

SEMESTER VI

UCCSU20 - PRACTICAL XII: PROJECT WORK

Year: III	Course Code: UCCSU20	Title of the Course: Practical XII: Project Work	Course Type: Practical	Course Category: Core	H/W 2	Credits 2	Marks 40+60
Sem: VI							

Course Learning Objectives (CLO)

1. Acquire practical knowledge on the implementation of the programming concepts learnt.
2. Motivate the Students to work in emerging/latest technologies.
3. Help the students to develop ability, to apply theoretical and practical tools/techniques.
4. To solve real life problems related to industry, academic institutions and research laboratories.
5. Help the students to gain Self-confidence.

GUIDELINES FOR PROJECT WORK

- Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.
- The project work should be compulsorily done in the college only under the supervision of the department staff concerned.
- The project is of 3 hours/week for one (semester VI) semester duration and a student is expected to plan, analyze, design, code and implement the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.
- For the project work, the guide(internal) will evaluate the work for 40 marks based on the performance of the candidates during the development of the project and the external examiner will evaluate the project work as follow

Project Report -40 marks

Viva Voce -20 marks

SEMESTER V/VI

**USCSEn20 - SKILL BASED ELECTIVE: DATA ANALYTICS USING DATA
VISUALIZATION TOOLS**

Year: III/ V	Course Code: USCSEn20	Title of the Course: Data Analytics using Data Visualization Tools	Course Type: Practical	Course Category: Skill Based Elective	H/W 2	Credits 2	Marks 40+60
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Course Learning Objectives (CLO)

1. Understand the behavior of data.
2. To extend the current state of the art in data visualization.
3. To present data effectively through chart, map and dashboard.
4. Represent data graphically.
5. To implement Data Analytics efficiently.

Course Outcomes (COs)

The learners will be able to

1. Identify the various data visualizations tools in the market and its features.
2. Understand the different data format and its graphical representation
3. Develop skills to present data effectively through chart, map and dashboard.
4. Demonstrate to design visual presentations of data for decision making.
5. Apply data visualizations on real-time data.

CO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	M	H	M	M	M	L
CO2	M	L	L	L	M	M
CO3	L	L	M	L	L	M
CO4	M	M	M	M	L	M
CO5	L	M	L	H	L	L

(Low -L, Medium -M, High-H)

CO	PO					
	1	2	3	4	5	6
CO1	H	H	H	H	L	M
CO2	H	H	H	H	L	M
CO3	H	H	H	H	M	L
CO4	H	H	H	H	H	M
CO5	H	M	H	H	H	M

(Low -L, Medium -M, High-H)

Course Syllabus

Unit I

(Hour 5)

- 1.1 Data Visualization: Introduction. (K1)
- 1.2 Benefits of Data Visualization. (K2)
- 1.3 Data Visualization Tools. (K2)
- 1.4 Features. (K2)
- 1.5 Data access from data sources. (K2)

Unit II

(Hour 5)

- 2.1 Data Transformation. (K1, K2)
- 2.2 Types of charts. (K2)
- 2.3 Bar Chart. (K1, K2)
- 2.4 Pie Chart. (K2)
- 2.5 Data Tables. (K2)
- 2.6 Scatter Chart. (K2)

Unit III

(Hour 5)

- 3.1 Time series Chart. (K2)
- 3.2 Score card. (K2)
- 3.3 Scatter Chart. (K2)
- 3.4 Bullet Chart. (K2)
- 3.5 Area Chart. (K2)
- 3.6 Heat Map(K2)

Unit IV (K6)

(Hour 8)

1. Create a bar chart for the given data.
2. Create a pie chart for the given data.
3. Create a scatter chart for the given data.
4. Create a time series chart for the given data.

Unit V (K6)

(Hour 7)

5. Create a bullet chart for the given data.

6. Create area chart for the given data.
7. Create a heat map for the given data.

Text Book

1. Nathan Yau Visualize Thi, “The Flowing Data Guide to Design, Visualization, and Statistics”, Wiley, 1st Edition 2011.

Reference Books

1. Cole Nussbaumer Knaflic, “Storytelling with Data: A Data Visualization Guide for Business Professionals”, John Wiley & Sons 2015.

