



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Engineering

Level: Diploma

Branch: Computer Engineering / Computer Science & Engineering

Subject Code : DI03000061

Subject Name : Responsive Web Page Design

W.E. F. Academic Year:	2024-25
Semester:	3 rd
Category of the Course:	PCC

Prerequisite:	Basic computer literacy, Logical Thinking and Basic HTML Tags and CSS
Rationale:	<p>In this technological era, different devices being used to view the online content and websites. While designing webpage, it is required to maintain visual consistency spanning all the platforms. Bootstrap is a free and open-source web development framework. Bootstrap is a sleek, intuitive, and powerful, mobile first front-end framework for faster and easier web development. It's designed to ease the web development process of responsive, mobile-first websites Bootstrap provide in build classes and files to make more fun in designing and give new look more and design. It is used to convert html page design into RWD (Responsive Web Design) which is easy to learn and have many designs related functionalities. It uses HTML, jQuery and JavaScript to provide cross platform web design solution.</p>

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Prepare environment for Bootstrap framework for first time use.	Apply
02	Construct responsive web page layouts using Bootstrap Grid for various platforms and screen sizes.	Apply
03	Apply reusable bootstrap components to design effective user-friendly web pages.	Apply
04	Create dynamic, feature-rich web pages by utilizing Bootstrap plugins for enhanced interactivity.	Apply
05	Design responsive web pages using advanced Bootstrap utilities and customization techniques.	Apply

**Revised Bloom's Taxonomy (RBT)*



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Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE (E)	PA(M)	PA(I)	ESE (V)	
0	1	4	3	0	0	20	30	50

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	Introduction to jQuery and Bootstrap Framework: jQuery: Introduction to jQuery, Importance of jQuery, jQuery syntax, jQuery selectors, jQuery Events Bootstrap Framework: Why Bootstrap? History of Bootstrap, Advantages of Bootstrap Framework, Responsive web page, How to remove Responsiveness, Major Features of Bootstrap. Program Solving practice on the above concept	10	17
2.	Bootstrap Grid: Bootstrap Grid: Apply Bootstrap Grid, Container, Offset Column, Reordering Columns, and Advantages of Bootstrap Grid and Display responsive Images, Bootstrap Typography, use Typography, Bootstrap Tables, Form Layout, Button, Display images in different styles like Circle shape etc., Carets Classes, hide or show the text in Bootstrap. Program Solving practice on the above concept	12	20



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3.	<p>Bootstrap Components:</p> <p>Bootstrap Components: Bootstrap Components, Advantages of Bootstrap Components, The different types of Bootstrap Components, Glyphicons Component, Use Glyphicons Component, Bootstrap Dropdown Menu Component, Bootstrap Card Component, Button Groups and Button Toolbar, Use Button Groups and Button Toolbar, Different Input Groups Components, Navigation Pills & Tabs Components, Use Navigation Pills and Tabs Components, Navbar Component, build a Responsive Navbar, Add Forms and other controls to Navbar, Fix the position of navbar, Breadcrumb Component, Pagination Component, apply Pagination in Application, Labels/Badge Components, Jumbotron/Page Header Components, Thumbnail Component, Alerts & Dismissible Alerts, How to Create Progress Bar, Media Objects Component, Bootstrap List Group Component, Bootstrap Panel Component.</p> <p>Program Solving practice on the above concept</p>	14	23
4.	<p>Bootstrap Plug-Ins</p> <p>Bootstrap Plug-Ins: Why bootstrap plug-ins, Use of bootstrap plug-ins, Transition plug-in, Modal dialog box, The different properties, methods and events of model dialog box, Scroll spy plug-in, tab plug-in, use of tab plug-in, Drop Down plug-in, Tooltip plug-in, Use of Button plug-in, Methods and events of tooltip plug-in, popover plug-in, alert and button plug-ins, Collapse plug-in, different types of properties, methods and events of collapse plug-in, Carousel plug-in, affix plug-in</p> <p>Program Solving practice on the above concept</p>	14	23
5.	<p>Advance Bootstrap Utilities and Customization</p> <p>Bootstrap Utilities: Benefits of using utilities, various bootstrap utilities (Spacing , Sizing , Display and Visibility, Positioning , Flex box , Border , Background , Opacity , Overflow , Shadow , Responsive)</p> <p>Bootstrap Customization: Benefits of customizing Bootstrap, Customizing Bootstrap Variables, Customizing Bootstrap with Sass, Customizing Bootstrap Components, Customizing Bootstrap Themes</p> <p>Program Solving practice on the above concept</p>	10	17
Total		60	100



