

SCHOOL OF ENGINEERING & TECHNOLOGY

COURSE FILE

Program: Electronics and Computer Engineering

Course Code: CSE2022

Course Title: Web Programming Module Semester: 3rd Sem

Session: 2024-25

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1. Course Details

• Course Code: CSE2022

Course Title: Web ProgrammingModule/Semester: 3rd Sem

• **Session:** 2024-25

2. Vision, Mission of the University

Vision

BML Munjal University seeks to nurture ethical leaders who are skilled, knowledgeable and have the life skills required for leading their organizations to success. The university shall seek the advancement and dissemination of practically oriented knowledge benchmarked with the best global standards.

Mission

BML Munjal University aims to be a leading university for the quality and impact of its teaching, research and linkages with major stakeholders. The focus of the university is to find creative solutions to problems through application of knowledge. The university aims to create a talented community of students and faculty who excel in teaching, learning and research, in a creative and stimulating environment. The university will collaborate with other institutions for development of science, technology and arts in the global context.

3. Graduate Attributes

- Acquire and apply practical understanding of discipline knowledge.
- Demonstrate a sense of ethics and display excellence in both personal and professional life.
- Exhibit problem solving, critical thinking skills and investigative capability to address real world problems.
- Manifest leadership qualities and work effectively in teams across globally diverse environments.
- Be a lifelong learner with an entrepreneurial mindset to innovate in the constantly changing global scenario.
- Possess a strong sense of inquiry and design innovative solutions for positive societal impact.
- Be effective communicators and possess an empathetic outlook.

4. Vision, Mission of the School

Vision of School:

To be amongst the leading engineering schools of the country recognized globally for excellence in teaching and research with focus on experiential learning, innovation and entrepreneurship.

Mission of School:

- * Providing high-quality learning experience to our students, preparing them to be global leaders, and contributing to the development of society through research, innovation, and entrepreneurship.
- * Creating an inclusive and diverse learning environment that fosters creativity, critical thinking, and ethical values.
- * Collaborating with industry, government, and other institutions to address complex societal challenges and promote sustainable development.

5. PEOs and POs & PSOs of the Program

Program Educational Objectives (PEO):

PEO1: Understand, analyze, design, test and create prototypes for a) Modern electronic circuits & systems; and b) digital & analog systems.

PEO2: Demonstrate multidisciplinary knowledge to interface and embedded electronics & computer science in a) analyzing, designing, testing and prototyping of engineering solutions; and b) Systems Integration.

PEO3: Demonstrate capability for creativity, innovation, design thinking and entrepreneurship.

PEO4: Demonstrate and apply ethical and professional practices in profession and work responsibly towards social welfare, environmental sustainability and Job Creation / enrichment.

Program Outcomes (PO):

PO1: Apply the knowledge of mathematics, science, engineering fundamentals, along with Electronics & Computer engineering to the solution of complex engineering problems.

PO2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using domain knowledge of electronics & computer engineering.

PO3: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health & safety, cultural, societal, and environmental considerations.

PO4: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Select and apply appropriate techniques, resources, and electronics & communication engineering tools to various engineering activities with an understanding of the limitations.

PO6: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Demonstrate knowledge and understanding of the electronics & computer engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Program Specific Outcomes (PSO):

PSO1: Analyze and create engineering solutions for Inter-disciplinary problems and assess the impact in Global, Economic, Environmental, and Societal context.

PSO2: Design, develop and test modern electronic systems to derive solutions to real world problems using cutting edge hardware and software tools.

6. Course Description and its objectives

This course will cover JavaScript technologies that power a modern full-stack development workflow, including server-side scripting, single-page web applications with MVC structure, package management, and JSON data storage. The students will learn server-side JavaScript with web frameworks such as Node.js making it simple to create and deploy complex, data-driven web applications.

7. Course Outcomes and CO-PO Mapping

Course Outcomes:

CO1: Apply various core scripting modules to build a server.