Open Educational Resources (OER)

1. http://www.tutorialspoint.com/tableau/tableau_tutorial.pdf
2. <http://www.pdfdrive.com/tableau-books.html>
3. <http://projanco.com/Library/Learning%20Tableau%202019%20Tools%20for%20Business%20Intelligence,%20data%20prep,%20and%20visual%20analytics.pdf>
4. <http://www.youtube.com/watch?v=Tc8VenUN4n8>

SEMESTER V / VI

USCSFn20 - SKILL BASED ELECTIVE: R PROGRAMMING

Year: III/ V	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
Sem: VI	USCSFn20	Skill Based Elective: R Programming	Practical	Skill Based Elective	2	2	40+60

Course Learning Objectives (CLO)

1. Understand the usage of R programming interactive environment.
2. Understand R programming language which includes functions, arrays and dataframes.
3. Describe statistical computing which includes programming in R, reading and accessing data in R.
4. Understand the concept of Meta Programming.
5. Build a simple sorting algorithm.

Course Outcomes (COs)

The Learners will be able to

1. Understand the basics in R and Studio Programming.
2. Use Vector, Arrays, Matrix and Data frames.
3. Demonstrate Math functions, Statistical functions and Family functions.

4. Create R programs that use various library functions, and that manipulate files and directories.
5. Learn to apply R programming for Text processing.

CO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	M	M	M	L
CO2	M	L	L	L	M	M
CO3	L	M	M	L	M	M
CO4	M	M	M	M	L	M
CO5	L	M	L	H	L	L

(Low -L, Medium -M, High-H)

CO	PO					
	1	2	3	4	5	6
CO1	M	L	M	M	M	L
CO2	M	M	L	L	L	M
CO3	L	M	H	H	H	H
CO4	H	M	H	H	H	M
CO5	L	M	M	M	L	M

(Low -L, Medium -M, High-H)

Course Syllabus

Unit I

(Hour 5)

- 1.1 Introduction to R and R Studio. (K1, K2)
- 1.2 Basic Object Vector. (K2)
- 1.3 Matrix, Array. (K2, K3)
- 1.4 Lists. (K2)
- 1.5 Data Frames. (K3)
- 1.6 Functions. (K2, K3)

Unit II**(Hour 5)**

- 2.1 Basic Expression Assignment Expressions. (K1, K2)
- 2.2 Conditional Expressions. (K3, K4)
- 2.3 Loop Expressions. (K3, K4)
- 2.4 Basic Object Functions - Logical Functions. (K2, K3)
- 2.5 Math functions, Numeric Methods Statistical function - Apply. (K3, K5)
- 2.6 Family Functions. (K3, K4)

Unit III**(Hour 5)**

- 3.1 Working with Strings. (K4, K5)
- 3.2 Working with Data. (K4, K5)
- 3.3 Meta programming. (K6)
- 3.4 Object Oriented Programming. (K3, K4)

Unit IV**(Hour 7)**

- 4.1 Write a program that prints 'Hello World' to the screen. (K2)
- 4.2 Write a program that asks the user for a number n and prints the sum of the numbers 1 to n. (K4, K5)
- 4.3 Write a program that prints a multiplication table for numbers up to 12. (K4)
- 4.4 Write a function that returns the largest element in a list. (K5)

Unit V**(Hour 8)**

- 5.1 Write a function that computes the running total of a list. (K5, K6)
- 5.2 Write a function that tests whether a string is a palindrome. (K5)
- 5.3 Implement the following sorting algorithm Selection sort, Insertion sort, Bubble Sort. (K3, K5, K6)
- 5.4 Implement linear search. (K3, K4,)
- 5.5 Implement binary search. (K3, K4)
- 5.6 Implement Matrices Addition, Subtraction and Multiplication. (K3, K4)

Text Books

1. Kun Ren, "Learning R. Programming, Packt Publishing" - ebooks Account (October 28, 2016).
2. Dr. Mark Gardener, "Beginning R: The Statistical Programming Language", Paperback, 2013.

Reference Books

1. Colin Gillespie, Robin Lovelace, "Efficient R Programming: A Practical Guide to Smarter Programming", O'Reilly Media, 1st Edition (October 25, 2016); eBook (2017-04-10).