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Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	U Level	A Level	N Level	E Level	C Level
0	0	0	0	0	0

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. Jake Spurlock, "Bootstrap", O'Reilly Media, Inc., ISBN-10: 1449343910, ISBN-13: 978-1449343910
2. Jacob Lett, "Bootstrap Reference Guide", Bootstrap Creative, ISBN-10 : 1732205833, ISBN-13 : 978-1732205833
3. AjdinImirovic,, "Bootstrap 4 Cookbook", Packt Publishing Limited, ISBN-10 : 1785889295, ISBN-13 : 978-1785889295
4. Benjamin Jakobus, "Mastering Bootstrap 4 - Second Edition", Packt Publishing Limited, ISBN-10 : 1785889295, ISBN-13 : 978-1785889295
5. Silvio Moreto, "Bootstrap 4 By Example", Packt Publishing Limited, ISBN-10 : 1785288873, ISBN-13 : 978- 1785288876
6. Thomas Powell, "HTML & CSS: The Complete Reference", Tata McGraw Hills, New Delhi, ISBN-10 : 0070701946, ISBN-13 : 978- 0070701946

(b) Open source software and website:

7. <https://www.geeksforgeeks.org/bootstrap/>
8. <https://www.getbootstrap.com>
9. <https://www.w3schools.com/bootstrap/>
10. <https://www.websitesetup.org/bootstrap-tutorial-for-beginners/>
11. <https://www.tutorialrepublic.com/twitter-bootstrap-tutorial/>
12. <https://www.tutorialspoint.com/bootstrap/index.htm>
13. 12 Awesome CSS3 Features That You Can Finally Start Using - Tutorialzine
14. Twitter Bootstrap Tutorial for Beginners (ieatcss.com)
15. CSS3 - Tutorial (tutorialspoint.com)
16. CSS3 Tutorial - An Ultimate Guide for Beginners (tutorialrepublic.com)
17. Customize Bootstrap With Sass? - GeeksforGeeks

Suggested Course Practical List:

1. Install Bootstrap framework and understand various tags, attributes of HTML and other necessary files to make responsive web page.



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2. Design web page that shows department name, college name at center of web page by using bootstrap framework and without using bootstrap framework.
3. Display student information content on responsive web page by using container and container-fluid classes.
4. Use offset column, reordering column and Nesting column to create responsive web page for given format.
5. Create responsive web page of your class time table by using bootstrap grid system.
6. Shows at least five to six co-curricular/Extra activities of student that includes multiple images and short description of each activity on responsive web page using responsive images with different styles and responsive tables with 3 to 4 different styles such as hover state when mouse over, different color of each row, table with striped row etc.
7. Use bootstrap typography to create responsive web page on given blog topic.
8. Design responsive web page for student registration form using bootstrap form layout, form control, bootstrap buttons.
9. Create various types of menus using bootstrap menu components such as right aligned dropdown menu, drop up menu, adding headers of each item etc. and glyphicons components.
10. Design responsive web page that shows odd (sem1, sem3, sem5) and even (sem2, sem4, sem6) semester consider as menu, courses of each semester as submenu using button groups and button toolbar component.
11. Use different bootstrap input groups components to create responsive webpage for job application or any other kind of application.
12. Use Navigation tabs/Pills to create responsive web page for summarize of all individual units of any one course.
13. Use Nav bar component to create responsive fixed to top menu design includes logo, menu, drop down menu, form input elements such as sign-up button, search mechanism etc. And fixed to bottom menu design contains footer information.
14. Create responsive web page of education website using bootstrap breadcrumb, pagination, labels/badge, Jumbotron/page header, thumbnail components.
15. Following tasks to be performed using bootstrap progress bars component.
 - a. Creating progress bars
 - b. Adding label to progress bars
 - c. Creating multi-color, stripped and animated progress bars
 - d. Changing value of progress bar dynamically using JavaScript
16. Use media, rounded media, Nested media object to create responsive web page for all family members in hierarchical order.