CO2: Design single-page applications, create interactive and dynamic websites.

CO/PO Mapping:

| Course | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Outcomes (CO) | | | | | | | | | | | | | | |
| CO1 | 1 | 2 | 1 | | 1 | | | | | | | | 1 | |
| CO2 | | | 1 | 1 | 2 | 2 | 2 | | | | | | | 2 |

8. Detailed Session wise Plan & Course Syllabus

| Sr. No. | Content | СО | Sessions |
|---------|---|------|----------|
| 1 | Introduction to CSS, Basic selectors, Formatting, | 1 | 4 |
| | integrating, CSS, In-line Styles, Embedded Style sheets, | | |
| | Imported Style Sheet, Classes | | |
| 2 | JavaScript: Data Types, Primitive Types, Statements, | 1 | 7 |
| | Keywords, Operators, JavaScript Conditional Statements, | | |
| | Function Parameters, Function Return Types, Arrays | | |
| 3 | JavaScript Objects, Window Objects, Document Object, | 1, 2 | 7 |
| | Object Creation, Adding Methods of Objects, JavaScript | | |
| | Loops & Iteration, Adding Properties of Objects, Event | | |
| | Handling, Enumerating Properties, Callbacks, JSON | | |
| 4 | Building scalable Web Apps with Server-Side JavaScript: | 2 | 7 |
| | generating dynamic content on the server using Node.js | | |
| | (creating the HTTP server, handlebars, template engines); | | |
| | storing and retrieving data in MongoDB | | |

Learning Resources

Text Books:

✓ Flanagan, D. (2020). JavaScript: The Definitive Guide. O'Reilly Media.

√ DuRocher, D. (2021). HTML & CSS QuickStart Guide: The Simplified Beginners Guide to Developing a Strong Coding Foundation, Building Responsive Websites, and Mastering the Fundamentals of Modern Web Design. ClydeBank Media LLC.

Reference Links:

• https://www.coursera.org/learn/html-css-javascript-for-web-developers

9. Weekly Timetable

| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|-------------|---------------------------|---------|-----------|---------------------------|--------|
| 9:15-10:10 | | | | | |
| 10:15-11:10 | Web Programming (CSE2022) | | | Web Programming (CSE2022) | |
| 11:15-12:10 | Web Programming (CSE2022) | | | | |
| 12:15-13:10 | | | | | |
| 13:15-14:10 | | | | | |
| 14:15-15:10 | | | | | |
| 15:15-16:10 | | | | | |
| 16:15-17:10 | | | | | |
| 17:15-18:10 | | | | | _ |

10. Registered Students List

| Sr.No | Unique Id. | Student Name |
|-------|------------|--------------------------|
| 1 | 230768 | Akshat Rawat |
| 2 | 230972 | Arepalli Yagnesh Sri Sai |
| 3 | 240714 | Karan Singh |
| 4 | 230764 | Vivek |
| 5 | 230765 | Samarth Sharma |
| 6 | 230766 | Shubham Patel |
| 7 | 230915 | Harsh Yadav |
| 8 | 230844 | Shruti Negi |
| 9 | 230864 | Karmanya Bhalla |
| 10 | 230872 | Diksha Balodi |
| 11 | 230937 | Ajay Teli |

