



FAKULTAS  
TEKNOLOGI  
INFORMASI  
Universitas Advent Indonesia

# Rencana Pembelajaran Semester

| [TI162315] – [Pemrograman Web1]

Disusun dan diajarkan  
oleh:

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Diketahui dan disahkan untuk dilaksanakan,  
Ketua Program Studi Sistem Informasi

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## Rencana Pembelajaran Semester (RPS)

Nama Mata Kuliah	Pemrograman Web 1
Kode Mata Kuliah	TI162315
Bobot (SKS)	3
Tahun Ajaran	2022/2023
Mata Kuliah Prasyarat	-
Tanggal Penyusunan	18 Juli 2023
Dosen Pengampu	Andrew Fernando Pakpahan, M.T. , Ph.D.

Deskripsi Mata Kuliah
<p>This course is designed to equip students with the practical skills and theoretical knowledge necessary to create and enhance web pages. This course will begin with an introduction to the fundamentals of web development, including an overview of HTML, CSS, and JavaScript. Students will then be introduced to advanced tools and techniques, such as CSS libraries (Bootstrap and Tailwind CSS), advanced JavaScript features, AJAX, jQuery, and popular JavaScript frameworks (React or Vue.js). Throughout the course, students will engage in a variety of assignments and quizzes, along with a final project to demonstrate their comprehensive understanding of web development.</p>

Bahan Kajian / Materi Pembelajaran	<ol style="list-style-type: none"> <li>1. HTML/CSS guides and references</li> <li>2. Bootstrap and Tailwind CSS documentation</li> <li>3. Interactive HTML/CSS/JavaScript online coding platforms, such as CodePen and JSFiddle</li> <li>4. JavaScript references and guides, including the Mozilla Developer Network (MDN)</li> <li>5. jQuery and chosen JavaScript framework (React or Vue.js) documentation</li> <li>6. Online tutorial videos and articles on web development topics</li> <li>7. AJAX tutorials and resources</li> <li>8. ES6 tutorials and guides</li> <li>9. Examples of web applications built with JavaScript frameworks</li> <li>10. Online coding exercises to practice concepts and techniques</li> </ol>
Capaian Pembelajaran	<p>Upon completion of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the fundamental principles of web development.</li> <li>2. Create and structure HTML web pages.</li> <li>3. Apply CSS to design and layout web pages, including an understanding of the box model and CSS positioning.</li> </ol>

