



RAMON MAGSAYSAY MEMORIAL COLLEGES

Information Technology Education Program

1st SEMESTER: AY: 2025 - 2026



NAME: PECAYO, JOSHUA I. SCHEDULE: 10AM-1PM SCORE: _____
SUBJECT: WEB SYSTEMS AND TECHNOLOGIES INSTRUCTOR: JIM S. JAMERO MIT. DATE: _____

LABORATORY EXERCISE 7 FILE UPLOADS (COURSE MATERIALS)

Learning Objectives

- By the end of this laboratory exercise, students should be able to:
 - Design and implement a database schema for managing file uploads related to courses.
 - Utilize CodeIgniter's File Uploading Library to handle file uploads securely.
 - Create an administrative interface for uploading and managing course materials.
 - Implement access control to ensure only enrolled students can download materials.
 - Enhance the user interface with Bootstrap for a clean and functional file management system.

Prerequisite student experiences and knowledge

Before starting this exercise, students should have:

- ❖ Completed Laboratory Exercise 6 (Course Enrollment System).
- ❖ A solid understanding of CodeIgniter's MVC structure and database operations.
- ❖ Experience with HTML forms and Bootstrap styling.
- ❖ Basic knowledge of handling file inputs in HTML.
- ❖ Familiarity with user authentication and session management in CodeIgniter.

Background

A core feature of any Learning Management System (LMS) is the distribution of learning resources. This involves allowing instructors to upload various file types (such as PDFs, PowerPoint presentations, and documents) and making them available to enrolled students. CodeIgniter provides a robust File Uploading Library that simplifies the process of validating, uploading, and securing files. This exercise will integrate this functionality into the LMS, ensuring that file management is seamless and secure.

Materials/Resources

- Personal Computer with Internet Access
- XAMPP/WAMP/LAMP server installed
- CodeIgniter Framework (latest version)
- Visual Studio Code or any code editor
- Git and GitHub Account
- Web Browser (Chrome, Firefox, etc.)

Laboratory Activity

Step 1: Create a Database Migration for Materials Table

1. Create a new migration file for the materials table.
Run: **php spark make:migration CreateMaterialsTable**
2. Open the newly created file in **app/Database/Migrations/**.
3. In the **up()** method, define the table with the following fields:
 - id (Primary Key, Auto-Increment)



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- course_id (INT, Foreign Key referencing the `courses` table)
 - file_name (VARCHAR(255)) to store the original filename
 - file_path (VARCHAR(255)) to store the path to the uploaded file
 - created_at (DATETIME)
4. In the **down()** method, define how to drop the table.
Run the migration: `php spark migrate`

Step 2: Create a Model for Materials

1. Navigate to app/Models/ and create a file named **MaterialModel.php**.
2. Create a model class with methods to:
 - **insertMaterial(\$data)** Insert a new material record.
 - **getMaterialsByCourse(\$course_id)** Get all materials for a specific course.

Step 3: Create or Modify a Controller for Materials

1. You can create a new Materials.php controller or add methods to an existing admin controller.
2. Add the following methods:
 - **upload(\$course_id)** Displays the file upload form and handles the file upload process.
 - **delete(\$material_id)** Handles the deletion of a material record and the associated file.
 - **download(\$material_id)** Handles the file download for enrolled students.

Step 4: Implement File Upload Functionality

1. In the **upload(\$course_id)** method, check for a POST request.
2. Load CodeIgniter's File Uploading Library and Validation Library.
3. Configure the upload preferences (upload path, allowed file types, maximum file size).
4. Perform the file upload. If successful, prepare data (course_id, file_name, file_path) and save it to the database using the **MaterialModel**.
5. Set a flash message indicating success or failure and redirect back to the course management page.

Step 5: Create the File Upload View

1. Create a view file.
2. The view should contain a form with the **enctype="multipart/form-data"** attribute and a file input field.
3. Style the form using Bootstrap classes.

Step 6: Display Downloadable Materials for Students

1. In the student dashboard or a dedicated course view, use the **MaterialModel** to fetch materials for the courses the student is enrolled in.
2. Create a view that lists these materials, displaying the file name and a download button/link for each.
3. The download link should point to the **download(\$material_id)** method in your controller.



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Step 7: Implement the Download Method

1. In the **download(\$material_id)** method:
 - ✓ Check if the current user is logged in and enrolled in the course associated with the material.
 - ✓ Retrieve the file path from the database using the '\$material_id'.
 - ✓ Use CodeIgniter's download() helper function or the Response class to force the file download securely.

