

Mangalore University  
Department of English

**ABILITY ENHANCEMENT COMPULSORY COURSE, LANGUAGE  
(AECC) L2-GENERIC ENGLISH  
(As per NEP 2020)**

**Syllabus for IV Semester B.C.A**

Approved on August 24-25, 2022, BOS (UG)  
Effective for batches commencing from 2021 onwards

<b>IV SEMESTER</b>		<b>50 Hrs</b>	<b>60 marks</b>
<b>RECEPTIVE SKILLS: READING SKILLS AND LISTENING SKILLS</b>		<b>25 hrs</b>	
<b>Chapter 1: READING SKILLS</b>	<b>LIFE WRITING OR NOVELLA/NOVEL</b> For written examination	20 hrs	30 marks
	<i>Breaking Ties</i> - Sara Abubakar		
<b>Chapter 2: LISTENING SKILLS</b>	<b>LISTENING AND DECODING</b> <b>Listen to and understand two Ted Talks</b> For internal assessment	3 hrs	05 marks for IA
	<ol style="list-style-type: none"> <li>1. How a 13 year old changed 'Impossible' to 'I'm Possible' - <b>Sparsh Shah</b></li> <li>2. 7 Ways to Make a Conversation with Anyone - <b>Malavika Varadan</b></li> <li>3. The Secrets of Learning a New Language- <b>Lydia Machova</b></li> <li>4. The Skill of Self Confidence- <b>Dr Ivan Joseph</b></li> <li>5. Where Joy Hides and How to Find it - <b>Ingrid Fetell Lee</b></li> </ol>		

	<ol style="list-style-type: none"> <li>6. Why you should be a climate activist? -<b>Luisa Neubauer</b></li> <li>7. Save the World by Changing the Rules- <b>Greta Thunberg</b></li> <li>8. Women should rethink their inheritance - <b>Leila Seth</b></li> <li>9. Power of Perspective- <b>Preethi Sreenivasan</b></li> <li>10.How SHE became an IAS officer <b>Surabhi Gautam</b></li> </ol>		
<b>Listening Skills</b>	<p><b>Listen to and understand selected poems (2poems)</b></p> <p>For internal assessment</p>	2 hrs	05 marks for IA
	<ol style="list-style-type: none"> <li>1. The Road Not Taken - Robert Frost</li> <li>2.Refugee Blues – W. H. Auden</li> <li>3. Still I Rise - Maya Angelou</li> <li>4. If-Rudyard Kipling</li> <li>5. O Captain! My Captain - Walt Whitman</li> <li>6. A Psalm of Life - H W Longfellow</li> <li>7. The Duck and the Kangaroo - Edward Lear</li> <li>8. On Seeing a White Flag across a by road - Kamala Wijeratne</li> <li>9.Our Strange Lingo - Lord Cromer</li> <li>10. Money Madness- D H Lawrence</li> <li>11. Telephone Conversation - Wole Soyinka</li> <li>12. Soap - Nissim Ezekiel</li> <li>13.Once Upon a Time - Gabriel Okara</li> </ol>		
<b>PRODUCTIVE SKILLS: SPEAKING AND WRITING SKILLS</b>		<b>25 hrs</b>	
<b>Chapter – 3 SPEAKING SKILLS</b>	<p><b>Group Discussion</b></p> <p><b>Public Speaking</b></p> <p>For Internal assessment</p>	4 hrs	10 Marks for IA 10 Marks for IA
<b>WRITING SKILLS</b>	<p><b>TECHNICAL WRITING</b></p> <p>For written examination</p>	8 hrs	10 marks
	<ul style="list-style-type: none"> <li>• Scientific Writing</li> <li>• Copywriting</li> <li>• Travel Writing</li> <li>• Article Writing</li> </ul>		

<b>E-correspondence and Content Writing Skills</b>			
For written examination			
	<ul style="list-style-type: none"> <li>• E-mail - Casual and professional</li> <li>• Apology Letters, Congratulation/Appreciation Letters,</li> <li>• Leave Letters,</li> </ul>	5 hrs	10 marks
	<b>Social Media Content Writing skills (Any 3)</b> <ul style="list-style-type: none"> <li>• Blog writing</li> <li>• Podcast writing</li> <li>• Writing on Twitter</li> <li>• Writing on Facebook</li> <li>• Writing on Quora</li> <li>• Writing On Instagram</li> </ul>	8 hrs	10 marks

## References:

1. Garg, Manoj Kumar. English Communication -Theory and Practice -Ability Enhancement Compulsory Course. Cengage, 2019.
2. Rogers, C., Farson, R. E. Active Listening. Gordon Training.
3. Inc., [www.gordontraining.com/free-workplace-articles/active-listening/](http://www.gordontraining.com/free-workplace-articles/active-listening/), Extract from 1957 article
4. Leech, Geoffrey and Jan Svartvik. A Communicative Grammar of English. Routledge, 2016.
5. Yadugiri, M A. Making Sense of English - A Textbook of Sounds, Words and Grammar, Viva Books, 2005, 2020.
6. Yadugiri, M. A. The Pronunciation of English - Principles and Practice. Viva Books, 2013, 2017.
7. Peck, John and Martin Coyle. Write It Right – Secrets of Effective Writing (Palgrave Study Skills), Palgrave Macmillan, 2005, 2012.
8. Stannard, Allen William . Living English Structure. Longman, London, 1974.
9. Wood, Frederick.T. A Remedial English Grammar for Foreign Students. Macmillan Education, India, 1990.
10. Stanford Gene. Better Writing: From Paragraph to Essay. Harcourt College Pub, California, 1980.
11. Chaturvedi, P.D and Mukesh Chaturvedi. Business Communication, Concepts, Cases and Applications. Pearson, 2011.
12. Dev, Anjana Neira, Anuradha Marwah & Swati Pal. Creative writing - A Beginners Manual. Pearson. 2008
13. Murphy, Raymond. Grammar in Use. CUP, 2019. 5<sup>th</sup> Edition.
14. Seely, John. Oxford Guide to Effective Writing and Speaking. OUP, 1998, 2013.

## IV Semester

### BCA Syllabus Hindi Language ( BCAHDLN 401)

**Teaching Hours : 4 Hrs. Per Week**

**Credits : 3**

**Exam Duration : 2 Hrs.**

**Total Marks : 100**

**Theory : 60**

**IA : 40**

### Syllabus पाठ्यक्रम

UNIT	SUBJECT	Marks
I	नाटक जादू का कालीन- (मृदुला गर्ग)	20

II	नाटक जादू का कालीन ( मृदुला गर्ग)	20
III	अंतर्जाल ( इंटरनेट) अंतर्जाल का स्वरूप भारत में अंतर्जाल का विकास अंतर्जाल के प्रकार	10
IV	अंतर्जाल की सेवाओं का परिचय अंतर्जाल का महत्व अंतर्जाल पत्र- पत्रिकाएँ	10
	Total	60

Prescribed Books :

जादू का कालीन- (मृदुला गर्ग) - वाणी प्रकाशन , दिल्ली

**Pedagogy : शिक्षा पद्धति :**

1. कक्षा व्याख्यान
2. सामूहिक चर्चा
3. कक्षाओं में पठन- पाठन की पद्धति
4. नाटक मंचन

**Expected Out-come : आपेक्षित परिणाम**

- 1.हिन्दी भाषा में रोजगार के अवसर
- 2.हिन्दी का अनुप्रयोग
- 3.सामाजिक समस्याओं के प्रति जागृति

**Question Paper Pattern    प्रश्न पत्र का नमूना**

Question No.	Type of Question	Division of Marks	Marks
I	One word or One Sentence Answer (Unit I&II)	10X1	10
II	Annotations (Unit I & II, 2 out of 4)	2X5	10
III	Essay Type Questions (Unit I , 1 out of 2)	1X10	10
IV	Essay Type Questions (Unit II, 1 out of 2 )	1X10	10
V	Theoretical Questions (Unit III & IV - 3 out of 4 )	3 X 5	15
VI	One word or One Sentence Answer(Unit III&IV)	5 X1	05
	<b>TOTAL</b>		<b>60</b>

ರಾಷ್ಟ್ರೀಯ ಶಿಕ್ಷಣ ನೀತಿ (NEP) – ೨೦೨೦ ರ ಅನ್ವಯ

ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

ದ್ವಿತೀಯ ಬಿಸಿಎ ಕನ್ನಡ - ಚತುರ್ಥ ಚತುರ್ಮಾಸ

ಗಣಕ ಮಂಗಳ -೪

ಒಟ್ಟು ಕ್ರೆಡಿಟ್ ಗಳು ೩, ಬೋಧನಾ ಅವಧಿ ೪+೦+೦,

ಸೆಮಿಸ್ಟರಿನಲ್ಲಿ ಒಟ್ಟು ೧೦೦ ಅಂಕಗಳು

SEE – ಸೆಮಿಸ್ಟರ್ ಅಂತ್ಯದ ಪರೀಕ್ಷೆ – ೬೦ ಅಂಕಗಳು

CIE – ನಿರಂತರ ಆಂತರಿಕ ಮೌಲ್ಯಮಾಪನ – ೪೦ ಅಂಕಗಳು

( ನಾಗರಿಕತೆ – ಅಭಿವೃದ್ಧಿ – ಕರುಣೆ – ಸಂಕೀರ್ಣ ಪರಿಕಲ್ಪನೆನ್ನೊಳಗೊಂಡಂತೆ )

