started, check out the first video, a conversation between Andrew and Laurence that sets the theme for what you'll study...

### **WEEK 2**

#### **Introduction to Computer Vision**

Welcome to week 2 of the course! In week 1 you learned all about how Machine Learning and Deep Learning is a new programming paradigm. This week you're going to take that to the next level by beginning to solve problems of computer vision with just a few lines of code!

Check out this conversation between Laurence and Andrew where they discuss it and introduce you to Computer Vision!

### **WEEK 3**

#### **Enhancing Vision with Convolutional Neural Networks**

Welcome to week 3! In week 2 you saw a basic Neural Network for Computer Vision. It did the job nicely, but it was a little naive in its approach. This week we'll see how to make it better, as discussed by Laurence and Andrew here.

### **WEEK 4**

#### **Using Real-world Images**

Last week you saw how to improve the results from your deep neural network using convolutions. It was a good start, but the data you used was very basic. What happens when your images are larger, or if the features aren't always in the same place? Andrew and Laurence discuss this to prepare you for what you'll learn this week: handling complex images!



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**Course51:** Advanced Styling with Responsive Design

**Code:** CBIT/19ITV051

**Duration:** 30 Hours

| SNO | Registered & completed student Name | Total no. of students registered & completed |
|-----|-------------------------------------|----------------------------------------------|
|     |                                     |                                              |

**Syllabus**

WEEK 1

**Week One: Style with Responsive Design**

What does it mean to have responsive design for your site? How can you tell if your existing site is responsive? This week we will begin with the theories behind the "mobile-first paradigm" - the idea that your mobile site should provide everything needed, not a pared-down version of a good page. We end the week by taking the first concrete step of using fluid measurements in your CSS.

WEEK 2

**Week Two: Basic Concepts**

This week you will get a chance to put the theories into practice using media queries in your CSS. These queries can automatically detect the size of the browser being used to view the page so that you can decide what type of look you want to achieve. There will also be a discussion on common practices for designing your different views at various screen sizes ("viewports").

WEEK 3


**Week Three: Use Existing Frameworks**

After every good programmer has put in time creating sites from scratch, it is common to utilize existing tools out there. After all, why recreate the wheel? The work you have done up to this point will give you the knowledge needed to craft your own unique sites from these frameworks. This week we will work with Bootstrap, a framework that uses HTML5, CSS, and JavaScript (but don't worry if you have never used JavaScript yourself).


WEEK 4

**Week Four: Experiment!**

This week is dedicated to solving those little issues that pop up when you move from theory to practice. We look at more advanced framework options and also hear from people who are using the techniques covered in this course.

  
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**“BOT Aspirant”**  
**Robotic Process Automation**



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**about the program:**

IT is excited to announce a short duration learning program to its students to help building critical skills on Robotic Process Automation.

In the wake of the coronavirus (Covid-19,) organizations are turning to RPA to mitigate business disruptions and advance public health, keep global supply chains moving and governments afloat.

We bring the learning program to extend the support to the students to build the skills online using Automation Anywhere University platform.

The students are advised to take advantage of the program and stay essential at the fast-changing workforce.

**about Robotic Process Automation:**

Robotic Process Automation is simple—and powerful—business process automation software.

Robotic Process Automation enables you with tools to create your own software robots to automate any business process. Your “bots” are configurable software set up to perform the tasks you assign and control.

RPA really is for everyone. And the benefits of RPA span all industries and business units. Applying RPA for business process automation is limited only by the imagination and creating bots to work has never been easier, with a growing marketplace of ready-made, ready-to-deploy Digital workers available on demand, requiring no specialized IT infrastructure.

**about Automation Anywhere**

Automation Anywhere is a global leader in Robotic Process Automation (RPA), empowering customers to automate end-to-end business processes with software bots – digital workers that perform repetitive and manual tasks, resulting in dramatic productivity gains, improved customer experience and more engaged employees. The company offers the world’s only web-based and cloud native intelligent automation platform combining RPA, artificial intelligence, machine learning and analytics right out of the box, to help organizations rapidly start and scale their process automation journey.

With offices in more than 40 countries and a global network of 1,200 partners, Automation Anywhere has deployed over 7 million bots to support some of the world’s largest enterprises across all industries.