Step 8: Update Routes

1. Update app/Config/Routes.php to include routes for the new functionalities.
`$routes->get('/admin/course/(:num)/upload', 'Materials::upload/$1');`
`$routes->post('/admin/course/(:num)/upload', 'Materials::upload/$1');`
`$routes->get('/materials/delete/(:num)', 'Materials::delete/$1');`
`$routes->get('/materials/download/(:num)', 'Materials::download/$1');`

Step 9: Test the Application

1. Run the application and test the complete flow:
 - ✓ Log in as an admin/instructor.
 - ✓ Navigate to a course and upload a file (PDF, PPT).
 - ✓ Verify the file is saved in the designated folder and a record is added to the 'materials' table.
 - ✓ Log in as a student enrolled in the course.
 - ✓ Navigate to the course page and verify the material is listed.
 - ✓ Test the download functionality.
 - ✓ Test accessing the download link while not enrolled (it should be restricted).

Step 9: Push to GitHub

1. Add, commit, and push your changes to your GitHub repository.

Output / Results

- ✓ Screenshot of the **materials** table schema from your database (phpMyAdmin or equivalent).
- ✓ Screenshots of the file upload form (admin side) and the student view showing the list of downloadable materials.
- ✓ Screenshot of the server's file system (upload directory) showing the uploaded file.
- ✓ A screenshot of the GitHub repository with the latest commit for this exercise.



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QUESTIONS:

1. What are the security risks associated with file uploads, and how did you mitigate them using CodeIgniter's File Uploading Library?
 - One big security risk with file uploads is that users might try to upload harmful files, like viruses or scripts, that can damage the system or steal data. In CodeIgniter's File Uploading Library, we can prevent this by setting rules like allowed file types, file size limits, and upload paths. This way, only safe files like PDFs or images are accepted, and they are stored in a secure folder where users cannot directly access or execute them.
2. Explain the purpose of the `enctype="multipart/form-data"` attribute in the form tag for file uploads.
 - The `enctype="multipart/form-data"` attribute in the form tag is needed when a form includes file uploads. It tells the browser to send both text and file data properly to the server. Without this attribute, the uploaded file's data won't be sent correctly, and the server won't receive the file. It basically makes sure that the file and other form inputs are transferred safely together.
3. Why is it important to check if a student is enrolled in a course before allowing them to download a material? How does this enforce application security?.
 - It's important to check if a student is enrolled in a course before letting them download materials because it keeps the system secure and fair. If we allow anyone to download materials, students who are not enrolled could access lessons or resources they shouldn't. By checking enrollment, we make sure that only authorized students can get the course files, protecting both the content and the teacher's work.



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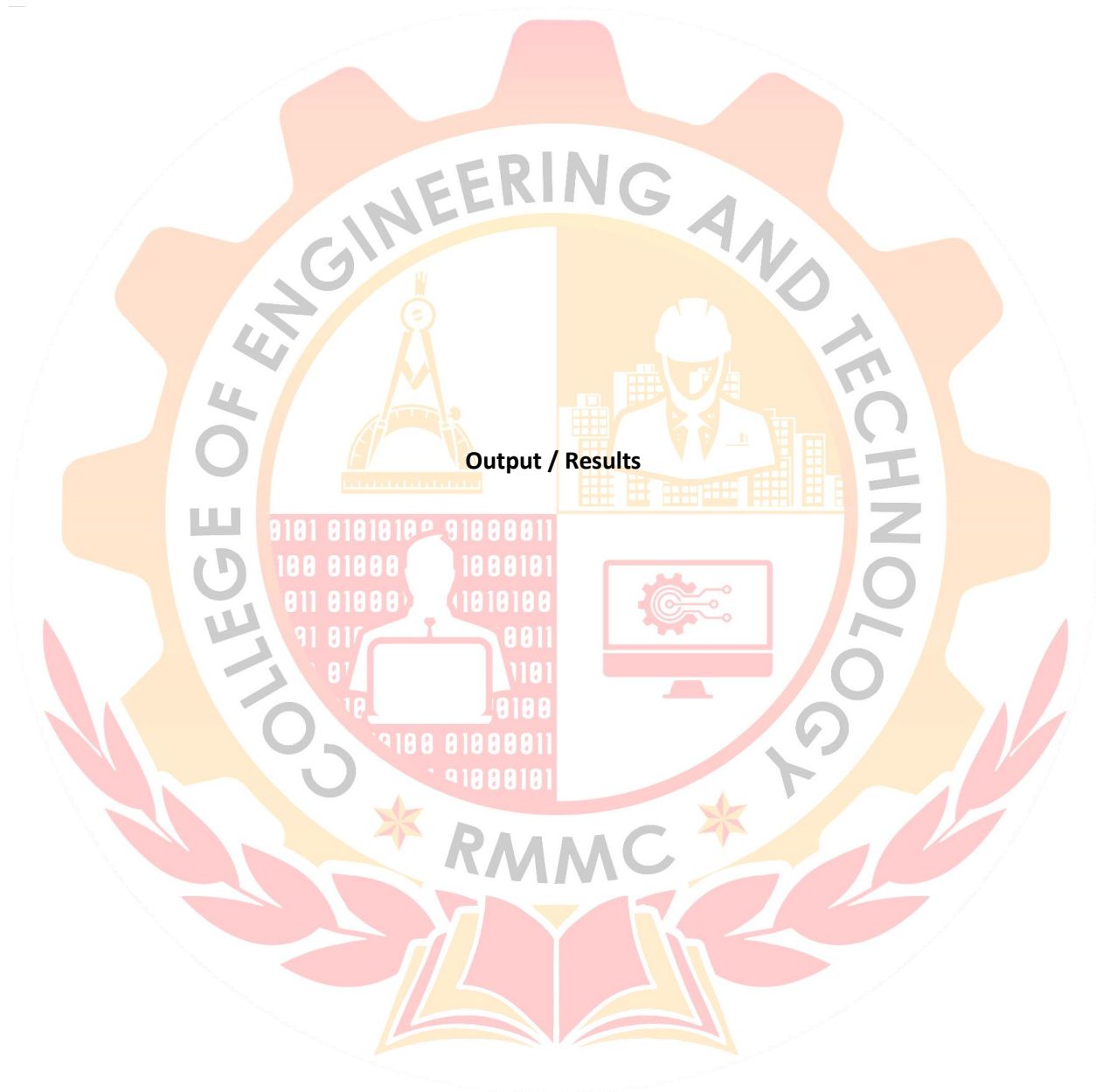
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localhost / 127.0.0.1 / lms_pecayo x +