2. Daniel Navarro, “Learning Statistics with R”, lulu.com (2015); eBook (University of Adelaide, 2018. Updated Continuously)

Open Educational Resources (OER)

1. <https://www.tutorialspoint.com/r/index.htm>
2. <https://www.programiz.com/r>
3. <https://www.youtube.com/watch?v=Q5g6lYUn6Q4>

SEMESTER III

USCSAn20 - SKILL BASED ELECTIVE: BASICS OF WEB DESIGN

Year: II	Course Code: USCSAn20	Title of the Course: SBE: Basics of Web Design	Course Type: Practical	Course Category: Skill Based Elective	H/W 2	Credits 2	Marks 40+60
Sem: III							

Course Learning Objectives (CLO)

1. To impart knowledge in designing web pages with text and images.
2. Analyze a web page and identify its elements and attributes.
3. To learn and implement XML Concepts.
4. Write codes to create website.
5. Write programs in XML.

Course Outcomes (COs)

The Learners will be able to

1. Demonstrate competency in the use of common HTML code.
2. Support the development of web pages.
3. Create XML documents and Schemas.
4. Create website using HTML.
5. Write programs using XML.

CO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	M	H	M	M	M	L
CO2	M	L	L	L	M	M
CO3	L	M	M	L	L	L
CO4	M	L	M	M	L	M

CO5	L	M	L	H	L	L
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(Low -L, Medium -M, High-H)

CO	PO					
	1	2	3	4	5	6
CO1	H	H	H	H	L	M
CO2	H	H	H	H	L	M
CO3	H	L	H	H	M	L
CO4	H	L	H	H	H	M
CO5	H	M	H	H	H	M

(Low -L, Medium -M, High-H)

Course Syllabus

Unit I

(Hour 5)

- 1.1 Introduction: HTML - Understanding HTML Tags. (K2)
- 1.2 Creating the HTML, Head, and Body Sections. (K6)
- 1.3 Creating Paragraphs and Line Breaks. (K6)
- 1.4 Formatting Text by Using Tags. (K6)
- 1.5 Creating Headings. (K6)
- 1.6 Applying Bold and Italic Formatting - Applying Superscript and Subscript Formatting. (K3)

Unit II

(Hour 5)

- 2.1 Using Lists and Backgrounds - Creating Bulleted and Numbered Lists. (K2)
- 2.2 Creating Definition Lists. (K6)
- 2.3 Choosing Background and Foreground Colors. (K6)
- 2.4 Creating Hyperlinks and Anchors-(K6)
- 2.5 Introduction to Style Sheets-(K6)
- 2.6 Creating tables. (K6)

Unit III

(Hour 5)

- 3.1 XML Overview: Working with Basics of XML- (K1)
- 3.2 XML Namespaces – XML Tree-XML Syntax- (K1)
- 3.3 XML Elements - DTD – (K1)
- 3.4 XML Schema – (K1)
- 3.5 Extensible Style Sheets (K1)
- 3.6 XSL Transformation. (K1)

Unit IV

(K6)

(Hour 8)

1. Write a program to change the Font style, Font colour, Font Sizes and Background Image.
2. Write a program to design Bio-data using Basic HTML tags.
3. Write a program in HTML to develop a College Website.
4. Write a HTML program to create Time Table preparation using HTML tags.
5. Write a HTML program using links.

Unit V

(K6)

(Hour 7)

6. Write a HTML program for Lists.
7. Write a program to apply Style Sheet in a webpage.
8. Write a program to flip the text using XML.
9. Write a XML program using elements.
10. Write a XML program using DTD.

Text Books

1. Faithe Wempen, “Step by Step HTML5”, Published with the O’Reilly Media, Inc. 2012.
2. Kogent Learning Solutions Inc, ”Html5 Black Book: Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP and jQuery”, Dreamtech Press, 2011.

Books for Reference

1. HTML by Tutorials point, Published by Tutorials Point Pvt. Ltd, 2015.
2. Heather Williamson, “XML: The Complete reference”, Indian Edition, Tata McGraw Hill Pub, 2001.
3. Deitel, Nieto, Lin, Sadhu, “XML HOW TO PROGRAM”, 1st Edition, Pearson Education, 2002.