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17. Create responsive webpage of various service provider information using bootstrap panel component, List group component, various alert messages and show message after bootstrap alert has been closed.
18. Design a smooth page transition between homepage, about and contact us page using bootstrap transition plugin.
19. Design a webpage with different modal dialog for “Save record confirmation”, “Delete record confirmation” using model dialog plugin of bootstrap.
20. Design news story page to demonstrate usage of Scrollspy for multiple section, Tooltip for different photos and Collapsible and popover plugins of bootstrap.
21. Design animated photo gallery page using Carousel bootstrap plugin with minimum seven photos.
22. Design header and footer of webpage of any domain using Bootstrap Utility class.
23. Create responsive webpage to demonstrate usage of Customizing Bootstrap with Sass.
24. Design webpage to demonstrate usage of Customize bootstrap components and themes.
25. Develop advanced responsive website with minimum Five to seven pages on any of following domains (Tourism, Hospitality, Airline reservation, Medical, E commerce etc.)

List of Laboratory/Learning Resources Required:

1. Computer with basic configuration with windows or unix and browser that supports Javascript.
2. HTML IDEs and Code Editors Open-source tools like Visual Studio Code, Notepad++.
3. Open-source jQuery, Bootstrap Framework, Node.js & npm (Node Package Manager), Sass Compiler and Custom SCSS Files.

Suggested Project List:

1. Design mobile first responsive departmental website.
2. Develop any domain specific responsive website (Food, Automobiles, Educational and Business etc.).
3. Develop a responsive website for NGO or society working to save environment to make awareness towards environment to save soil, water, trees and other major resources of our environment.
4. Portfolio Website - Develop a responsive personal portfolio using Bootstrap, including sections like About, Projects, Blog, and Contact to showcase skills and work.



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5. E-commerce Product Showcase - Design a product display page for an online store using Bootstrap cards, modals, and carousels to present product images, descriptions, and prices.
6. Event Management Website - Create a web portal for event listings and registrations, implementing Bootstrap's navbar, forms, and breadcrumb navigation for easy access.
7. Online Food Ordering Website - Build a responsive restaurant menu using Bootstrap's grid system, with order placement and checkout functionality for a seamless experience.
8. Tourism & Travel Website - Design a travel website that showcases destinations using Bootstrap layouts, with galleries, travel packages, and booking options.
9. Educational Website - Create an online learning platform, utilizing Bootstrap pagination for course lists and progress bars for tracking student learning.
10. Blog Website with Categories - Develop a categorized blogging platform with Bootstrap tabs or pills, enabling easy organization and navigation of blog posts.
11. News Portal - Build a responsive news website using Bootstrap scrollspy, alerts, tooltips, and pagination to display articles efficiently and interactively.
12. Student Management System UI - Design an interface for managing student records using Bootstrap tables, modals, and forms for data entry and updates.
13. Online Job Application Portal - Create a job application platform with a Bootstrap-based responsive form, including input groups, validation, and submission confirmation.
14. NGO Awareness Website - Develop a responsive NGO website highlighting social causes using Bootstrap badges, progress bars, and alerts to engage users.
15. Online Resume Builder - Build a web tool where users can input their details and generate a structured resume using Bootstrap forms and formatting features.
16. Hospital Appointment Booking UI - Design an online hospital appointment booking system using Bootstrap forms and modals for scheduling doctor consultations.
17. Weather Dashboard - Create a weather forecast system using Bootstrap panels and cards, displaying city-wise weather conditions dynamically.



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18. Hotel Room Booking UI - Develop a responsive hotel booking interface using Bootstrap for room selection, reservation, and confirmation messages.

Suggested Activities for Students:

- a) Identify tools used for web page development and present its features.
- b) Undertake course “HTML, CSS, and Javascript for Web Developers” available on coursera online platform. (<https://www.coursera.org/learn/html-css-javascript-for-web-developers>).
- c) Undertake course “Front-End Web UI Frameworks and Tools: Bootstrap” available on coursera online platform. (<https://www.coursera.org/learn/bootstrap-4>) or any other such site.
- d) Undertake course “Bootstrap 5 From scratch with 13 Projects | 4 Sass Projects” available on Udemy online platform. (<https://www.udemy.com/course/learn-by-building-bootstrap-5-from-scratch-with-8-projects>) or any other such site.