localhost/phpmyadmin/index.php?route=/sql&db=lms_pecayo&table=materials&pos=0

Showing rows 0 - 0 (1 total. Query took 0.0011 seconds.)

```
SELECT * FROM `materials`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

| | id | course_id | file_name | file_path | file_size | mime_type | created_at | updated_at |
|--------------------------|----|-----------|-----------|--|-----------|-----------|---------------------|------------|
| <input type="checkbox"/> | 1 | 1 | sub.jpeg | uploads/materials/1761416835_d08ae07e41a0bc785d28... | NULL | NULL | 2025-10-25 18:27:15 | NULL |

Check all | With selected: Edit Copy Delete Export

Show all | Number of rows: 25 | Filter rows: Search this table

Query results operations

Print Copy to clipboard Export Display chart Create view

Commits - Veniox04/WebSystem-ITE LAB 7 : FILE UPLOADS (COURSE MAT Dashboard Login

localhost/ITE311-PECAYO/dashboard

LMS Profile Logout

Welcome, Admin User Role: Admin Profile Settings

Total Users 3

Total Courses 9

Active Students 0

Active Teachers 0

Course Materials Management Manage Course Materials

Upload and manage course materials for all courses. Students can view and download materials from their enrolled courses.

ITE 321 - Web Application Development 0 materials

ITE 322 - Database Systems and Analytics 0 materials

ITE 323 - Software Design and Development 0 materials