ಪರಿವಿಡಿ

ಘಟಕ I – ನಾಗರಿಕತೆ

೧. ತಂಗಿಗೊಂದು ಪತ್ರ - ವಿಜಯಶ್ರೀ ಸಬರದ
೨. ಸಾಂಸ್ಕೃತಿಕ ಪಲ್ಲಟಗಳು ಮತ್ತು ತಾಳಮದ್ದಲೆ – ರಾಧಾಕೃಷ್ಣ ಕಲ್ಚಾರ್
೩. ನಾಗಣ್ಣನ ಕನ್ನಡಕ – ಪಂಜೆ ಮಂಗೇಶ ರಾವ್

ಘಟಕ II – ಅಭಿವೃದ್ಧಿ

೧. ಪರಿವರ್ತನೆ - ಅಜಿತ್ ಹರೀಶಿ
೨. ಹಳ್ಳಿಗಳಿಗೇನಾಗಿದೆ? – ಕೇಶವ ಕುಡ್ಡ
೩. ಬಾಲೆಯಾಡಿಸುವ ಬಾಲೆ - ವಸುಮತಿ ಉಡುಪ



### ಘಟಕ III – ಕರುಣೆ

೧. ಭಂಟಿ – ಸದಾಶಿವ ಸೊರಟೂರು
೨. ಬಾಳ್ ನಿಶೆಗೆ ಶಶಿಯುದಿಸಿದಂತಾಯ್ತು - ಕುವೆಂಪು
೩. ಸ್ನೇಹಗಂಗೆ - ರವಿ ನಾಯ್ಕಾಪು

### ಘಟಕ IV – ಸಂಕೀರ್ಣ

೧. ಚೆಂಡೆ – ಸಂತೋಷ್ ಅನಂತಪುರ
೨. ವರದಾನ - ಸುಧಾಮೂರ್ತಿ
೩. ಸೀತಾಪಹರಣ - ಪಾರ್ತಿಪುಬ್ಬ

# **MANGALORE UNIVERSITY**



## **National Education Policy – 2020 [NEP-2020]**

### **BLOWNUP SYLLABUS OF IV SEMESTER B.C.A.**

<b>Course Title: Python Programming</b>	Course code: 21BCA3C10L
Total Contact Hours: 42	Course Credits: 03+02
Formative Assessment Marks: 40	Duration of SEE/Exam: 02 Hours
Summative Assessment Marks: 60	

## DSC10: Python Programming

### Course Contents:

<b>Topics</b>	<b>Book</b>	<b>Chapter /Page No/Section</b>
<b>UNIT 1[11 HOURS]</b>		
<b>Introduction to Python;</b> Features, flavors of Python, Writing and Executing Python Program.	2	Page No 1 to 4, 10 ,11 ,31,32
<b>Python Basics:</b> Identifiers; Keywords; Statements and Expressions; Variables; Operators; Precedence and Association; Data Types; Indentation; Comments; Console Input and Console Output, Type Conversions.	1	Chapter 2 Complete
<b>Python Control Flow:</b> Types of Control Flow; Control Flow Statements- if, else, elif, while loop, break, continue statements, for loop Statement; range () and exit () functions.	1	Chapter 3 3.1 to 3.7
<b>Exception Handling:</b> Types of Errors; Exceptions; Exception Handling using try, except and finally.	1	Chapter 3 3.8 All subsections

<p><b>Python Functions:</b> Built in Functions. User defined functions: Definition-Syntax, Function Calling, Passing Parameters/arguments, the return statement; Scope and Lifetime of Variables in Functions,Default Parameters; Key Word Arguments; Command line Arguments.</p>	1	Chapter 4 Complete
<b>UNIT 2[11 HOURS]</b>		
<p><b>Strings:</b> Creating and Storing Strings; Accessing Sting Characters; the str() function; Operations on Strings- Concatenation, Comparison, Slicing and Joining, Traversing; Python String Methods,</p>	1	Chapter 5 5.1 to 5.5 All Sub sections included
<p><b>Lists:</b> Creating Lists; Operations on Lists; Built-in Functions on Lists; Implementation of Stacks and Queues using Lists; Nested Lists.</p>	1	Chapter 6 6.1 to 6.5 All Sub sections included
<p><b>Dictionaries:</b> Creating Dictionaries; Operations on Dictionaries; Built-in Functions on Dictionaries; Dictionary Methods; Populating and Traversing Dictionaries.</p>	1	Chapter 7 7.1 to 7.4 All Sub sections included
<p><b>Tuples and Sets:</b> Creating Tuples; Operations on Tuples; Built-in Functions on Tuples; Tuple Methods; Creating Sets; Operations on Sets; Built-in Functions on Sets; Set Methods.</p>	1	Chapter 8 8.1 to 8.4 ,8.7 ,8.9,8.10 All Sub sections included

<b>UNIT 3 [10 HOURS]</b>		
<p><b>File Handling:</b> File Types; Operations on Files– Create, Open, Read, Write, Close Files; File Names and Paths.</p> <p><b>Object Oriented Programming:</b> Classes and Objects; Creating Classes and Objects; Constructor Method; Classes with Multiple Objects; Objects as Arguments; Objects as Return Values; Inheritance- Single and Multiple Inheritance, Multilevel and Multipath Inheritance; Encapsulation- Definition, Private Instance Variables; Polymorphism- Definition, Operator Overloading.</p> <p><b>GU Interface:</b> The tkinter Module; Window and Widgets; Text, label ,Button , entry , Listbox ,checkboxbuttonRadiobutton ,scrollbar, Spinbox. Layout Management- pack, grid and place</p>	1	<p>Chapter 9 9.1 to 9.3 All sub sections included</p>
	1	<p>Chapter 11 11.1 to 11.5 ,11.7 to 11.9 All sub sections included</p>
	2	<p>Page.Nos 570,571,576,584 to 613</p>
<b>UNIT 4[10 HOURS]</b>		
<p><b>Python SQLite:</b> The SQLite3 module; SQLite Methods- connect, cursor, execute, close; Connect to Database; Create Table; Operations on Tables,Insert, Select, Update. Delete and Drop Records.</p> <p><b>Data Analysis:</b> NumPy- Introduction to NumPy, Array Creation using NumPy, Operations on Arrays; Pandas- Introduction to Pandas, Series and DataFrames.</p>	1	<p style="text-align: center;"><b>Study material</b></p> <p>Chapter 12 <i>12.3 to 12.3.5</i> 12.4 to 12.4.2 (uptopageNo 385)</p>

Creating DataFrames from Excel Sheet and .csv file, Dictionary and Tuples. Operations on DataFrames.	2	P.No 694 to 701
<b>Data Visualization:</b> Introduction to Data Visualisation; Matplotlib Library; Different Types of Charts using Pyplot- Line chart, Bar chart and Histogram and Pie chart	2	P.No 705 to 712

### Text Book:

1. Introduction to Python Programming by Gowrishankar S and Veena A.
2. Core Python Programming Dr. R. Nageshwara Rao.

### Reference Books:

1. Think Python How to Think Like a Computer Scientist, Allen Downey et al., 2ndEdition, Green Tea Press. Freely available online @ <https://www.greenteapress.com/thinkpython/thinkCSpy.pdf> , 2015
2. Introduction to Python Programming, Gowrishankar S et al., CRC Press, 2019.
3. Python Data Analytics: Data Analysis and Science Using Pandas, matplotlib, and the Python Programming Language, Fabio Nelli, Apress®, 2015
4. Advance Core Python Programming, MeenuKohli, BPB Publications, 2021.
5. Core PYTHON Applications Programming, Wesley J. Chun, 3rd Edition, Prentice Hall, 2012.
6. Automate the Boring Stuff, Al Sweigart, No Starch Press, Inc, 2015.
7. Data Structures and Program Design Using Python, D Malhotra et al., Mercury Learning and Information LLC, 2021.
8. <http://www.ibiblio.org/g2swap/byteofpython/read/>
9. <https://docs.python.org/3/tutorial/index.html>

<b>Course Title: Computer Multimedia &amp; Animation</b>	Course code: 21BCA3C11L
Total Contact Hours: 42	Course Credits: 03+02
Formative Assessment Marks: 40	Duration of SEE/Exam: 02 Hours
Summative Assessment Marks: 60	

