

<b>Core 1</b> For the students admitted from A.Y. 2023-2024& onwards		
Offering Department: <b>Computer Application</b>		Offered to: <b>Master of Computer Application</b>
<b>Semester – I</b>		
Course Code	Course Title	Course Credit and Hours
<b>23PGCA101</b>	<b>Core 1: Responsive Web Design and TypeScript</b>	<b>3 Credits - 3 hrs/wk</b>

**Course Description:**

This comprehensive course covers web development with Bootstrap 5, HTML 5, CSS 3, Typescript, Animation using CSS, and Responsive Web Design. Suitable for beginners and experienced developers, the course starts with an introduction to web development and the basics of HTML 5, CSS 3, and Bootstrap 5, before delving into advanced topics such as animation using CSS and responsive web design techniques. Throughout the course, students will work on hands-on projects to develop their skills and build a professional-quality web portfolio, enabling them to design, develop, and deploy responsive and engaging web applications using the latest web technologies and techniques.

**Course Purpose:**

The purpose of this course is to equip students with the knowledge and skills required to become proficient in web development using Bootstrap 5, HTML 5, CSS 3, Typescript, Animation using CSS, and Responsive Web Design. By the end of the course, students will have gained a comprehensive understanding of the latest web development technologies and techniques, and be able to create professional-quality, responsive, and engaging web applications. Through hands-on projects, students will gain practical experience and build a portfolio of work that demonstrates their skills to potential employees.

<b>Course Outcomes:</b> Upon completion of this course, the learners will be able to		
<b>CO No.</b>	<b>CO Statement</b>	<b>Bloom's Taxonomy Level (K<sub>1</sub> to K<sub>6</sub>)</b>
CO <sub>1</sub>	Identify the fundamental concepts and components of web development, such as HTML 5, CSS 3, and Bootstrap 5.	K1
CO <sub>2</sub>	Explain how web development technologies and techniques work, such as responsive web design and Typescript programming.	K2
CO <sub>3</sub>	Create web pages and web applications using HTML 5, CSS 3, and Bootstrap 5, and apply responsive web design principles to ensure they work across different devices.	K3
CO <sub>4</sub>	Assess the effectiveness of Bootstrap 5 and techniques, and recommend the most appropriate ones for a given project.	K5
CO <sub>5</sub>	Apply PSD to HTML Responsiveweb design.	K6

<b>Course Content</b>	<b>Hours</b>
<b>Unit-I: Introduction to Web and HTML 5</b>	<b>9 hrs</b>
<ul style="list-style-type: none"> <li>Internet Protocols, The Client-server Model, Domain Name System, Uniform Resource Locator, Hyper Text Transfer protocol, Web Servers</li> <li>New structural elements of HTML5 (Building an HTML5 Starter document, using header element to create a site Header.</li> <li>Using the hgroup element to group headings.</li> <li>Creating navigation with nav element, using the new article element.</li> <li>Grouping content with section element, creating a side bar with the aside element, using the footer element, using the HTML5 outliner to ensure the correct structure.</li> <li>Making up figures and Captions with the figure and figcaption element,</li> <li>Using the address element for contact information, Highlighting the text with mark element, Changes to existing element, Wrapping links around element.</li> </ul>	
<b>Unit-II: Introduction to CSS and Web Forms</b>	<b>9 hrs</b>
<ul style="list-style-type: none"> <li>Creating selector using property and value.</li> <li>Apply border to box element, Set Padding and Margin to box element.</li> <li>Apply Position to the box.</li> <li>Floating the element using CSS.</li> <li>Enhancing a site with Transformation and Transition,</li> <li>Creating animation with CSS.</li> <li>Creating a form to collect contact information.</li> <li>Styling input Fields like Textbox, Bordered inputs, Colored Inputs, Focused Inputs, Input with Icons.</li> <li>Styling Text areas, Styling Select Menus, Styling Input Buttons, and Creating Responsive Form.</li> <li>Creative a Responsive Design with CSS3 and media query.</li> </ul>	
<b>Unit-III: Introduction to Bootstrap</b>	<b>9 hrs</b>
<ul style="list-style-type: none"> <li>Uses of powerful mobile-first flex box grid to build layouts of all shapes and sizes twelve column systems.</li> <li>Examples for Bootstrap's media object to construct highly repetitive components like blog comments, tweets, etc.</li> <li>Managing Content Using Bootstrap</li> <li>Examples for Bootstrap typography, including global settings, headings, body text, lists, and more.</li> <li>Examples for displaying inline and multiline blocks of code with Bootstrap.</li> <li>Examples of images into responsive behaviour (so they never become larger than their parent elements) and add lightweight styles to them—all via classes.</li> <li>Examples for opt-in styling of tables with Bootstrap.</li> </ul>	
<b>Unit-IV: Advance concept of Bootstrap</b>	<b>9 hrs</b>
<ul style="list-style-type: none"> <li>Provide contextual feedback messages for typical user actions with the handful of available and flexible alert messages.</li> <li>Documentation and examples for badges, our small count and labelling component.</li> <li>Group a series of buttons together on a single line with the button group and super-power them with JavaScript.</li> <li>Bootstrap's cards provide a flexible and extensible content container with multiple variants and options.</li> <li>Advanced Bootstrap Components like: Carousal, Form Controls, Navigation bar, Progress bar</li> <li>A slideshow component for cycling through elements—images or slides of text—like a carousel.</li> <li>Examples and usage guidelines for form control styles, layout options, and custom components for creating a wide variety of forms.</li> <li>Examples for Bootstrap's powerful, responsive navigation header, the navbar. Includes</li> </ul>	