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The image shows two screenshots of a web application titled "Upload Material". The browser address bar indicates the URL is `localhost/ITE311-PECAYO/materials/upload/1`.

Top Screenshot (Initial State):

- Header:** "Upload Material" with a sub-header "Add a new material to 'ITE 321 - Web Application Development'".
- Select Material File:** A dashed box containing a red upload icon and the text "Click to browse or drag and drop your file here" and "Maximum file size: 10MB".
- Supported File Types:** A light blue box listing supported file types:
 - Documents: PDF, DOC, DOCX, PPT, PPTX, TXT
 - Images: JPG, JPEG, PNG, GIF
 - Media: MP4, MP3
 - Archives: ZIP
- Buttons:** "Back to Materials" (grey) and "Upload Material" (orange).

Bottom Screenshot (After Selection):

- Select Material File:** A green dashed box containing a green checkmark icon and the text "File selected successfully" and "sub.jpeg".
- Selected:** "sub.jpeg (13.19 KB)" displayed in red text.
- Supported File Types:** The same list as the top screenshot.
- Buttons:** "Back to Materials" (grey) and "Upload Material" (orange).



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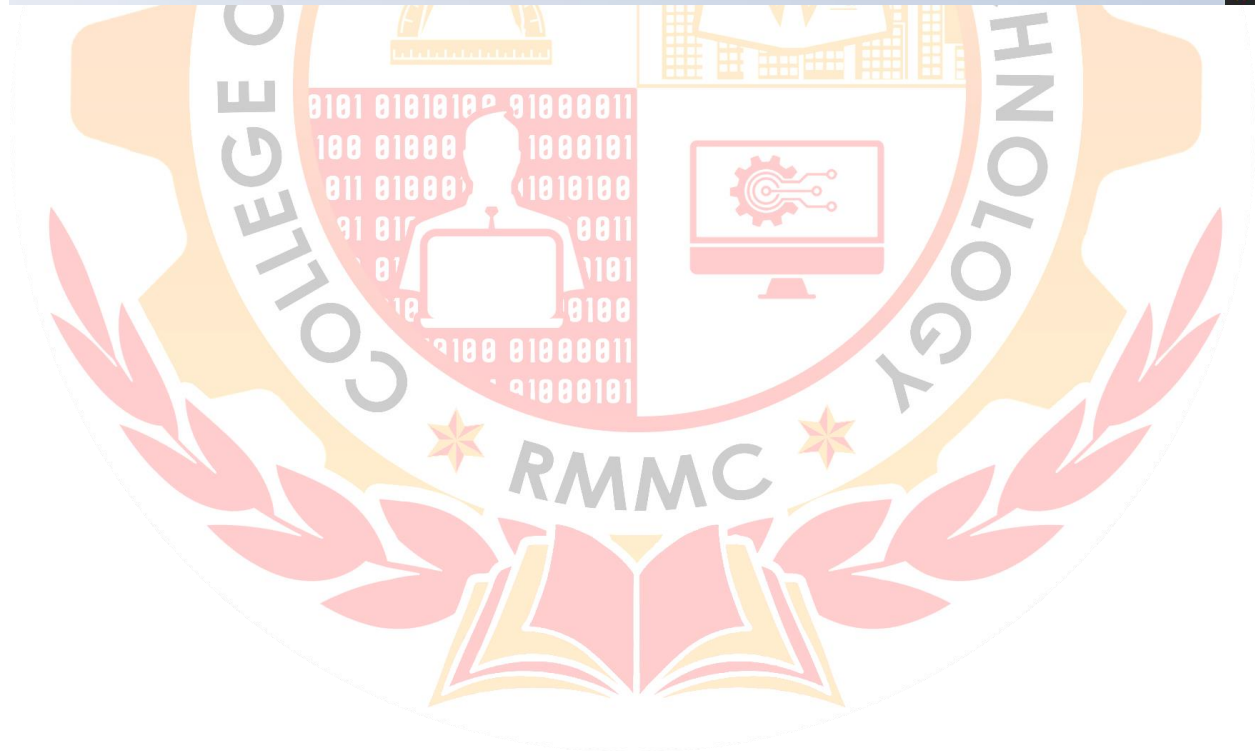
Course Materials

ITE 321 - Web Application Development

1
Material Available

sub.jpeg
JPG • Uploaded Oct 25, 2025
Download

← Back to Dashboard Upload New Material





