

## **1. Purpose**

**This document describes the functional and non-functional requirements for the Course Registration System. The system allows students to register for courses, view their schedules, and manage their enrollment. Administrators can add, edit, and delete course information.**

**All requirements are written in a clear and measurable form.**

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## **2. Functional Requirements**

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### **a. User Registration & Login**

**Description:**

- The system shall allow students to create an account and log in securely.**

**Requirements:**

- The system shall allow students to register using name, email and password.**
  - Registration and login shall not exceed three steps.**
  - User data shall be stored using C++ classes.**
  - The registration/login module shall be completed before any course-related functionality becomes available.**
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### **b. View Available Courses**

**Description:**

- Students shall be able to view a list of all available courses.**

**Requirements:**

- The system shall display the course code, course name, capacity and credit hours.**
- The system shall show 100% of the stored courses.**
- Course data shall be retrieved from a collection of Course objects.**
- This feature shall be accessible immediately after the log in.**

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### **c. Course Registration**

#### **Description:**

- The system shall allow students to enroll in available courses.**

#### **Requirements:**

- A student may register for a course only if the course capacity is not exceeded.**
  - A student shall be allowed to register for a maximum of six (6) courses per semester.**
  - Enrollment shall link Student and Course objects.**
  - The course registration module shall be part of the main student interface.**
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### **d. Course Dropping**

#### **Description:**

- Students shall be able to drop courses they have previously registered for.**

#### **Requirements:**

- A student shall only be allowed to drop a course that exists in their current schedule.**
  - Dropping a course shall remove it from the student's schedule.**
  - This feature shall be available from the same menu as course registration.**
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### **e. View Student Schedule**

#### **Description:**

- Students shall be able to view the list of courses they are registered for.**

#### **Requirements:**

- The schedule shall list the course code, course name and credit hours.**
- Data shall be retrieved from the student's stored course list.**

- This feature shall be available in the same menu as registration and dropping functionality.
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#### f. Admin Course Management

##### Description:

- Administrators shall manage course information.

##### Requirements:

- The admin shall be able to add new courses.
  - The admin shall be able to edit existing course data.
  - The admin shall be able to delete courses.
  - All admin modifications shall be reflected immediately in the stored course data.
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#### g. Enrollment Capacity Enforcement

##### Description:

- The system shall enforce maximum course capacity.

##### Requirements:

- Each course shall have a defined maximum capacity.
  - The system shall prevent registration if the course is full.
  - Capacity checks shall be performed every time a student attempts to register.
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### 3. Non-Functional Requirements

#### a. Performance

- The system shall load all course data within 2 seconds of startup.
- Performance shall be verified during testing.

#### b. Usability

- The console interface shall provide clear menus and intuitive steps.

- **Users shall complete main tasks in fewer than 5 steps.**