Course Content	Hours
support for branding, navigation, and more. <ul style="list-style-type: none"> <li>▪ Examples for using Bootstrap custom progress bars featuring support for stacked bars, animated backgrounds, and text labels.</li> </ul>	
<b>Unit-V: Introduction of TypeScript</b>	<b>9 hrs</b>
<ul style="list-style-type: none"> <li>▪ Types of Data in TypeScript, Variables - Storing Data in Memory.</li> <li>▪ Calculation and Basic String Manipulation.</li> <li>▪ TypeScript Array and Tuples.</li> <li>▪ Decision Making - if and switch Statements, Logical Operators.</li> <li>▪ Looping- for and while Statements.</li> <li>▪ Creating your own functions, Scope and Lifetime, Functions as Values.</li> </ul>	

**Text books:**

- Jonathan Fielding, “Beginning Responsive Web Design with HTML5 and CSS3”, Apress, ISBN:978-1-4302-6694-5
- Hege Refsnes, Stale Refsnes, Kai Jim Refsnes, Jan Egil Refsnes, C. Michael Woodward, “Learn HTML and CSS with w3schools”, Wiley Publication, Inc., ISBN: 978-0-470-61195-1

**Reference books:**

- Jennifer Nierderst Robbins, Learning Web Design, 4th Edition, O’Reilly, ISBN: 978-1-449-31927-4
- Bootstrap : <https://getbootstrap.com/docs/4.1/getting-started/introduction/>

**Pedagogic tools:**

- Chalk and Board
- Videos
- Peer instruction
- Problem-based learning
- Lectures and demonstrations

**Methods of Assessment & Tools:**

Components of CIA: 30 marks

Sr. No.	Component	Content	Duration (if any)	Marks	Sub Total
<b>A</b>	Test 1	Any 2 Units	1 <sup>1/2</sup> hours	5 (Set for 30)	20
	Test 2	Remaining 3 Units	2.5 hours	15 (Set for 45)	
<b>B</b>	Assignment	-	-	5 (20 marks)	10
	Class activity	-	-	5 (20 marks)	
<b>Grand Total</b>					<b>30</b>
<b>Assignment</b>		<ul style="list-style-type: none"> <li>• Concept mapping</li> <li>• Student generated handbook</li> </ul>			
<b>Class activity</b>		<ul style="list-style-type: none"> <li>• Poster Presentation</li> <li>• Group Discussion</li> </ul>			