	<ol style="list-style-type: none"> <li>4. Use Bootstrap and Tailwind CSS to create responsive and advanced UI components.</li> <li>5. Understand and apply fundamental and advanced JavaScript, including ES6 features and AJAX.</li> <li>6. Manipulate web pages using JavaScript and the Document Object Model (DOM).</li> <li>7. Implement event handling in JavaScript and jQuery.</li> <li>8. Understand and use a JavaScript framework (React or Vue.js) to build single-page applications.</li> <li>9. Integrate with APIs and handle routing in a JavaScript framework.</li> <li>10. Apply best practices in web development to build and present a comprehensive final project.</li> </ol>
Daftar Referensi	<ol style="list-style-type: none"> <li>1. Mozilla Developer Network (MDN) Web Docs <ul style="list-style-type: none"> <li>• HTML: <a href="https://developer.mozilla.org/en-US/docs/Web/HTML">https://developer.mozilla.org/en-US/docs/Web/HTML</a></li> <li>• CSS: <a href="https://developer.mozilla.org/en-US/docs/Web/CSS">https://developer.mozilla.org/en-US/docs/Web/CSS</a></li> <li>• JavaScript: <a href="https://developer.mozilla.org/en-US/docs/Web/JavaScript">https://developer.mozilla.org/en-US/docs/Web/JavaScript</a></li> </ul> </li> <li>2. W3Schools Online Web Tutorials <ul style="list-style-type: none"> <li>• HTML: <a href="https://www.w3schools.com/html/">https://www.w3schools.com/html/</a></li> <li>• CSS: <a href="https://www.w3schools.com/css/">https://www.w3schools.com/css/</a></li> <li>• JavaScript: <a href="https://www.w3schools.com/js/">https://www.w3schools.com/js/</a></li> </ul> </li> <li>3. Bootstrap Documentation (v5.x, released in 2021) <ul style="list-style-type: none"> <li>• <a href="https://getbootstrap.com/docs/5.x/getting-started/introduction/">https://getbootstrap.com/docs/5.x/getting-started/introduction/</a></li> </ul> </li> <li>4. Tailwind CSS Documentation (v3.x, released in 2023) <ul style="list-style-type: none"> <li>• <a href="https://tailwindcss.com/docs">https://tailwindcss.com/docs</a></li> </ul> </li> <li>5. ECMAScript 6 (ES6) Features with Examples <ul style="list-style-type: none"> <li>• <a href="https://dmitripavlutin.com/javascript-es6-features/">https://dmitripavlutin.com/javascript-es6-features/</a></li> </ul> </li> <li>6. jQuery API Documentation <ul style="list-style-type: none"> <li>• <a href="https://api.jquery.com/">https://api.jquery.com/</a></li> </ul> </li> <li>7. React Documentation (v18.x, released in 2023) <ul style="list-style-type: none"> <li>• <a href="https://reactjs.org/docs/getting-started.html">https://reactjs.org/docs/getting-started.html</a></li> </ul> </li> <li>8. Vue.js Guide (v3.x, released in 2020) <ul style="list-style-type: none"> <li>• <a href="https://v3.vuejs.org/guide/introduction.html">https://v3.vuejs.org/guide/introduction.html</a></li> </ul> </li> <li>9. Async JavaScript: From Callbacks, to Promises, to Async/Await <ul style="list-style-type: none"> <li>• <a href="https://tylermcginnis.com/async-javascript-from-callbacks-to-promises-to-async-await/">https://tylermcginnis.com/async-javascript-from-callbacks-to-promises-to-async-await/</a></li> </ul> </li> <li>10. Fetch API Documentation on MDN <ul style="list-style-type: none"> <li>• <a href="https://developer.mozilla.org/en-US/docs/Web/API/Fetch_API">https://developer.mozilla.org/en-US/docs/Web/API/Fetch_API</a></li> </ul> </li> <li>11. FreeCodeCamp's Interactive Coding Challenges <ul style="list-style-type: none"> <li>• <a href="https://www.freecodecamp.org/learn">https://www.freecodecamp.org/learn</a></li> </ul> </li> </ol>

	<p>12. CSS-Tricks Guide to Flexbox and Grid (great for understanding CSS layout principles)</p> <ul style="list-style-type: none"> <li>Flexbox: <a href="https://css-tricks.com/snippets/css/a-guide-to-flexbox/">https://css-tricks.com/snippets/css/a-guide-to-flexbox/</a></li> <li>Grid: <a href="https://css-tricks.com/snippets/css/complete-guide-grid/">https://css-tricks.com/snippets/css/complete-guide-grid/</a></li> </ul> <p>13. Codecademy's JavaScript Course (updated in 2023)</p> <ul style="list-style-type: none"> <li><a href="https://www.codecademy.com/learn/introduction-to-javascript">https://www.codecademy.com/learn/introduction-to-javascript</a></li> </ul>
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#### SISTIM PENILAIAN:

Sistim penilaian dilakukan dengan melibatkan komponen-komponen:

Assessment Type	Number	Percentage Each	Total Weight
Assignments	20	1.50%	30%
Quizzes	7	2%	14%
Mid-Term Test	1	16%	16%
Final Test	1	20%	20%
Final Project	1	20%	20%
<b>Total</b>	-	-	<b>100%</b>