9. Assignment

| sno | Roll No | Student Name | Email Id | Website (Project Title) | Description |
|-----|-------------|---------------------|---------------------------------------|--|--|
| 1 | 230C2070001 | VIVEK | vivek.yadav.23ece@b mu.edu.in | | Discover timeless elegance with |
| 2 | 230C2070004 | HARSH YADAV | harsh.yadav.23ece@b mu.edu.in | Everyday elegance, forever yours | LustreLane — a curated collection of handcrafted jewelry designed to celebrate every moment. Shop rings, necklaces, and more with ease and |
| 3 | 230C2070007 | KARMANY A BHALLA | karmanya.bhalla.23ece @bmu.edu.in | | sparkle. |
| 4 | 230C2070005 | AKSHAT RAWAT | akshat.rawat.23ece@b mu.edu.in | | Develop a website that helps users discover books based on their reading preferences and genres they love. Users can select genres or interests from a |
| 5 | 230C2070002 | SAMARTH SHARMA | samarth.sharma.23ece @bmu.edu.in | checklist, and the site will instar Books Tailored generate a list of matching books to Your Taste platform includes a personalize | checklist, and the site will instantly generate a list of matching books. The platform includes a personalized bookshelf page to help users track |
| 6 | 230C2070003 | SHUBHAM PATEL | shubham.patel.23ece @bmu.edu.in | | current, past, and wishlist reads, a reading planner to set goals and manage reading time, and a favorites section to bookmark top picks. |
| 7 | 230C2070012 | ABHINAV TRIPATHI | abhinav.tripathi.23ece @bmu.edu.in | HomeChef Genie – Tell Us What You Have. We'll Tell You What to Cook. | Develop a website that helps users discover recipes based on the ingredients they already have at home. Users can select ingredients from a checklist, and the site will instantly generate a list of matching recipes. The platform includes a personalized pantry page to help users track available ingredients, a diet planner to create custom meal plans, and a favorites section to bookmark recipes. |
| 8 | 230C2070006 | SHRUTI NEGI | shruti.negi.23ece@bm u.edu.in | Wellness Alchemy Hub | Wellness Alchemy Hub's website provides a seamless platform for anyone seeking holistic health and advanced medical care. The intuitive design highlights the variety of services available, including personalized treatments, wellness programs, and expert medical consultations. |

| 9 | 230C2070008 | DIKSHA BALODI | diksha.balodi.23ece@ bmu.edu.in | | Develop a website that helps users discover and shop products across categories based on their preferences and needs. Users can browse or filter |
|----|-------------|--------------------------------|---|------------|---|
| 10 | 230C2070013 | AREPALLI YAGNESH SRI SAI | yagneshsri.saiarepalli. 23ece@bmu.edu.in | ShopSphere | items using a checklist of categories, brands, and price ranges, and the site will instantly display relevant products. The platform includes a personalized cart and wishlist to track shopping activity, a deals planner to notify users about discounts, and a favorites section to bookmark preferred products. |
| 11 | 230C2070011 | AJAY TELI | ajay.teli.23ece@bmu.e du.in | | |

11. Internal Assessment Data

| Component | Duration | Weightage | Evaluationweek | Remarks |
|---------------|----------------|-----------|----------------|--|
| Project Phase | Throughout | 30% | Will be held | Focus: Knowledge and application of |
| Evaluation 1 | the week | | throughout the | HTML and CSS fundamentals. Design |
| | starting from | | starting week | Layout and Flow of Website (5%), |
| | 16th | | from 16th | Understanding of HTML Structure (10%), |
| | September | | September | CSS Styling (10%), Accessibility |
| | | | | (Consideration of web accessibility |
| | | | | standards in design) (5%) |
| Project Phase | Throughout | 30% | Will be held | Focus: Integration of HTML, CSS, and |
| Evaluation 2 | the week | | throughout the | JavaScript concepts. Understanding of |
| | starting from | | starting week | basic JavaScript syntax and concepts |
| | 4th November | | from 4th | (variables, functions, loops) (10%), Ability |
| | | | Novermber | to interact with and manipulate the |
| | | | | Document Object Model (DOM) using |
| | | | | JavaScript (10%), Effective integration of |
| | | | | event listeners and handling user |
| | | | | interactions (5%), How well HTML, CSS, |
| | | | | and JavaScript work together in the |
| | | | | project (5%) |
| End Term | As per | 40% | As per the | Focus: Comprehensive application of |
| Evaluation | academic | | academic | HTML, CSS, JavaScript, Node.js, |
| | calendar/Date- | | calendar | Express.js, and MongoDB. Integration of |
| | sheet | | | front-end and back-end technologies, |
| | | | | including a clear data flow between |
| | | | | client and server. (15%), Correct setup |
| | | | | and use of Node.js and Express for |
| | | | | creating an HTTP server. Handling routing |
| | | | | effectively within the application. (10%), |
| | | | | Effective use of template engines, static |
| | | | | files to generate content on the server. |
| | | | | (5%), Ability to store, retrieve, and |
| | | | | manipulate data using MongoDB. Proper |
| | | | | use of Mongoose or another ODM for |
| | | | | database interactions. (5%), Innovation, |
| | | | | complexity, and overall usability of the |
| | | | | final project. (5%) |