### DSC11: Computer Multimedia & Animation

Topics	Book	Page No/Section
<b>UNIT 1[11 HOURS]</b>		
<p><b>Web Design:</b> Origins and evolution of HTML, Basic syntax, Basic text markup, Images, Lists, Tables, Forms, Frame, Overview and features of HTML5.</p>	Book 1	<p>Chapter 1: Page No: 3-49            Chapter 2: Page No: 55-82,            101 – 106            Chapter 3: Page No: 154 –            422            (In HTML element reference            only following to be            discussed comment,            conditional comment,            document type declaration,            anchor tag, article tag, aside            tag, audio tag, bold tag, body            tag, line break tag, form            button tag, table caption tag,            center tag, div tag, dl tag, dt            tag, emphasis tag, field set            tag, figure tag, font tag, footer            tag, form tag, h1 to h6 tag,            head tag, header tag, ht tag,            html tag, italic tag, iframe            tag, image tag, input tag,            label tag, legend tag, li tag,            link tag, marquee tag, nav            tag, ordered list, &lt;p&gt; tag,            script tag, section tag, select            tag, span tag, style tag, table            tag and all table related tags,            time tag, title tag, unordered            list tag, video tag)</p>
<p><b>JavaScript:</b> Object orientation and JavaScript; General syntactic characteristics; Primitives, operations, and expressions; Screen output and keyboard input.</p>	Book 3	<p>Chapter 1: Page No: 7-10            Chapter 2 to Chapter 8</p>

		(Full Chapters) Chapter 09: Page No:224-228 Chapter 10: Page No:249-251, 255-256
<b>UNIT 2[11 HOURS]</b>		
<b>CSS:</b> Introduction, Levels of style sheets, Style specification formats, Selector forms, Property value forms, Font properties, List properties, Color, Alignment of text, The and tags; Overview and features of CSS3.	Book 4	Introduction: Page No: 1-8 Chapter 1: Page No: 17-31 Chapter 2: Page No: 35-54 Chapter 3: Page No: 55-92 Chapter 6: Page No: 127-191 Chapter 7: Page No: 193-237
<b>Animation:</b> Introduction, Start and End States, Interpolation, Animations in HTML. All About CSS Animations, Creating a Simple Animation, Detailed Look at the CSS Animation Property, Keyframes, Declaring Multiple Animations, Wrap-up. All About CSS Transitions, Adding a Transition, Looking at Transitions in Detail, The Longhand Properties, Longhand Properties vs. Shorthand Properties, Working with Multiple Transitions.	Book 2	Page No: 14-20 Page No: 22-46 Page No: 47-60
<b>UNIT 3[10 HOURS]</b>		
HTML5 – SVG: Viewing SVG Files, Embedding SVG in HTML5, HTML5 – SVG Circle, HTML5 – SVG Rectangle, HTML5 – SVG Line, HTML5 – SVG Ellipse, HTML5 – SVG Polygon, HTML5 – SVG Polyline, HTML5 – SVG Gradients, HTML5 – SVG Star	Material supplied by University	
<b>UNIT 4[10 HOURS]</b>		
HTML5 – CANVAS: The Rendering Context, Browser Support, HTML5 Canvas Examples, Canvas - Drawing Rectangles, Canvas - Drawing Paths, Canvas - Drawing Lines, <b>Canvas</b> - Drawing Bezier Curves, Canvas - Drawing Quadratic Curves, Canvas - Using Images, Canvas - Create Gradients, HTML5 - Styles and Colors, Canvas - Text and Fonts, Canvas - Pattern and Shadow, Canvas - Save and Restore States, Canvas - Translation, Canvas - Rotation, Canvas - Scaling, Canvas -	Book 1           Material supplied by university	Page no: 82-100 Page no: 198-208 Material only for Canvas - Animation



Transforms, HTML5 Canvas - Composition, Canvas – Animations.		
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**Book 1:** The Complete Reference HTML and CSS, 5th Edition, Thomas A Powell, 2017.

**Book 2:** Animation in HTML, CSS, and JavaScript, Kirupa Chinnathambi, 1st Edition, Createspace Independent Pub, 2013.

**Book 3:** JavaScript – A Beginner’s Guide, John Pollock, Mc Graw Hill Publications Third Edition

**Book 4:** CSS3 – The missing manual, David Sawyer McFarland, Third Edition, O’Reilly Media, Inc - 2012

### **Reference Books:**

1. The Complete Reference HTML and CSS, 5th Edition, Thomas A Powell, 2017.
2. Animation in HTML, CSS, and JavaScript, KirupaChinnathambi, 1st Edition, Createspace Independent Pub, 2013.
3. <https://www.w3.org/Style/CSS/current-work#CSS3>
4. <http://bedford-computing.co.uk/learning/cascading-style-sheets-css/>

<b>Course Title: Operating System Concepts</b>	Course code: 21BCA3C12L
Total Contact Hours: 42	Course Credits: 03+02
Formative Assessment Marks: 40	Duration of SEE/Exam: 02 Hours
Summative Assessment Marks: 60	

### DSC8: Operating System Concepts

#### Course Contents:

Topics	Book	Chapter /Page No/Section
<b>UNIT 1[11 HOURS]</b>		
<b>Introduction to Operating System:</b> Definition, History and Examples of Operating System;  Types of Operating Systems;  Functions of Operating System; Systems Calls; Operating System Structure.	BOOK-1	BOOK 1 Chapter 1: 1.1 to 1.6(Page No:3-33)
	BOOK 2	BOOK 2 Chapter 1:1.2,1.3,1.4,1.5,1.6, 1.7,1.8(Page No:7-20)
	BOOK 1	BOOK 1 Chapter 2: 2.1 to 2.6,2.8 (Page No:55-76) (Page No:81-91)
<b>File System:</b> File Concepts- Attributes, Operations and Types of Files; File System; File Access methods; Directory Structure; Protection; File System	BOOK 1	BOOK 1 Chapter 13: 13.1 to 13.4 (Page No:529-555)

Implementation- File System Structure, Allocation Methods, Free Space Management.		Chapter 14: 14.1 to 14.5 (Page No:563-581)
<b>UNIT 2[11 HOURS]</b>		
<b>Memory Management:</b> Logical and Physical Address Space; Swapping; Contiguous Allocation; Paging;	BOOK- 1	BOOK- 1 Chapter 9: 9.1,9.2, 9.3,9.4,9.5 (Page No:349-378)
Segmentation; Segmentation with Paging.	Book-2	BOOK-2 Chapter 9:9.5 (Page No:303-312)
<b>Virtual Memory:</b> Introduction to Virtual Memory; Demand Paging; Page Replacement; Page Replacement Algorithms; Allocation of frames, Thrashing	BOOK -1	BOOK- 1 Chapter 10: 10.1,10.2,10.3,10.4(Except 10.4.7 and 10.4.8),10.5,10.6  (Page No:389-412,413-425)
<b>Disk Scheduling (I/O Management):</b> Introduction and Scheduling Algorithm	BOOK-2	BOOK-2 Chapter 14: 14.1-14.3 (Page No:491-502)
<b>UNIT 3[10 HOURS]</b>		
<b>Process Management:</b> Process Concept- Process Definition, Process State, Process Control Block, Threads; Process scheduling-	BOOK -1	BOOK -1

<p>Multiprogramming, Scheduling Queues, CPU Scheduling, Context Switch; Operations on Processes- Creation and Termination of Processes; Inter process communication (IPC)- IPC Implementation Methods- Shared Memory and Message Passing;</p> <p><b>CPU Scheduling:</b> Basic concepts; Scheduling Criteria; Scheduling Algorithms; Multiple-processor scheduling; Thread scheduling; Multiprocessor Scheduling; Real-Time CPU Scheduling</p>	<p>BOOK -1</p>	<p>Chapter 3: 3.1,3.2,3.3,3.4,3.5,3.6 (Page No:105-132)</p> <p>BOOK -1 Chapter 5:5.1,5.2,5.3,5.4,5.5(5.5.1, 5.5.2),5.6(5.6.1,5.6.2,5.6.3 ) (Page No:199-224,227-232)</p>
<p><b>UNIT 4[10 HOURS]</b></p>		
<p><b>Process Synchronization:</b> Introduction; Race Condition; Critical Section Problem and Peterson’s Solution; Synchronization Hardware, Semaphores; Classic Problems of Synchronization- Readers and Writers Problem, Dining Philosophers Problem; Monitors.</p> <p><b>Deadlocks:</b> System Model; Deadlocks Characterization; Methods for Handling Deadlocks; Deadlock</p>	<p>BOOK -1</p> <p>BOOK -1</p>	<p>BOOK -1 Chapter 6: 6.1,,6.2,6.3,6.4,6.5,6.6,6.7 (Page No:257-282)</p> <p>BOOK -1 Chapter 7:7.1.1,7.1.2,7.1.3 (Page No:289-294)</p> <p>BOOK -1 Chapter 8:8.1 to 8.8</p>