Week	Meeting	Topic	Discussion Material	Assignment/Quiz/Project	References	Integrated Faith and Learning (IFL)
1	1	Introduction to Web Development and HTML Basics	Introduction to web development, understanding the internet, browsers, and servers	Assignment 1: "Research Assignment: How Does the Internet Work?"	<a href="#">MDN Introduction to HTML</a>	Prov 24:3-4 - Discuss how wisdom is integral in creating robust and reliable systems, akin to building a strong house
1	2	HTML Basics	HTML basics: tags, elements, attributes	Assignment 2: "Creating a Basic HTML Page"	<a href="#">W3Schools HTML Tutorial</a>	Gen 1:1 - Reflection on how coding is a creative process much like God's creation of the universe
2	3	HTML Structure	HTML structure: headers, paragraphs, links, lists	Assignment 3: "Adding Structure to the HTML Page"	<a href="#">HTML Dog HTML Beginner Tutorial</a>	Psalms 127:1 - Consider the importance of establishing solid foundations, both in coding and in life
2	4	HTML Advanced	HTML tables, forms, and semantic HTML	Quiz 1: HTML Basics	<a href="#">MDN HTML Forms</a>	Rom 5:5 - Discuss the perseverance required in understanding and mastering web development
3	5	Introduction to CSS	Introduction to CSS: linking stylesheets, basic selectors	Assignment 4: "Styling the HTML Page"	<a href="#">CSS Basics</a>	Exodus 31:3-5 - Explore how God imbued us with the capacity for skilled craftsmanship, including coding
3	6	CSS Box Model	CSS box model: borders, margins, and padding	Assignment 5: "Applying the Box Model"	<a href="#">MDN CSS Box Model</a>	Prov 3:6 - Discuss the importance of thoughtful consideration and planning in all aspects of life, including coding
4	7	CSS Positioning	CSS positioning: static, relative, absolute, fixed, sticky	Quiz 2: CSS Basics	<a href="#">CSS Positioning</a>	Psalms 37:23 - Reflection on the role of God in guiding our paths, including our career journeys

4	8	Introduction to Bootstrap	Bootstrap introduction: understanding, integration, classes, and grid system	Assignment 6: "Creating a Layout with Bootstrap"	<a href="#">Bootstrap Documentation</a>	1 Corinthians 14:40 - Discuss how orderliness is important in designing web layouts
5	9	Bootstrap Advanced	Advanced Bootstrap components: Navbar, Modals, Cards, etc.	Assignment 7: "Creating a Complex Layout using Bootstrap Components"	<a href="#">Advanced Bootstrap Tutorial</a>	1 Peter 2:5 - Consider how individual components come together to form a whole, much like stones building up a spiritual house
5	10	Introduction to Tailwind CSS	Introduction to Tailwind CSS: understanding, integration, utility classes	Assignment 8: "Building a Responsive Layout with Tailwind CSS"	<a href="#">Tailwind CSS Documentation</a>	Ecclesiastes 3:1 - Reflect on the timing and seasons in coding and design, and how there is a time for every purpose
6	11	Advanced Tailwind CSS	Advanced Tailwind: responsive design, customization, plugins	Assignment 9: "Building a Complex, Responsive Web Page with Tailwind CSS"	<a href="#">Advanced Tailwind CSS</a>	Psalms 18:2 - Discussion about the need for strong support systems and foundations, in coding and in life
6	12	Introduction to JavaScript	Introduction to JavaScript: variables, data types, operators	Quiz 3: JavaScript Basics	<a href="#">JavaScript Basics</a>	James 1:17 - Explore how every good and perfect gift, including the ability to code, comes from God
7	13	Control Structures in JavaScript	Control structures: loops and conditional statements	Assignment 10: "Control Structures Practice"	<a href="#">JavaScript Control Flow</a>	Prov 2:9 - Discuss the importance of understanding, wisdom, and knowledge in making sound decisions, both in coding and in life
7	14	Functions and Scope, Arrays and Objects in JavaScript	Functions and scope, Arrays and objects in JavaScript	Assignment 11: "Understanding Functions and Scope"	<a href="#">MDN Function</a>	1 Cor 12:4-6 - Discuss how diversity in functions leads to the unity of purpose, both in code and in the body of Christ
8	15	Mid Project				