12. Assignment PDF

| sno | Roll No | Student Name | Email Id | Website (Project Title) | Description | |
|-----|-------------|---------------------|---------------------------------------|---|--|--|
| 1 | 230C2070001 | VIVEK | vivek.yadav.23ece@b mu.edu.in | | Discover timeless elegance with | |
| 2 | 230C2070004 | HARSH YADAV | harsh.yadav.23ece@b mu.edu.in | Everyday elegance, forever yours | LustreLane — a curated collection of handcrafted jewelry designed to celebrate every moment. Shop rings, necklaces, and more with ease and | |
| 3 | 230C2070007 | KARMANY A BHALLA | karmanya.bhalla.23ece @bmu.edu.in | | sparkle. | |
| 4 | 230C2070005 | AKSHAT RAWAT | akshat.rawat.23ece@b mu.edu.in | | Develop a website that helps users discover books based on their reading preferences and genres they love. Users can select genres or interests from a | |
| 5 | 230C2070002 | SAMARTH SHARMA | samarth.sharma.23ece @bmu.edu.in | Books Tailored to Your Taste | checklist, and the site will inst Books Tailored generate a list of matching boo | checklist, and the site will instantly generate a list of matching books. The platform includes a personalized |
| 6 | 230C2070003 | SHUBHAM PATEL | shubham.patel.23ece @bmu.edu.in | | current, past, and wishlist reads, a reading planner to set goals and manage reading time, and a favorites section to bookmark top picks. | |
| 7 | 230C2070012 | ABHINAV TRIPATHI | abhinav.tripathi.23ece @bmu.edu.in | HomeChef Genie – Tell Us What You Have. We'll Tell You What to Cook. | Develop a website that helps users discover recipes based on the ingredients they already have at home. Users can select ingredients from a checklist, and the site will instantly generate a list of matching recipes. The platform includes a personalized pantry page to help users track available ingredients, a diet planner to create custom meal plans, and a favorites section to bookmark recipes. | |
| 8 | 230C2070006 | SHRUTI NEGI | shruti.negi.23ece@bm u.edu.in | Wellness Alchemy Hub | Wellness Alchemy Hub's website provides a seamless platform for anyone seeking holistic health and advanced medical care. The intuitive design highlights the variety of services available, including personalized treatments, wellness programs, and expert medical consultations. | |

13. Sample Evaluated Internal Submissions and Identification of weak students.

Learner Categories Summary for Partial Semester

| Learner Category | Number of Students |
|-------------------|--------------------|
| Advanced Learners | 0 |
| Medium Learners | 9 |
| Low Performers | 2 |

Student Learning Classification for Partial Semester

| Student Name | Category |
|--------------------------|----------------|
| Akshat Rawat | Medium Learner |
| Karan Singh | Medium Learner |
| Vivek | Medium Learner |
| Samarth Sharma | Medium Learner |
| Harsh Yadav | Medium Learner |
| Shruti Negi | Medium Learner |
| Karmanya Bhalla | Medium Learner |
| Diksha Balodi | Medium Learner |
| Ajay Teli | Medium Learner |
| Arepalli Yagnesh Sri Sai | Slow Learner |
| Shubham Patel | Slow Learner |

14. Reflections from the Mid-term semester feedback received, and interventions made to enhance the student learning and continuous improvement in teaching and learning strategies.