<p>Prevention; Deadlock Avoidance; Deadlock Detection; and Recovery from Deadlock.</p> <p><b>Multithreaded Programming:</b> Introduction to Threads; Types of Threads; Multithreading- Definition, Advantages; Multithreading Models; Thread Libraries; Threading Issues.</p>	<p>BOOK -1</p>	<p>(Page No:317-343)</p> <p>BOOK -1 Chapter 4:4.1,4.2,4.3,4.4,4.6 (Page No:188-194)</p>
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**Text Book:**

1. Operating System Concepts, Silberschatz' et al., 10thEdition, Wiley, 2018.
2. Operating System Concepts, Silberschatz' et al., 6thEdition,

**Reference Books:**

1. Operating System Concepts - Engineering Handbook, Ghosh PK, 2019.
2. Understanding Operating Systems, McHoes A et al., 7th Edition, Cengage Learning, 2014.
3. Operating Systems - Internals and Design Principles, William Stallings, 9th Edition, Pearson.
4. Operating Systems – A Concept Based Approach, Dhamdhere, 3rd Edition, McGraw Hill Education India.
5. Modern Operating Systems, Andrew S Tanenbaum, 4th Edition, Pearson"Computing with C# and the .NET Framework", Arthur Gittleman, 2nd Edition, Jones & Bartlett Publishers, 2011

## IV SEMESTER B.C.A

<b>Course Title: Computer Multimedia &amp; Animation Lab</b>	Course code:
Total Contact Hours: 52	Course Credits: 02
Formative Assessment Marks: 25	Duration of SEE/Exam: 03 Hours
Summative Assessment Marks: 25	

### **LAB: Computer Multimedia & Animation PART-A**

1. Create a home page for a college website containing all latest HTML5 tags like <article>, <aside>, <nav>, <header>, <footer>, <section>, <figure>. And in <nav>. Create hyper links for courses, facilities and contact details. On clicking
  - Course hyperlink, display the page with course names offered in the college using ordered list,
  - Facilities hyperlink, display the page describing the facilities using unordered list
  - Contact hyperlink, display the page to show phone number, email and address in separate columns with respective headings.
2. Design a HTML5 web page containing form with text, password, number, range, email, url, file, submit and reset elements which must be styled using CSS3 according to following screen shot.

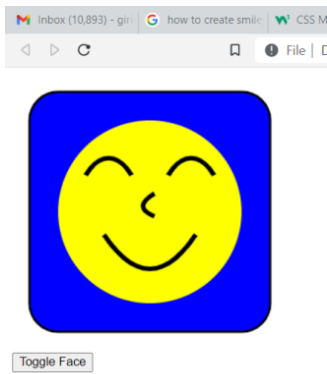
## Registration Form

The registration form is titled "Registration Form" in green. It contains the following fields and controls:

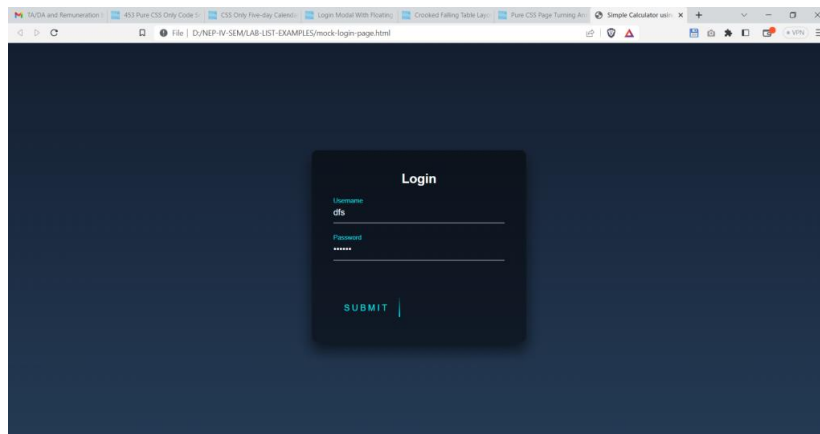
- Name:** A text input field with the placeholder "Enter your name".
- Password:** A text input field with the placeholder "Enter your password".
- Confirm Password:** A text input field with the placeholder "Confirm password".
- Contact Number:** A text input field with the placeholder "Enter a number".
- Skill Range:** A range slider with a green handle.
- Email:** A text input field with the placeholder "Enter your email".
- Profile URL:** A text input field with the placeholder "Enter a URL".
- Resume:** A file upload control with a "Choose File" button and the text "No file chosen".
- Submit and Reset:** Two green buttons at the bottom.

### Note that:

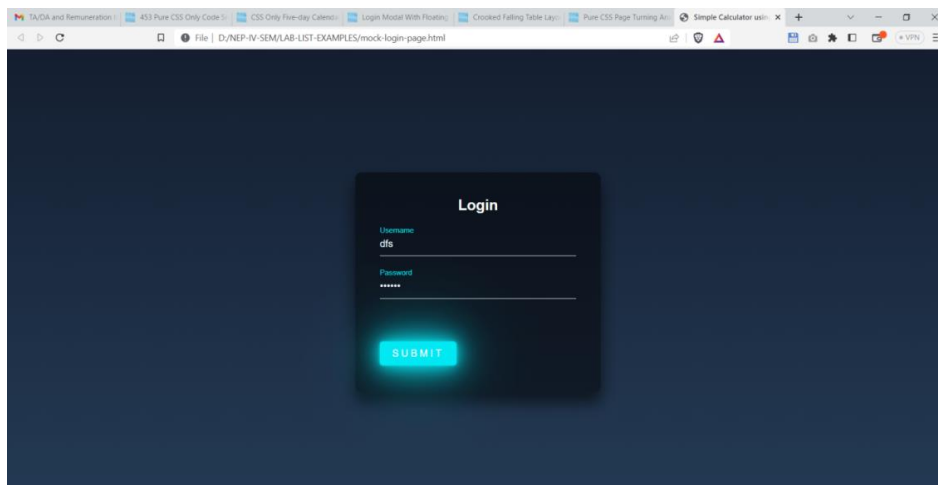
- Apply the style exactly same as shown in the above screen shot (with border radius, box shadow and colours).
  - Submit and Reset buttons must change their colour on mouse hovering.
  - Name and passwords should not be empty. If empty, provide error message when **submit** is clicked .
  - When clicked on submit button email, Profile URLs must be validated for proper input.
  - Contact number must contain only 10 digits not lesser and not more.
  - Clicking on Reset button must clear all fields' entry.
3. Create an HTML5 web page which shows a smiling face initially. On every click of 'Toggle Face' button display should toggle between smiling face and sad face.
- Note:** Use only one button. And faces should be drawn using canvas element. Faces must be exactly like the following screen shots.



4. Design a mock login page and style it using CSS3. Initially login page should look like the following screen shot

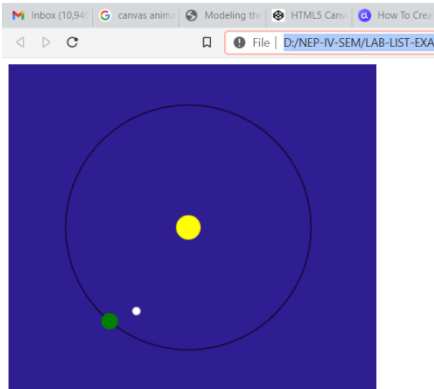


And while mouse is hovered on SUBMIT button it should look like

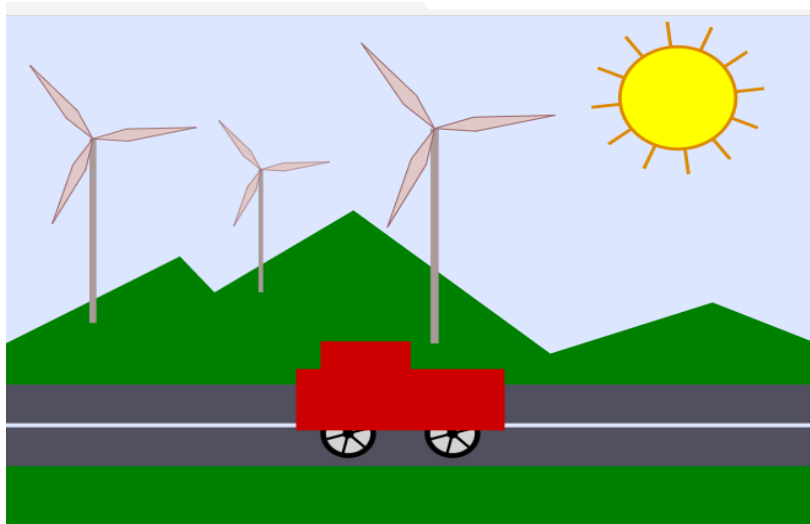




5. Create a web page to model solar system using canvas element animation, where it contains sun, earth and moon (all must be created using canvas shapes not images). Earth should revolve around sun and moon should revolve around earth simultaneously. Sample screen shot below:



6. Create the following drawing in html page using only SVG.



7. Create the following drawing using SVG



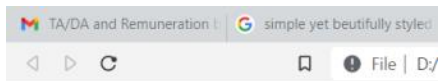
8. Create a web page using HTML and CSS to create a timetable as follows:

**COLLEGE TIME TABLE**

	8:30-9:30	9:30-10:30	10:30-11:30	11:30-12:30	12:30-2:00	2:00-3:00	3:00-4:00	4:00-5:00
MONDAY	---	SUB1	SUB2	SUB3	L U N C H	SUB4	SUB5	COUNSELLING CLASS
TUESDAY	SUB1	SUB2	SUB3	---		SUB2	SUB2	LIBRARY
WEDNESDAY	SUB1	SUB2	SWA	---		LAB		
THURSDAY	SUB1	SUB2	SUB3	---		SUB2	SUB2	LIBRARY
FRIDAY	SUB1	SUB2	SUB3	---		SUB4	SUB5	LIBRARY
SATURDAY	SUB1	SEMINAR				SUB4	SUB5	LIBRARY

## PART-B

1. Create a web page using HTML5 canvas element to show a clock which changes time for every second, minute and hours (as that of an analog clock). Clock should have second, minute and hour needles and minute marking must be there (as shown in screen shot).