8	16	Mid-Term Exam			<a href="#">Review all previous materials</a>	
9	17	Introduction to the DOM and Selecting/Manipulating DOM Elements	Introduction to the DOM, selecting and manipulating DOM elements	Assignment 12: "Basic and Advanced DOM Manipulation"	<a href="#">DOM Introduction</a>	John 1:3, Rom 12:2 - Consider how all things are created through God, much like how all elements are created in the DOM, and discuss the idea of transformation in the context of DOM manipulation
10	18	Event Handling in JavaScript	Event handling in JavaScript	Quiz 5: JavaScript DOM Manipulation, Assignment 14: Event handling in Javascript	<a href="#">JavaScript HTML DOM Events</a>	Heb 11:27 - Explore how Moses' endurance is a model for the patience required in event handling
10	19	Introduction to ES6	Introduction to ES6: let, const, arrow functions	Assignment 14: "Working with ES6"	<a href="#">ES6 Features</a>	Hebrews 13:8 - Reflect on the unchanging nature of God in contrast to the evolution of JavaScript
11	20	ES6 Continued	ES6 features continued: template strings, spread and rest operators	Assignment 15: "Building a Small App with ES6"	<a href="#">MDN ES6 Guide</a>	Psalms 119:105 - Discuss how God's word guides our paths, much like good coding practices guide software development
11	21	Introduction to AJAX and Asynchronous JavaScript	Introduction to AJAX, asynchronous JavaScript	Quiz 6: Advanced JavaScript	<a href="#">MDN AJAX Guide</a>	Isaiah 40:31 - Discuss the importance of patience and waiting in the context of asynchronous programming
12	22	Promises, async/await, and fetch API	Promises, async/await, fetch API	Assignment 16: "Working with AJAX and Asynchronous JavaScript"	<a href="#">MDN Using Fetch</a>	Heb 10:36 - Reflect on the rewards of perseverance, both in coding and in spiritual life

12	23	Introduction to jQuery	Introduction to jQuery: selectors, events, effects	Assignment 17: "Interactive Web Page with jQuery"	<a href="#">jQuery Tutorial</a>	Psalm 37:7 - Discuss the importance of trust in God's timing when working with event-driven programming like jQuery
13	24	Deep Dive into jQuery	Deep dive into jQuery: AJAX, utilities	Quiz 7: jQuery	<a href="#">jQuery AJAX</a>	Psalm 28:7 - Reflect on how God strengthens and helps us in difficult times, much like how jQuery simplifies complex coding tasks
13	25	Introduction to a JS Framework (React or Vue.js)	Introduction to a JS framework (React or Vue.js): setting up, basic concepts	Assignment 18: "Setting Up a Project with the Chosen Framework"	<a href="#">React Documentation / Vue.js Documentation</a>	Eph 2:10 - Explore how we are God's workmanship, created to do good works, similar to how we create applications with JS frameworks
14	26	Components, Props, and State in the Chosen Framework	Components, props, and state in the chosen framework	Assignment 19: "Creating Components and Working with State and Props in the Chosen Framework"	<a href="#">React Components / Vue.js Components</a>	Rom 12:4-5 - Discuss the diversity of functions within a united body, both in a software framework and in the body of Christ
14	27	Advanced Concepts in the Chosen Framework	Advanced concepts in the chosen framework: lifecycle methods (React), directives (Vue)	Quiz 8: JS Frameworks	<a href="#">React Advanced Guides / Vue.js Advanced</a>	Psalm 139:16 - Reflect on how God has a perfect plan for our lives, similar to how a framework orchestrates the behavior of an application
15	28	Routing and API Integration in the Chosen Framework	Routing and API integration in the chosen framework	Assignment 20: "Building a Small App with Routing and API Integration"	<a href="#">React Router / Vue Router</a>	Proverbs 16:9 - Consider how we plan our paths, but God determines our steps, much like how routing controls the paths in an application



15	29	Best Practices and Tips for the Chosen Framework, Introduction to the Final Project	Best practices and tips for the chosen framework, Introduction to the final project, planning and setup;	<a href="#">React Best Practices / Vue.js Style Guide</a>	1 Corinthians 9:24 - Reflect on how running the race to get the prize is akin to striving for excellence in our coding practices
16	30	Final Test	Final Test		1 Corinthians 3:9 - Discuss how we are co-laborers with God, just as we collaborate with others on coding projects
16	31	Final Project Presentation	Final Project presentations	<a href="#">Presentations Skills</a>	Phil 4:13 - Reflect on the strength we receive from Christ in all endeavors, including coding challenges