

## **MET9143 – End-of-Course Project(40 marks)**

### **Project Title: Design and Development of an Educational Web Application**

#### **Project Overview**

Throughout this course, you have studied the fundamental concepts of educational web application development, including web technologies, user interface design, relational databases, server-side programming, and web application deployment.

In this project, you will apply the knowledge and skills acquired from all five units by designing and developing a functional educational web application that addresses a real educational need.

**Examples include:** Student Result Management, System Online Quiz System Course Registration System, School Library Management System, Attendance Management System and eLearning Resource Management System

You may also propose another educational web application after obtaining approval from your instructor.

#### **Project Instructions**

Before starting the project, ensure that you:

- Work in group of two
- Read all five units of the course materials.
- Select an educational problem that can be solved using a web application.
- Design the system before beginning implementation.
- Develop the application using the technologies covered in this course.
- Test your application before submission.
- Ensure your work is original and properly acknowledge any external resources used.
- Submit your project before the deadline.

#### **Project Tasks**

##### **Task 1: Project Proposal (4 Marks)**

- ✓ Prepare a brief project proposal (1–2 pages) including:
- ✓ Project title
- ✓ Educational problem being addressed
- ✓ Objectives of the system
- ✓ Target users
- ✓ Expected system features

## **Task 2: User Interface Design (8 Marks)**

Design the user interface for your application.

Include:

- ✓ Wireframes or mock-ups
- ✓ Responsive page layouts
- ✓ Navigation structure
- ✓ HTML5 semantic elements
- ✓ CSS styling
- ✓ Bootstrap components
- ✓ Accessibility considerations (WCAG 2.1)

## **Task 3: Database Design (8 Marks)**

Design the relational database for your application.

Include:

- ✓ UML Class Diagram (or ER Diagram)
- ✓ Database tables
- ✓ Primary keys
- ✓ Foreign keys
- ✓ Relationships
- ✓ Database normalized to Third Normal Form (3NF)

## **Task 4: Web Application Development (12 Marks)**

Develop a functional educational web application.

The application should demonstrate:

- ✓ User authentication (Login)
- ✓ CRUD operations (Create, Read, Update, Delete)
- ✓ Database connectivity
- ✓ Form validation
- ✓ Responsive interface
- ✓ Proper error handling

## **Task 5: Testing, Deployment and Reflection (8 Marks)**

Submit evidence of testing and write a short report including:

- ✓ Screenshots of the application
- ✓ Test cases performed
- ✓ Challenges encountered
- ✓ Solutions implemented
- ✓ Lessons learned
- ✓ Suggestions for future improvements

### ***Submission Requirements***

Submit **one ZIP file** containing:

- Project Report (PDF or Word)
- Source Code
- Database SQL file
- Wireframes/Mock-ups
- UML Diagram
- Screenshots
- README file explaining how to run the application

### **Assessment Rubric**

| Criterion                            | 4 – Excellent                                                                                                                         | 3 – Good                                                                | 2 – Fair                                                            | 1 – Needs Improvement                                                       |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <b>Project Planning and Analysis</b> | Project objectives, educational problem, and proposed solution are clearly defined and well justified.                                | Project is well described with minor omissions.                         | Project description is adequate but lacks sufficient detail.        | Project objectives and problem are unclear or incomplete.                   |
| <b>User Interface Design</b>         | Interface is visually appealing, fully responsive, easy to navigate, and follows HTML5, Bootstrap, and WCAG accessibility guidelines. | Interface is functional and mostly responsive with minor design issues. | Interface is usable but lacks consistency or responsiveness.        | Interface is poorly designed, difficult to navigate, or largely incomplete. |
| <b>Database Design</b>               | Database is well structured, normalized to 3NF, and includes correct relationships, primary keys, and foreign keys.                   | Database design is mostly correct with minor structural errors.         | Database is partially normalized or contains several design issues. | Database design is incomplete or contains major errors.                     |

|                                                |                                                                                                                                                    |                                                      |                                                                            |                                                            |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------|
| <b>Application Functionality</b>               | Application functions correctly, integrates the database successfully, supports CRUD operations, and handles user interactions effectively.        | Most features work correctly with only minor issues. | Some required features work, but several are incomplete or contain errors. | Application is incomplete or major functions do not work.  |
| <b>Testing, Documentation and Presentation</b> | Comprehensive testing evidence, well-organized documentation, professional presentation, and thoughtful reflection on challenges and improvements. | Good documentation and testing with minor omissions. | Basic documentation provided but lacks sufficient detail.                  | Documentation is incomplete, poorly organized, or missing. |

END!