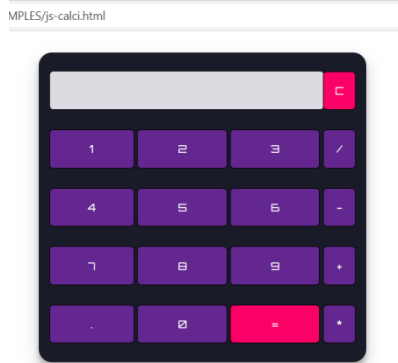


2. Create a web page containing simple calculator which should have basic arithmetic (+,-,\*,/) operation on two floating point numbers and show result.

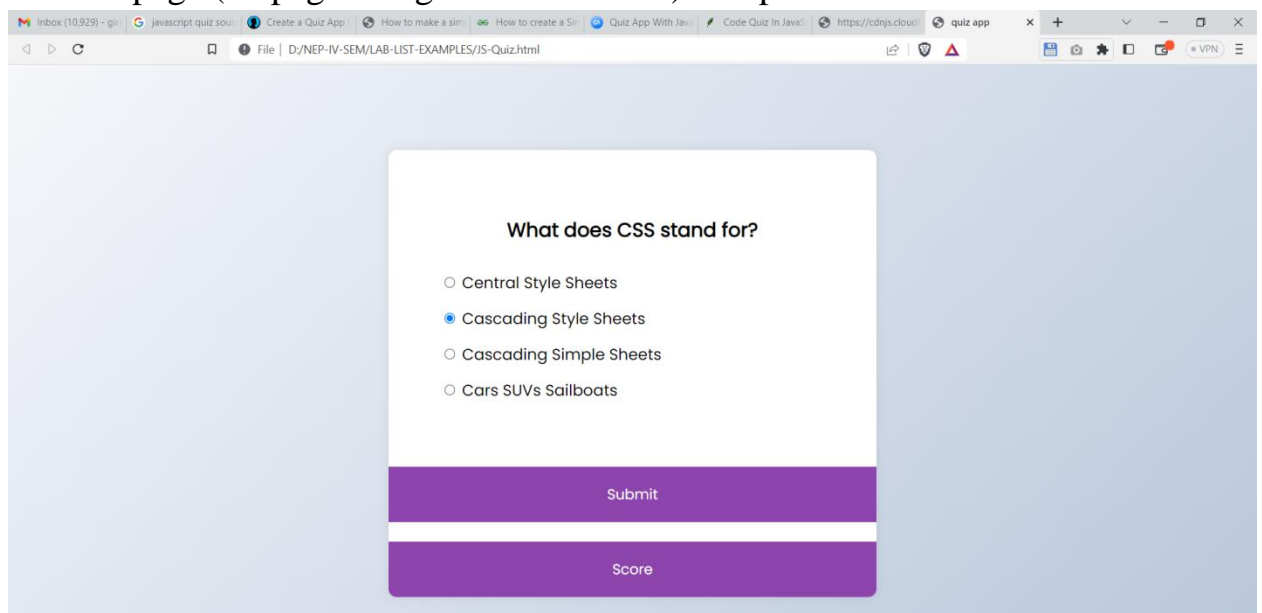
Validations to be followed:

- . (Decimal point) should be taken only once for an operand.
- Operand can be negative.
- Division by zero must be shown proper error message in result.

Sample screen shot:

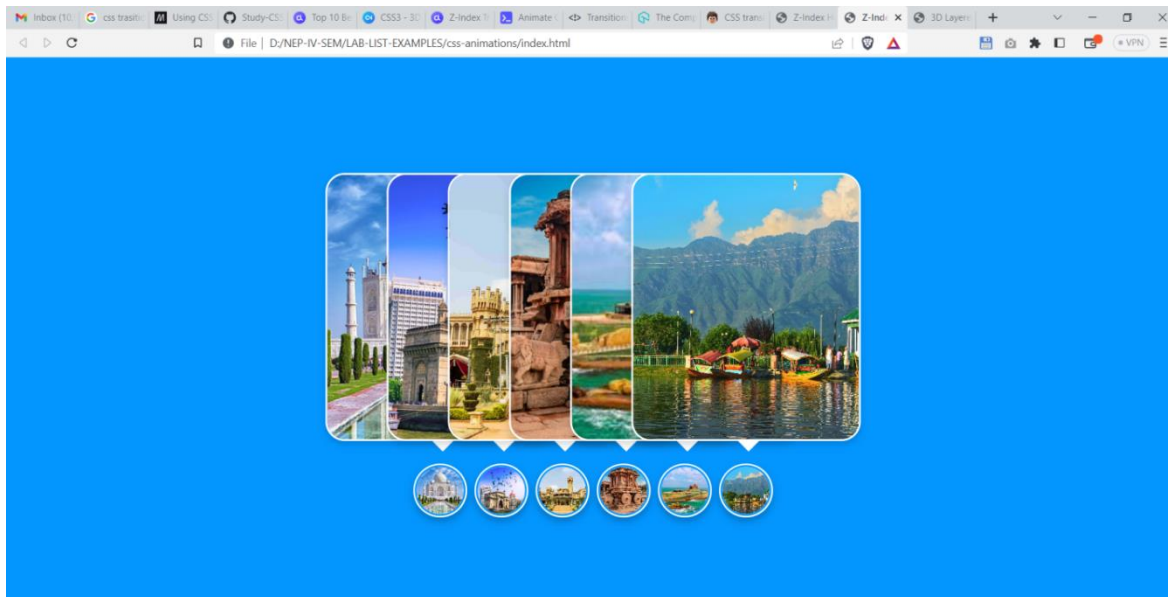


3. Create a HTML page make a quiz game where user should answer one question at a time, answers must be shown in radio buttons. Without submitting the answer, quiz should not move to next question (Minimum five questions must be there). When user wishes to get score (using score button) score should be displayed in alert message. All the question must be loaded in same page (no page navigation is allowed) Sample screen shot:

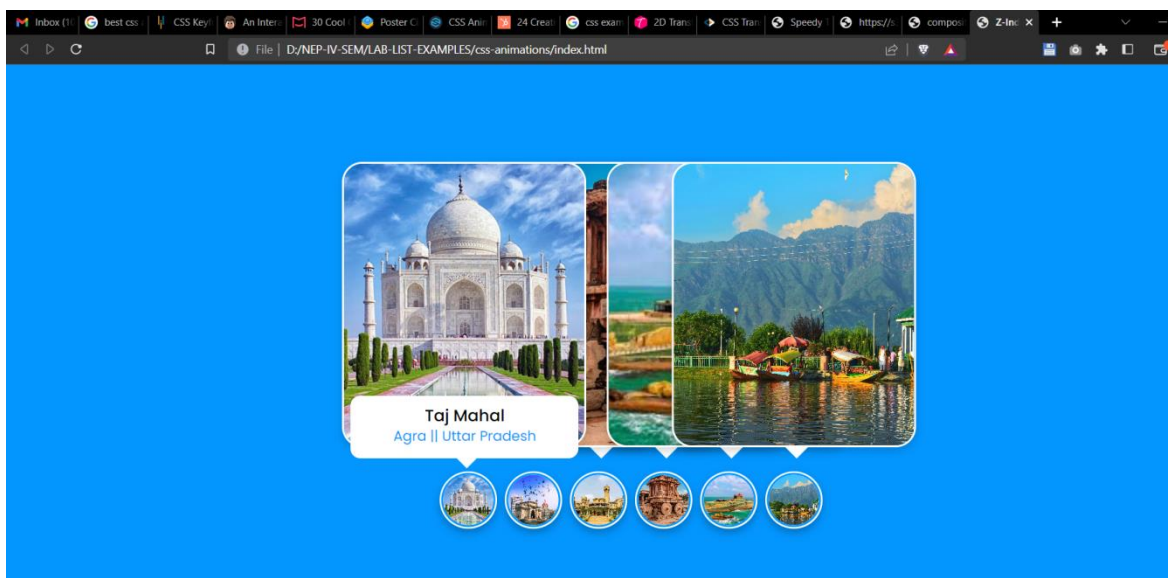


4. Create a web page using HTML/CSS which contains cards (shown as a stack of cards) with image of a tourist place and below that is a thumbnail (shown in circle with image). When mouse hovers over thumbnail, corresponding card comes in front and also small description about the tourist place will be displayed. Use ONLY CSS animation and transition. (Java script should not be used to animate.)