For additional information

visit [www.automationanywhere.com](http://www.automationanywhere.com).

**Program benefits:**

- Understand the nuances of Robotic Process Automation
- Building the basic capabilities to develop Software Bots using Automation Anywhere tools and technologies
- Students will receive Bot Aspirant online badge after successful completion of the learning trail

**“BOT ASPIRANT”**



**Learning outcomes**

- Understand the concepts of Digital Workforce Development & Robotic Process Automation
- Describe how Automation Anywhere’s RPA tool can be used for creating software robots (Bots)
- Describe the new features of the Automation Anywhere client to build the Bots

**Content of Learning program - 12 Hours**

1. Hello Bot: Introduction to RPA and Use Cases v11 (3 hours)
2. Build the digital work force (5 hours)
3. Storing and Manipulating Data: How to Automate Database-related Processes (30 Mins)
4. Automating Excel Operations: Methods to Work with Excel Workbooks (30 Mins)
5. Working with PDF Documents: Methods to Automate PDF-Related Processes (30 Mins)
6. Automating Structured Data: How to Work with XML Streams (30 mins)
7. Automating String Operations: Methods to Manipulate and Extract Strings (30 mins)
8. Communicating with Email Servers: Methods to Automate Email Messages (30 mins)
9. Communicating with Emulators: How to Automate Terminal Applications (30 mins)
10. Unleash Your Intelligent Bots: Developing Cognitive Bots, driven by AI & Machine Learning (IQ Bot) (30 Mins)
11. Bot Story: Where Automation Meets Analytics Using Bot Insight V11.0 (2 hours)

To join the program: [Click Here](#)

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**CHAITANYA BHARATHI**  
**INSTITUTE OF TECHNOLOGY (A)**  
Kokapet(Village), Gandipet, Hyderabad, Telangana-500075. www.cbit.ac.in



COMMITTED TO  
RESEARCH,  
INNOVATION AND  
EDUCATION

**41**  
years

## Learning from Home

An Initiative by CBIT in association with Automation Anywhere



Presents

# “BOT ASPIRANT”

## An E-Learning Certification Program on RPA for Students of CBIT

Kindly Refer the Brochure for outcomes and benefits of the Program

Register at: <https://forms.gle/Fkoha3GPKbK3pZYP7>

For further information, contact  
CSE: Mrs G. Shanmukhi Rama -9949438284  
IT : Mrs.K.Swathi-9491388749  
ECE: Mr.G.Mallikharjuna Rao-9866047394

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CBIT, Hyderabad

**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY, HYDERABAD - 75**  
RPA Training Program 3 days attended Faculty and Students List

**Faculty List:**

| S. No. | Name of the Faculty      | Designation       | Department       | Email id                  | Contact No. |
|--------|--------------------------|-------------------|------------------|---------------------------|-------------|
| 1      | Mr. R. Srikanth          | Asst. Professor   | CSE              | rsrikanth_cse@cbit.ac.in  | 8978259394  |
| 2      | Ms. G. Shanmukhi         | Asst. Professor   | CSE              | Shanmukhi.rama@cbit.ac.in | 9949438284  |
| 3      | Ms. K. Swathi            | Asst. Professor   | IT               | Kswathi_it@cbit.ac.in     | 9491388749  |
| 4      | Mr. U. Sai Ram           | Asst. Professor   | IT               | Usairam_it@cbit.ac.in     | 8143364133  |
| 5      | Mr. G. Mallikharjuna Rao | Asst. Professor   | ECE              | mallikharjunag@gmail.com  | 9866047394  |
| 6      | Y. Prasada Rao           | Computer Operator | Placement Office | yprasadbbit@gmail.com     | 9701239306  |