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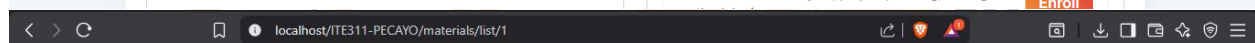
**Welcome, Student User**
Role: **Student**[Profile](#)[Settings](#)



My Enrolled Courses
1


Upcoming Deadlines
0


My Enrolled Courses
ITE 321 - Web Application Development
Enrolled Oct 17, 2025 • 1 material
[Materials](#)
[View Materials](#)

Available Courses
ITE 322 - Database Systems and Analytics
Explores data modeling, SQL queries, and database management principles.
[Enroll](#)
ITE 323 - Software Design and Development
Covers software lifecycle, project planning, and agile
[Enroll](#)



**Course Materials**
ITE 321 - Web Application Development

1
Material Available

**sub.jpeg**
JPG • Uploaded Oct 25, 2025
[Download](#)

[← Back to Dashboard](#)





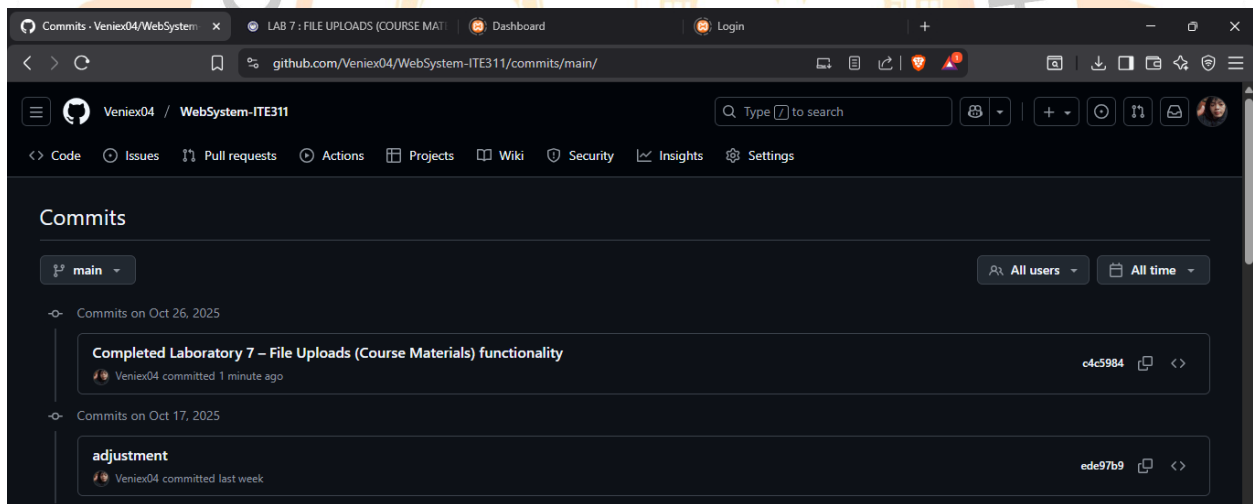
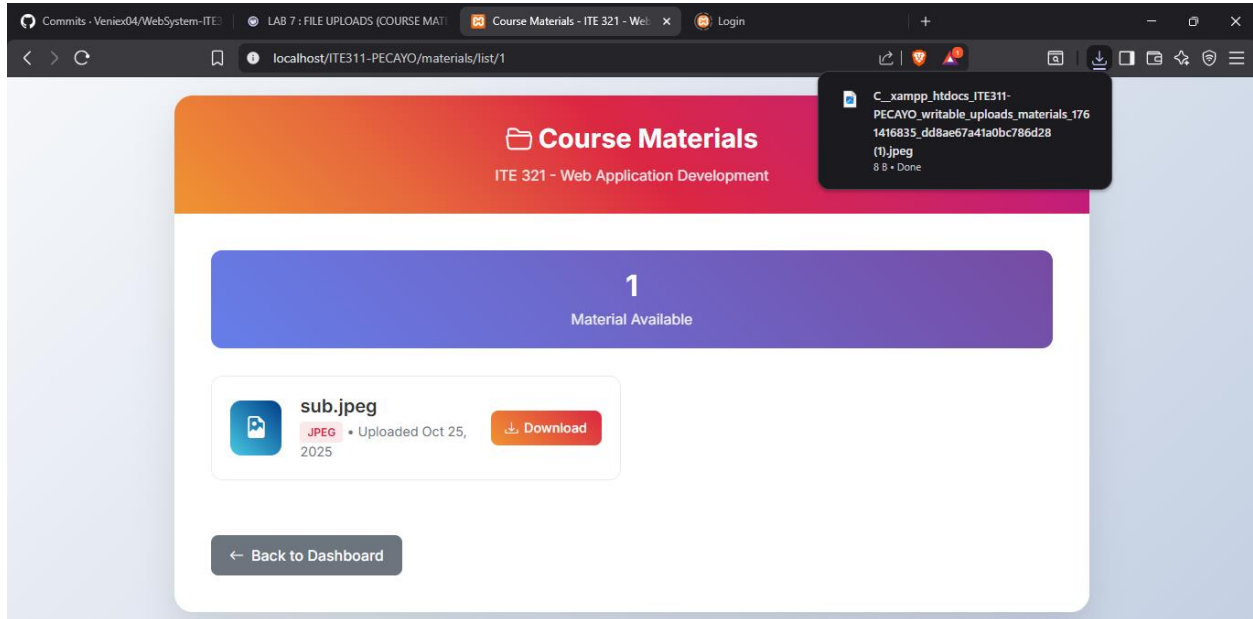
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Conclusion

In this laboratory, I learned how to upload and manage course materials safely using CodeIgniter. I created a database for files, used the File Uploading Library, and added access control so only enrolled students can download materials. I also improved the design using Bootstrap to make the interface clean and user-friendly. This activity helped me understand how to build a secure, organized, and efficient file management system for an LMS.



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