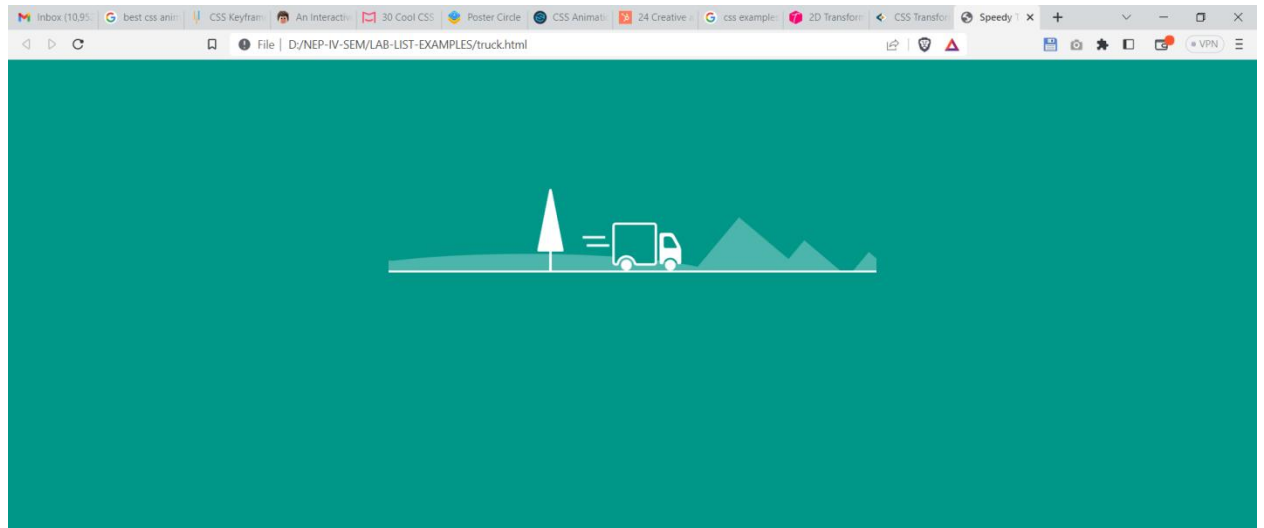
Initial interface:



Interface should look like below screenshot when mouse hovered on thumbnail:



5. Create a web page using HTML5/CSS3 to animate a truck movement. While truck moves on mountains and trees should move in the back ground. Output screen shot:



Background hills must be created using CSS only and for tree, truck and wheels download the images from the following URLs.

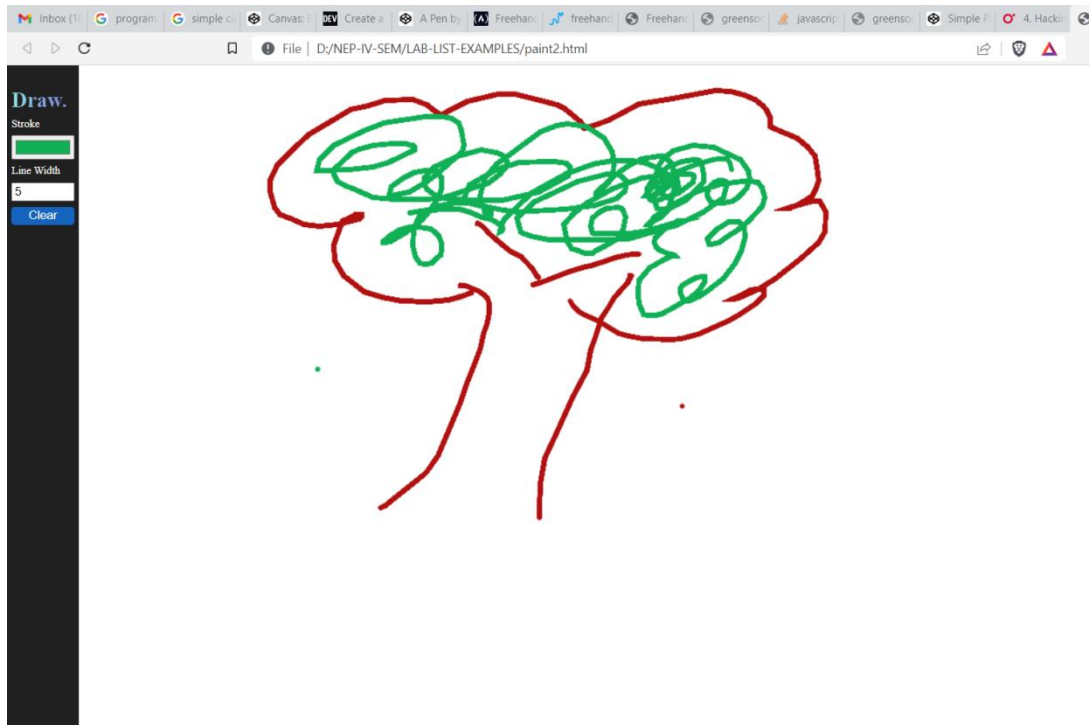
<https://s3-us-west-2.amazonaws.com/s.cdpn.io/130015/tree.svg>

<https://s3-us-west-2.amazonaws.com/s.cdpn.io/130015/truck.svg>

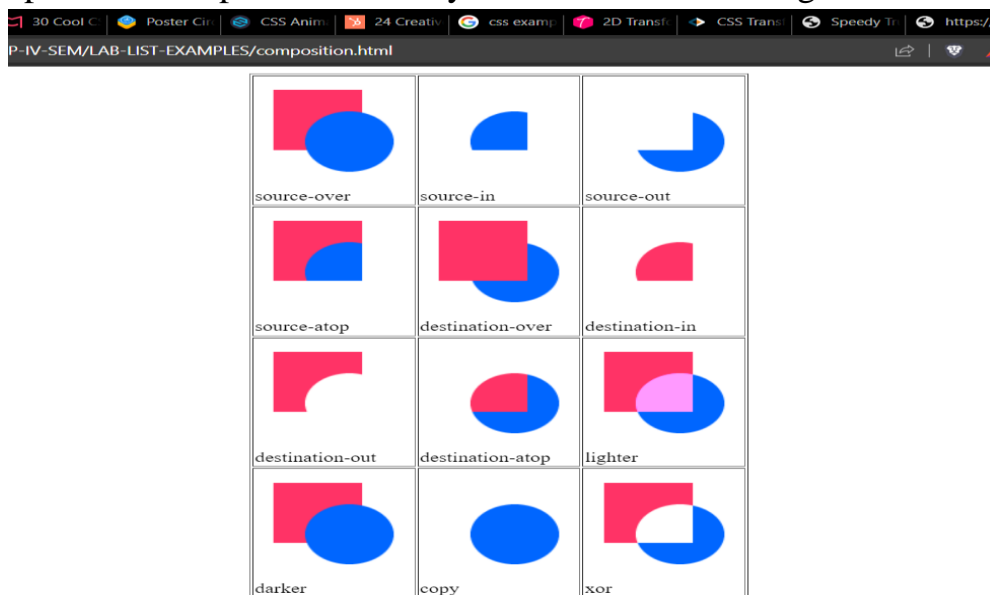
<https://s3-us-west-2.amazonaws.com/s.cdpn.io/130015/wheels.svg>

Animation must be implemented using ONLY CSS and Java script should not be used.