- Implemented targeted interventions, including additional resources and clarification sessions, based on the identified challenges to enhance the learning experience.
- Encouraged an environment of keeping communication open with students, making sure their opinions help us make teaching and learning better.

15. Actions taken for low performers

• Weak students were identified, and they were given extra time to solve their problems.

17. Details of Marks in all components up to the End Semester including the grades

| Sr.No | Unique Id. | Student Name | Project Evaluation Out of (60) | End term examination Out of (40) | Grading |
|-------|------------|-----------------------------|-----------------------------------|----------------------------------|---------|
| 1 | 230768 | Akshat Rawat | 23.0 | 28.75 | С |
| 2 | 230972 | Arepalli Yagnesh Sri Sai | 0.0 | 0.0 | F |
| 3 | 240714 | Karan Singh | 29.0 | 31.5 | В |
| 4 | 230764 | Vivek | 26.0 | 31.5 | C+ |
| 5 | 230765 | Samarth Sharma | 36.0 | 44.75 | А |
| 6 | 230766 | Shubham Patel | 0.0 | 2.75 | F |
| 7 | 230915 | Harsh Yadav | 26.0 | 31.5 | C+ |
| 8 | 230844 | Shruti Negi | 26.0 | 40.25 | B+ |
| 9 | 230864 | Karmanya Bhalla | 33.0 | 40.75 | А |
| 10 | 230872 | Diksha Balodi | 26.0 | 38.25 | В |
| 11 | 230937 | Ajay Teli | 33.0 | 38.75 | B+ |

18. Identification of advanced learners and low performers conducted at the end of the semester

Learner Categories Summary

| Learner Category | Number of Students | | | |
|-------------------|--------------------|--|--|--|
| Advanced Learners | 0 | | | |
| Medium Learners | 9 | | | |
| Slow Learners | 2 | | | |

Student Learning Classification

| Student Name | Category | | | |
|--------------------------|----------------|--|--|--|
| Akshat Rawat | Medium Learner | | | |
| Karan Singh | Medium Learner | | | |
| Vivek | Medium Learner | | | |
| Samarth Sharma | Medium Learner | | | |
| Harsh Yadav | Medium Learner | | | |
| Shruti Negi | Medium Learner | | | |
| Karmanya Bhalla | Medium Learner | | | |
| Diksha Balodi | Medium Learner | | | |
| Ajay Teli | Medium Learner | | | |
| Arepalli Yagnesh Sri Sai | Slow Learner | | | |
| Shubham Patel | Slow Learner | | | |

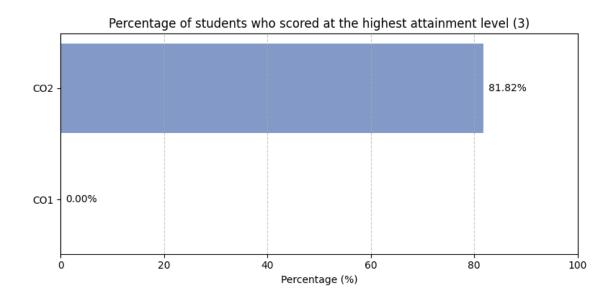
19. Attendance Report

| Sr.No | Unique Id. | Student Name | Attendance | | |
|-------|------------|--------------------------|------------|--|--|
| 1 | 230768 | Akshat Rawat | 78.72 | | |
| 2 | 230972 | Arepalli Yagnesh Sri Sai | 76.60 | | |
| 3 | 240714 | Karan Singh | 92.86 | | |
| 4 | 230764 | Vivek | 85.42 | | |
| 5 | 230765 | Samarth Sharma | 89.58 | | |
| 6 | 230766 | Shubham Patel | 79.17 | | |
| 7 | 230915 | Harsh Yadav | 87.50 | | |
| 8 | 230844 | Shruti Negi | 87.50 | | |
| 9 | 230864 | Karmanya Bhalla | 83.33 | | |
| 10 | 230872 | Diksha Balodi | 87.50 | | |
| 11 | 230937 | Ajay Teli | 89.58 | | |