**Students List:**

| S. No. | Roll No.     | Name                | Branch        | Email id                       | Contact No. |
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| 2      | 160116736025 | Jegadish Chinthala  | Mechanical -1 | jagdish.jaggu369@gmail.com     | 8096631465  |
| 3      | 160116736015 | Akhilesh Khadse     | Mechanical -1 | akhileshkhadse@gmail.com       | 7013735029  |
| 4      | 160117862018 | Shaik Hafeez        | MCA           | shaikhafeez89@gmail.com        | 9704740198  |
| 5      | 160116737086 | Avinassh Bharadhwaj | IT-2          | avinasshbharadhwaj@gmail.com   | 9110302541  |
| 6      | 160116737320 | Priyanka Kodakandla | IT-2          | priyankakodakandla1@gmail.com  | 8977231298  |
| 7      | 160116738015 | Vundela Vidya Sree  | Production    | vundela.vidyasree123@gmail.com | 9542102749  |
| 8      | 160116735121 | Akhila Chittireddy  | ECE-3         | ch.akhila123@gmail.com         | 9912100872  |
| 9      | 160116735130 | Maneesha Meneni     | ECE-3         | maneesharao99121@gmail.com     | 7995319427  |
| 10     | 160116737110 | Sree Harsha E       | IT-2          | etukuri.sreeharsha@gmail.com   | 8186833230  |
| 11     | 160117862022 | B.Lakshmi Rajyam    | MCA           | lakshmirajyambalaa@gmail.com   | 8106006757  |

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**CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY, HYDERABAD - 75**  
**RPA Training Program 3 days attended Faculty and Students List**

|    |              |                     |              |                                |             |
|----|--------------|---------------------|--------------|--------------------------------|-------------|
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| 42 | 160116733312 | Srikanth Mamidala   | CSE-1        | mamidalasrikanth22@gmail.com   | 9502564068  |
| 43 | 160116733026 | Devaraj Nadisheram  | CSE-1        | devarajdeva312@gmail.com       | 8008063358  |
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Head Dept. of  
 CBIT, Hyderabad



A Memorandum of Understanding is executed on the day 22nd of February 2019 between CBIT and Automation Anywhere for Robotic Process Automation (RPA) initiatives.

AAU Established RPA CoE in Lab 4 of CDC Providing 40 Licenses.

The following Faculty are being trained.

Ms. G. Shanmukhi, Mr. U. Sai Ram Mr. G. Mallikharjuna Rao are being trained on RPA Software Version 11.3 at Bangalore from 20th Jan-24th Jan 2020.

**RPA – Working Group**

| S. No. | Name of the Faculty      | Designation      | Dept | Email id                        | Contact No. |
|--------|--------------------------|------------------|------|---------------------------------|-------------|
| 1      | Mr. R. Srikanth          | Asst. Professor  | CSE  | rsrikanth_csc@cbti.ac.in        | 8978259394  |
| 2      | Ms. G. Shanmukhi         | Asst. Professor  | CSE  | shanmukhi.rama@cbti.ac.in       | 9949438284  |
| 3      | Ms. K. Swathi            | Asst. Professor  | IT   | kswathi_it@cbti.ac.in           | 9491388749  |
| 4      | Mr. U. Sai Ram           | Asst. Professor  | IT   | usairam_it@cbti.ac.in           | 8143364133  |
| 5      | Mr. GNR Prasad           | Assoc. Professor | MCA  | gnrp@cbti.ac.in                 | 9885191683  |
| 6      | Mr. G. Mallikharjuna Rao | Asst. Professor  | ECE  | mallikharjunarao_ece@cbti.ac.in | 9866047394  |
| 7      | Mr. C. SriSailam         | Asst. Professor  | EEE  | srisailamc_eee@cbti.ac.in       | 9032838993  |

**AAU Will Provide**

- E-learning access to those Students enrolled in the Course.
- Licenses as per terms in Section 3 of this Agreement.
- Work with the CBIT(A) to set up the CoE, including installing the Software and providing Documentation.
- Certification test materials needed to test Students for AAI certification Issue the AAI certification to those students who have successfully completed the certification course.
- Faculty members attend AAI train-the-trainer courses, and have those who have successfully completed such course be tested for AAI train-the-trainer certification.
- Train Students using only Faculty Who are already AAI certified trainers.
- Opportunity to enroll in the Course, and conduct and oversee Student’s participation in the Course



Exchanging of MOU between CBIT & Automation Anywhere University (RPA) on 31.01.2019

*[Signature]*  
 Head Dept. of  
 CBIT, Hyderabad



RPA Training Programmes For Faculty & Students by Mr. Kunal Banerjee, from 19-21.03.2019 at Placement Online Exam Centre



  
OFFICE OF THE  
CRP, HSRP