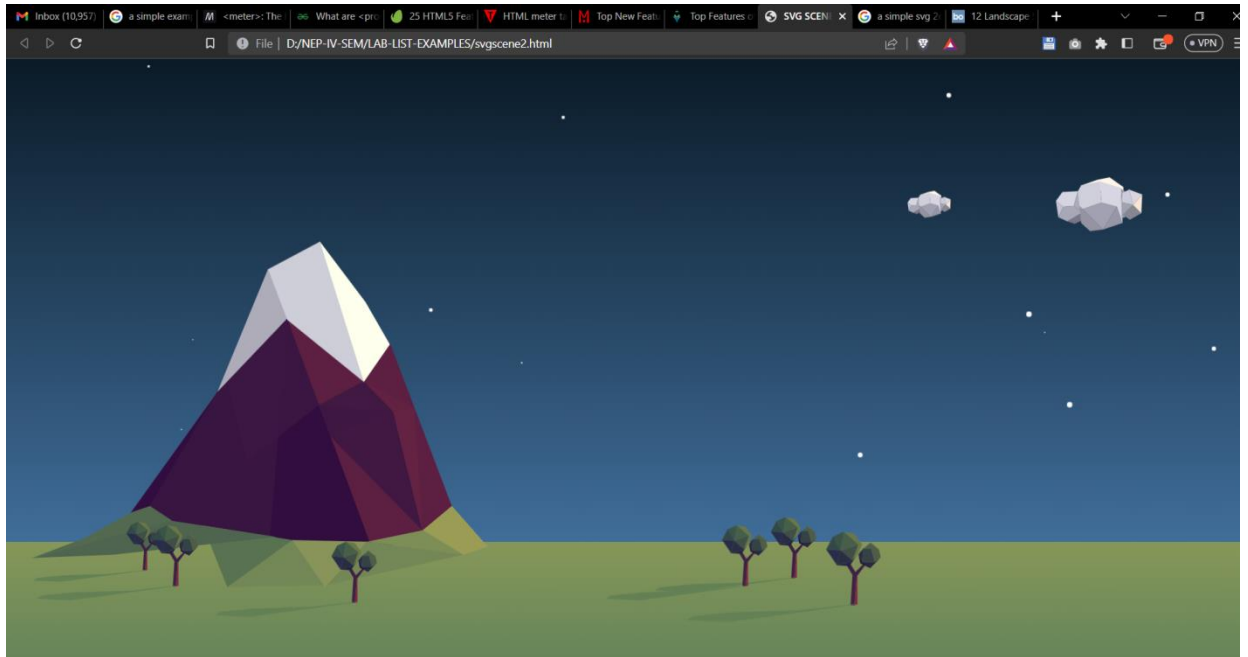
6. Create a simple paint app which draws lines based on the selected colour (chosen using color input) with selected thickness (chosen using number input) and there must be CLEAR button to clear the canvas. Sample screen shot:



7. Create web page using HTML5 canvas element to illustrate all canvas composition. Output must exactly look like the following screenshot:



8. Create a web page which must be as shown in below image using HTML5, SVG and CSS3. Here Mountain, trees and clouds must be drawn using SVG, Clouds must have bounce animation (css animation), and stars in sky changes their position randomly for every time page is loaded (java script can be used). Sky and stars must be created using <canvas> element.



**Note: Online (live access) CSS files must be strictly avoided.**

<b>Course Title: Python Programming Lab</b>	Course code:
Total Contact Hours: 52	Course Credits: 02
Formative Assessment Marks: 25	Duration of SEE/Exam: 03 Hours
Summative Assessment Marks: 25	

## **LAB: Python Programming**

### **PART-A**

1. Write a program create list with N elements. find all unique elements in the list. If an element is found only once in the list, then add that element to the unique list.
2. Program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
3. Consider a tuple t1= (1,2,5,7,9,2,4,6,8,10). Write a program to perform following operations:
  - a. Print half the values of tuple in one line and the other half in the next line.
  - b. Print another tuple whose values are even numbers in the given tuple.
  - c. Concatenate a tuple t2= (11,13,15) with t1.
  - d. Return maximum and minimum value from this tuple.
4. Write a function that takes a sentence as input from the user and calculates the frequency of each letter. Use a variable of dictionary type to maintain the count.
5. Write a function nearly equal to test whether two strings are nearly equal. two strings a and b are nearly equal if one character change in b results in string a.
6. Write a program to create a text file and compute the number of characters, words and lines in a file.
7. Program using user defined exception class that will ask the user to enter a number until he guesses a stored number correctly. To help them figure it out, a hint is provided whether their guess is greater than or less than the stored number using user defined exceptions.



8. Write a Pandas program to join the two given data frames along rows. Sample Data frame may contain details of student like rollno , name , Total Marks.

## PART B

1. Program to create a class Employee with empno, name, depname, designation, age and salary and perform the following function.
  - i) Accept details of N employees
  - ii) Search given employee using empno
  - iii) Display employee details in neat format.
2. Write a program menu driven to create a BankAccount class. class should support the following methods for i) Deposit ii) Withdraw iii) GetBalance . Create a subclass SavingsAccount class that behaves just like a BankAccount, but also has an interest rate and a method that increases the balance by the appropriate amount of interest.
3. Create a GUI to input Principal amount, rate of interest and number of years, Calculate Compound interest. When button submit is pressed Compound interest should be displayed in a textbox. When clear button is pressed all contents should be cleared.
4. Write a GUI program to implement Simple Calculator
5. Create a table student table (regno, name and marks in 3 subjects) using MySQL and perform the followings
  - a. To accept the details of students and store it in database.
  - b. To display the details of all the students
  - c. Delete particular student record using regno.
6. Create a table employee (empno, name and salary) using MySQL and perform the followings
  - a. To accept the details of employees and store it in database.
  - b. To display the details of a specific employee
  - c. To display employee details whose salary lies within a certain range
7. Create a table electricity\_bill(TariffCode, Customer\_Name, Meter Number, Previous\_Reading and Current\_Reading) using MySQL and perform the followings
  - a. To accept the details of employees and store it in database.
  - b. To Update the Customer details by Meter Number.

c. Calculate Bill of Particular Customer using below criteria.

Tariff Code	Units Consumed	Rate/Unit
LT1	0-30	2.0
	31-100	3.5
	101-200	4.5
	Above 200	5.0

LT2	0-30	3.5
	31-100	5.0
	101-200	6.0
	Above 200	7.5

8. Consider following data and draw the bar graph using matplotlib library.(Use CSV or Excel).Add the data Using GUI.

<b>Batsman</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Virat Kohli	2501	1855	2203	1223
Steve Smith	2340	2250	2003	1153
Babar Azam	1750	2147	1896	1008
Rohit Sharma	1463	1985	1854	1638
Kane Williamson	1256	1785	1874	1974
Jos Butler	1125	1853	1769	1436

Display appropriate title for axis and chart. Also show legends.

## Course Content

### Semester

Course Title: <b>Financial Education and Investment Awareness</b>	Course Credits: 2
Total Contact Hours: <b>15 Hours of Theory and 30 Hours of Practical Sessions</b>	Duration of ESA: <b>90 Minutes</b>
Formative Assessment Marks: <b>20</b>	Summative Assessment Marks: <b>30</b>
Model Syllabus Authors: <b>NSE Academy and Karnataka State Higher Education Council (through Model Curriculum Committee for Commerce and Management)</b>	

### Course Outcomes

The Course aims to:

1. Provide the foundations for financial decision making
2. List out various saving and investment alternatives available for a common man
3. Give a detailed overview of stock markets and stock selection
4. Orient the learners about mutual funds and the criteria for selection

### Course Articulation Matrix

Program Outcomes / Course Outcomes	1	2	3	4	5	6	7	8	9	10	11	12
1. Provide the foundations for financial decision making												
2. List out various saving and investment alternatives available for a common man												
3. Give a detailed overview of stock markets and stock selection												
4. Orient the learners about mutual funds and the criteria for selection												

## Course Content for ‘Financial Education and Investment Awareness’ Theory Content

Module No.	Theory Content under the Module	Duration
One	<p><b>Foundations for Finance</b></p> <p><b>Introduction to Basic Concepts:</b> Understand the need for financial planning – basic concepts – life goals and financial goals – format of a sample financial plan for a young adult</p> <p><b>Economics:</b> Meaning – scope – key concepts influencing decision making both micro &amp; macro</p> <p><b>Banking in India:</b> Types of Bank Deposits, Deposit Insurance (PMJDY). Traditional and New Banking Models. Debit and Credit Cards. Digital Payment System – Internet Banking (NEFT, RTGS and IMPS), Mobile Banking, Mobile Wallet, AEPS, UPI</p> <p><b>Orientation to Financial Statements:</b> financial terms and concepts, model for reading financial statements, basic ratios for evaluating companies while investing – Time Value of Money – Concept of Compounding and Discounting</p>	4 hours
Two	<p><b>Investment Management</b></p> <p><b>Investment Goals:</b> Basic investment objectives – Investment goals – time frame – assessing risk profile – concept of diversification – risk measurement tools</p> <p><b>Investment and Saving Alternatives for a Common Investor:</b> Insurance – Health, Life and Other General Insurance (Vehicle Insurance, Property Insurance, etc), Retirement and Pension Plans – National Pension System, Atal Pension Yojana, PM-SYM Yojana, PMLVMY PMKMDY etc., Stocks, Bonds, Mutual Funds. Investor Protection and Grievance Redressal</p> <p><b>Stock Markets:</b> Primary Market and Secondary Market, Stock Exchanges, Stock Exchange Operations – Trading and Settlement, Demat Account, Depository and Depository Participants.</p> <p><b>Stock Selection:</b> Fundamental Analysis – Economy Analysis, Industry Analysis and Company Analysis. Technical Analysis – Graphical Patterns, Candle-stick Patterns, Indicators and</p>	8 hours