20. CO attainment analysis with the reflection on feedback on course outcomes

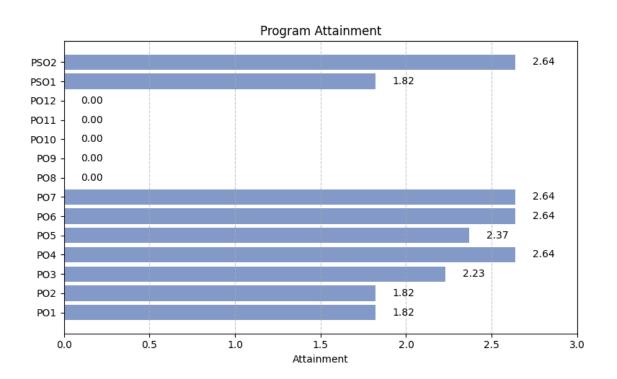
CO Attainment Summary

| Course Outcomes | CO1 | CO2 | | |
|-------------------------------------|--------|--------|--|--|
| Weights | 52.00% | 48.00% | | |
| No. of students who scored at the | 0 | 9 | | |
| highest attainment level (3) | | | | |
| Percentage of students who scored | 0.00% | 81.82% | | |
| at the highest attainment level (3) | | | | |
| Attainment Level | 1 3 | | | |
| Overall Course Attainment | 2.0000 | | | |



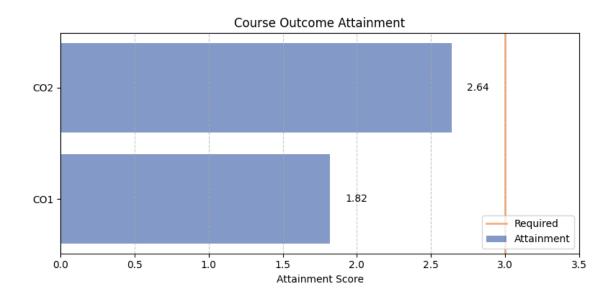
Program Attainment

| Program Outcomes | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Program Attainment | 1.82 | 1.82 | 2.23 | 2.64 | 2.37 | 2.64 | 2.64 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.82 | 2.64 |



Student-wise CO Achievement

| NAME | CO1 Score | CO2 Score | | |
|--------------------------|-----------|-----------|--|--|
| Akshat Rawat | 2 | 3 | | |
| Arepalli Yagnesh Sri Sai | 1 | 1 | | |
| Karan Singh | 2 | 3 | | |
| Vivek | 2 | 3 | | |
| Samarth Sharma | 2 | 3 | | |
| Shubham Patel | 1 | 1 | | |
| Harsh Yadav | 2 | 3 | | |
| Shruti Negi | 2 | 3 | | |
| Karmanya Bhalla | 2 | 3 | | |
| Diksha Balodi | 2 | 3 | | |
| Ajay Teli | 2 | 3 | | |
| Average | 1.82 | 2.64 | | |



21. Feedback (class committee or otherwise) and corrective actions (if any)

Quantitative Feedback:

Average Rating: 4.17/5

22. Faculty Course Review

The course was designed in such a way that students can relate the theoretical concepts with the practical exercises and can realize how a web page is designed and programmed

 \checkmark The non-graded quiz was conducted at the end of the class to observe the students' participation in the class. This also helped the students to evaluate themselves with respect to the topics covered in the class.

 \checkmark The students were assigned challenging designing tasks based on the CSS topics discussed in the class.

 \checkmark The students were assigned group projects to work on a particular case study to develop website using HTML, CSS, JavaScript, NodeJS and Templates to provide an aesthetic user experience with appropriate navigation structure.

√ This course was aimed at enabling the students to design/create website by conducting various activities for remembering, understanding, applying and analyzing level of Bloom's taxonom