Open Educational Resources (OER)

1. <https://www.tutorialspoint.com/html/index.htm>
2. <https://www.javatpoint.com/html-tutorial>
3. <https://www.youtube.com/watch?v=qz0aGYrrlhU>

SEMESTER IV

USCSBn20 - SKILL BASED ELECTIVE: DESIGN AND ANIMATION

Year:	Course Code:	Title of the Course:	Course Type:	Course Category:	H/W	Credits	Marks
II	USCSBn20	Skill Based Elective:	Practical	Skill Based Elective	2	2	40+60
Sem:		Design and					
IV							

		Animation					
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Course Learning Objectives (CLO)

1. To learn the basics and fundamentals of Multimedia.
2. To introduce Multimedia components and tools.
3. To understand how multimedia can be incorporated.
4. To study the various applications of design techniques.
5. Demonstrate in depth knowledge of multimedia development tools.

Course Outcomes (COs)

The Learners will be able to

1. Understand Multimedia components using various tools and techniques.
2. Analyze and Interpret Multimedia Data.
3. Discuss about different types of media format and their properties.
4. Understand and apply principles of design into given projects.
5. Acquire and analyze different ideas about designs and its implementation.

CO	PSO					
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	H	H	M	M	M	L
CO2	M	L	L	L	H	H
CO3	L	M	M	L	L	L
CO4	M	L	M	M	M	M
CO5	L	M	L	H	L	L

(Low -L, Medium -M, High-H)

CO	PO					
	1	2	3	4	5	6
CO1	H	H	H	H	M	L
CO2	H	H	M	M	M	M
CO3	H	H	H	M	M	M
CO4	H	H	H	H	H	M
CO5	H	H	H	H	H	L

(Low -L, Medium -M, High-H)

Course Syllabus

Unit I

(Hour 5)

- 1.1 Introduction to Multimedia – The Elements of Multimedia System. (K2)
- 1.2 Using Multimedia: Benefits of using Multimedia. (K1, K2)
- 1.3 Multimedia Platform Multimedia Hardware. (K2, K3)
- 1.4 System Software. (K2, K3)
- 1.5 Future Directions. (K2)
- 1.6 Storage for Multimedia: Choice of Storage – Magnetic Media – Optical Media. (K2)

Unit II

(Hour 5)

- 2.1 Introduction – Bitmaps and Vectors Toolbox. (K2)
- 2.2 Selection tools – Painting tools – Editing tools – Retouching Tool(K2)
- 2.3 Colors setting. (K1, K2)
- 2.4 Layer Working with Layers. (K1, K2)
- 2.5 Layer Styles – Locking Layers. (K2)
- 2.6 Merging Layers – Managing Layers Components – Palette. (K3)

Unit II

(Hour 5)

- 3.1 Introduction flash – Basics. (K2)
- 3.2 Creating objects – Editing objects. (K3, K6)
- 3.3 Color and text – Symbols and instances. (K2)
- 3.4 Library – Text Animation – Motion Tweening. (K2, K3)
- 3.5 Shape Tweening – Motion Guide. (K3)
- 3.6 Movie Clip – Working with Action Script. (K3)

Unit IV

(K6)

(Hour 8)

1. Create an Action in Photoshop.
2. Color Transformation Using Photoshop.
3. Design a Book Cover in Photoshop.
4. Create an Animation using Photoshop.

Unit V

(K6)

(Hour 7)

5. Traffic Light Control Using Action Script in Flash.
6. Create a Slide Show Presentation in Flash.
7. Design a Greeting Card Using Button in Flash.
8. Create a Public Service Awareness Using Action Script in Flash.

Text Books

1. “Photoshop CS6 in Simple Steps”, Paperback, Kogent Learning Solutions Inc., 2012.

2. "Flash CS5 in Simple Steps", Kogent Learning Solutions Inc., Dreamtech Press Publication, 2011.

Books for Reference

1. Chris Grover with E.A.Vander Veer, "Flash CS4", Pogue Press O'Reilly, 2008.
2. Jeffcoate Judith, "Multimedia in Practice", Pearson Education, 2009.

Open Educational Resources (OER)

1. <https://www.javatpoint.com/what-is-multimedia>
2. <https://users.cs.cf.ac.uk/dave/Multimedia/node10.html>
3. https://www.youtube.com/watch?v=Syeu_l3sAJE&pp=ygUJbXVsdGltZWlh