	Oscillators  <b>Stock Return and Risk:</b> Analysing risk and returns trade off-relationship-investment risk	
<b>Three</b>	<p><b>Mutual Funds and Financial Planning Essentials</b></p> <p><b>Mutual Funds:</b> Features of Mutual Funds, Mutual Fund History in India, Major Fund Houses in India and Mutual Fund Schemes. Types of Mutual Fund Plans. Net Asset Value.</p> <p><b>Criteria for selection of Mutual Funds:</b> Returns, Performance Measures – Sharpe, Treynor, Alpha, Beta and <math>r^2</math></p> <p><b>Financial Planning:</b> Sample formats – Integrating all the concepts learnt with a personal financial plan</p> <p><b>Giving and supporting:</b> Family support – charitable giving – crowd sourcing for needs</p>	<b>3 hours</b>

### Practical Content

Module No.	Practical Coverage under the Module	Duration
<b>One</b>	<p><b>Foundations for Finance</b></p> <ul style="list-style-type: none"> <li>• Spreadsheet Modelling:               <ul style="list-style-type: none"> <li>• IF Function</li> <li>• SUM Function</li> <li>• AVERAGE Function</li> <li>• INDEX, MATCH and VLOOKUP Function</li> <li>• RANK Function</li> <li>• SUMPRODUCT Function</li> <li>• MAX &amp; MIN Function</li> <li>• ERRORS in Modeling (#VALUE!, #NAME?, #DIV/0!, #REF!, #NUM!, #NA)</li> <li>• PRESENT VALUE Functions</li> <li>• FUTURE VALUE Functions</li> <li>• ANNUITY Functions</li> <li>• PERPETUITY Functions</li> </ul> </li> <li>• Statistical Functions in Excel</li> <li>• Financial Statements in Excel</li> </ul>	<b>7 hours</b>
<b>Two</b>	<p><b>Investment Management</b></p> <ul style="list-style-type: none"> <li>• Administering Risk Tolerance Tool</li> </ul>	<b>17 hours</b>

	<ul style="list-style-type: none"> <li>Group Presentations on Investment Alternatives (Advantages, Suitability and Limitations)</li> <li>Demonstration of Stock Trading</li> <li>Economy Analysis (<a href="http://www.tradingeconomics.com">www.tradingeconomics.com</a>)</li> <li>Industry Analysis (<a href="http://www.ibef.org">www.ibef.org</a>)</li> <li>Company Analysis (<a href="http://www.valueresearchonline.com">www.valueresearchonline.com</a>)</li> <li>Spreadsheet Modelling for Stock Valuation (Dividend Discount Model, Free Cash Flow and Relative Valuation)</li> <li>Demonstration of Technical Analysis and Exercises (NSE – TAME)</li> <li>Spreadsheet Modelling for calculating Stock Return, Risk and Beta</li> </ul>	
<b>Three</b>	<p style="text-align: center;"><b>Mutual Funds and Financial Planning Essentials</b></p> <ul style="list-style-type: none"> <li>Identification of Fund Houses in India, Schemes and Plans of each Mutual Fund House (<a href="http://www.amfiindia.in">www.amfiindia.in</a> , <a href="http://www.valueresearchonline.com">www.valueresearchonline.com</a>)</li> <li>Exercises on Calculation of Net Asset Value</li> <li>Demonstration of Mutual Fund Fact Sheet</li> <li>Exercises on reading performance measures and selection of Mutual Funds</li> <li>Preparation of Financial Plan</li> </ul>	<b>6 hours</b>

## References

- RBI Financial Education Handbook
- NSE Knowledge Hub, AI-powered Learning Experience Platform for BFSI
- NSE Academy Certification in Financial Markets (NCFM) Modules:
  - Macroeconomics for Financial Markets
  - Financial Markets (Beginners Module)
  - Mutual Funds (Beginners Module)
  - Technical Analysis

## Text Books:

S. No	Author/s	Title of the Book	Publisher
1	Prasanna Chandra	Financial Management	McGraw Hill Education
2	Aswath Damodaran	Corporate Finance	John Wiley & Sons Inc
3	Pitabas Mohanty	Spreadsheet Skills for Finance Professionals	Taxmann Publications
4	Fischer & Jordan	Security Analysis & Portfolio Management	Prentice Hall

## Websites:

1. [www.sebi.gov.in](http://www.sebi.gov.in)
2. [www.nseindia.com](http://www.nseindia.com)
3. [www.amfiindia.com](http://www.amfiindia.com)

## Question Paper Pattern

### 1. Internal Assessment – 20 marks (based on practical lab-based assignments)

### 2. End Semester Exam – 30 marks

Section A: 4 out of 5 questions (2 marks each) 4 X 2 = **8 Marks**

Section B: 2 out of 3 questions (6 marks each) 2 X 6 = **12 Marks**

Section C: Compulsory:

Analysis of One Case (or) Two Case-lets 1 X 10 = **10 Marks**

## Pedagogy

### 1. Highlights of the contents of interactive E-workbook

- Micro and Macro-Indicators affecting Personal Financial Planning
- Financial plan templates with examples/ scenarios
- Financial Goal setting / Financial Goals Worksheet
- Stock Selection
- Criteria for selection of Mutual Funds
- Investment options for young adults who enter professions
- Financial security worksheet
- Glossary of must know key terms

### 2. Online Diagnostic Assessments / Instruments

Type	Method	Outcome
Quiz	Flash cards and games	Instructive and persuasive for behavioural change
Projections	Personal Budget based assessment	Assimilation, application and retention through case scenarios
Preassessments	Financial life skills Investor Risk Profile Risk Measurement Skills	Benchmark knowledge according to the requirements of the age and situation
Psychometric assessments	Financial stress scale	Create follow up assignments that sustain changed behaviours

### 3. 10 Recorded self-help videos 12 minutes each from experts

## Implementation Plan

1. On the approval of the Course Outline and Assessment Mechanism by the Council, NSE Academy - in association with universities, will delegate Nodal Officers for the implementation of the Program.
2. With the help of the Nodal Officers, NSE Academy will invite nominations from colleges and institutions for the Train the Trainer Programs (both physical and virtual).
3. The faculty members will undergo a rigorous training in TTT and also an assessment leading to a joint Certification from NSE Academy and the corresponding university.
4. NSE Academy will support the faculty members through specially created courses on NSE Knowledge Hub.
5. NSE Academy will also support the faculty members with comprehensive training material and facilitator aids for training the students.
6. Additionally, the Commerce and Management faculty members will be supported with continuous learning programs on NSE Knowledge Hub, on relevant topics.
7. NSE Academy will design, develop and provide customized student-friendly interactive workbooks (digital) that will support classroom learning as formative assessment.
8. NSE Academy will issue model question papers for the assessments to the Nodal Officers / CoEs of the Universities. The Universities may in turn conduct assessments for the students, evaluate and submit results to the Council and NSE Academy.
9. Based on the assessment results submitted by the Universities / Colleges / Institutions, NSE Academy will issue a Course Completion Certificate jointly with the corresponding university.
10. NSE Academy will support faculty members on research topics through research workshops on quantitative and qualitative research.
11. NSE Academy will confer the 'Best Research Proposal Award' for the faculty members
12. NSE Academy will invite (from students) and select five best project proposals for award.



## CONSTITUTION OF INDIA

- Unit 1: Indian Constitution: Making and basic premise** 10 Hours
- 1.1 Meaning and Significance of Constitution.
  - 1.2 Constituent Assembly- Composition, Objectives
  - 1.3 Preamble and Salient features of the Indian Constitution.
  - 1.4 Fundamental Rights, Fundamental Duties. Directive Principles
- Unit 2: Union and State Government** 11 Hours
- 2.1 President of India- Election, Powers and functions
  - 2.2 Prime Minister and Cabinet – Structure and functions
  - 2.3 Governor- Powers and functions
  - 2.4 Chief Minister and Council of Ministers – Functions.
- Unit 3: Legislature and Judiciary** 12 Hours
- 3.1 Parliament – Lok Sabha and Rajya Sabha – Composition and powers
  - 3.2 State Legislative Assembly and Legislative Council – Composition and powers
  - 3.3 Judicial System in India – Structure and features
  - 3.4 Supreme Court and High Court: Composition, Jurisdiction.
- Unit 4: Governance and Constitution** 12 Hours
- 4.1 Federalism in India - Features
  - 4.2 Local Government -Panchayats –Powers and functions; 73<sup>rd</sup> and 74<sup>th</sup> amendments
  - 4.3 Election Commission – Composition, Powers and Functions; Electoral Reforms
  - 4.4 Citizen oriented measures – RTI and PIL – Provisions and significance.