# SOFTWARE REQUIREMENT SPECIFICATION PORTAL FOR ONE CREDIT COURSE EXEMPTION

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**Project ID** : 17

**Project title** : One Credit Course Exemption

**Technical Components:**

| COMPONENT | TECH STACK |
|---|---|
| Frontend | React Js |
| Backend | Node.js with Express.js |
| Database | MongoDB(NOSQL Database) |
| API | OpenAPI |

## Problem Statement :

The current system for recognizing prior learning through completed coursework lacks transparency. Students often waste time and resources enrolling in introductory courses they might be qualified to skip, delaying graduation and hindering motivation. To address this, we propose a one-credit website. This website would allow students in their fourth semester or above to check their eligibility for skipping an introductory course. The system would consider completion of two approved one-credit courses and verify a clean academic record with no backlogs from previous semesters. This solution streamlines the process, empowers students to make informed course selections, and potentially accelerates graduation by efficiently recognizing prior learning.

## SCOPE OF THE PROJECT:

This project tackles a common student dilemma: fulfilling credit requirements while potentially being exempt from specific courses. We aim to develop a system for students in their fourth semester or higher who qualify for exemption from three one-credit courses. This system could offer various functionalities, such as recommending courses for exemption based on past performance and skills, evaluating external courses for credit equivalency, suggesting alternative courses to fulfill credit needs, streamlining the exemption application process, or even providing a gamified platform for exploring one-credit electives. This comprehensive approach empowers students to navigate their academic journey more efficiently and effectively.

## SYSTEM OVERVIEW:

**Student Module:** Allows students to:

- View course requirements and exemption eligibility.
- Access course recommendations for exemption based on past performance and skills (if applicable).
- Submit details of external courses for equivalency evaluation (if applicable).
- Explore alternative courses to fulfill credit needs (if applicable).
- Apply for exemption electronically with relevant documentation upload.
- Track the progress of exemption requests.

**Faculty/Advisor Module:** Enables faculty or advisors to:

- Review exemption requests and student documentation.
- Evaluate external courses for equivalency based on established criteria.
- Recommend alternative courses based on student's program and goals (if applicable).
- Approve or reject exemption requests.

**Administration Module:** Manages the overall system including:

- Setting criteria for exemption and course equivalency.
- Maintaining a database of approved courses and external credential verification services (if applicable).

- Generating reports on exemption trends and student progress.

## FEATURES:

**Student Module:**

- **Eligibility Check:** Students can enter their academic details (semester, past courses) to see if they qualify for exemption from any one-credit courses.
- **Course Recommendation Engine (optional):** Based on a student's academic record and skills (if uploaded), the system suggests courses for potential exemption.
- **External Course Equivalency Evaluation:** Students can submit details of external courses (e.g., online courses, workshops) for faculty review to see if they fulfill credit requirements.
- **Alternative Course Suggestion:** If a student is exempt from a course, the system recommends alternative courses based on their major, interests, and career goals.
- **Electronic Exemption Application:** Students can submit exemption requests online, attaching relevant documents (e.g., certificates, transcripts).
- **Real-time Application Tracking:** Students can track the status of their exemption requests and receive updates.

**Faculty/Advisor Module:**

- **Exemption Request Review:** Faculty or advisors can review student exemption requests, including uploaded documents.
- **Equivalency Assessment Tool:** Evaluate external courses against established criteria to determine if they meet credit requirements.
- **Alternative Course Recommendation:** Recommend alternative courses suitable for the student's program and goals (if applicable).
- **Decision-making Tools:** Access student transcripts, performance data, and relevant course information to make informed decisions on exemption requests.
- **Approval/Rejection Management:** Approve or reject exemption requests with clear communication to students.

**Administration Module:**

- **Exemption Criteria Management:** Define the criteria for student eligibility (e.g., minimum semester, required GPA) and course exemption (e.g., specific skills demonstrated).
- **Course Equivalency Management:** Maintain a database of approved courses and external credential verification services (if applicable).
- **Reporting and Analytics:** Generate reports on exemption trends (courses commonly exempted, student demographics), student progress, and faculty workload.
- **System Configuration:** Manage user access, system settings, and integration with existing university systems.

## SPECIAL FEATURE:

**1. Predictive Analytics for Course Recommendation:**

- Go beyond basic recommendations by using historical data and machine learning to predict with higher accuracy which courses a student is most likely to be exempt from.
- This could involve analyzing factors like past performance in similar courses, learning styles, and performance in standardized tests.

**2. Personalized Learning Path Optimization:**

- Build upon alternative course suggestions by creating a dynamic learning path that optimizes a student's academic journey.
- This feature could consider factors like course prerequisites, scheduling conflicts, and the student's career goals to recommend the most efficient path to fulfill credit requirements.

**3. Micro-credential Integration:**

- Integrate the system with platforms issuing micro-credentials (e.g., badges, certificates for online courses) to streamline external course equivalency evaluation.
- This could involve automatic verification of micro-credentials and pre-defined equivalency mapping for specific courses.

**4. Chatbot Support:**

- Implement a chatbot assistant to answer student questions about exemption eligibility, course recommendations, and the application process.
- This can provide 24/7 support and reduce the administrative burden on advisors.

**5. Gamified Exemption Challenges:**

- Introduce gamified challenges (e.g., quizzes, skill assessments) to incentivize students to demonstrate their knowledge and potentially qualify for exemptions.
- This can make the learning process more engaging and provide an alternative path to exemption for students who excel in these challenges.

# FUNCTIONAL REQUIREMENTS:

**1. User Management:**

- The system shall allow users to register and login with secure authentication.
- The system shall differentiate user roles (student, advisor/faculty, administrator) and grant access based on roles.
- The system shall allow for user profile management (update information).

**2. Student Module:**

- The system shall display a student's current academic standing (semester, completed courses).
- The system shall determine a student's eligibility for exemption from one-credit courses based on predefined criteria.
- The system shall recommend courses for potential exemption (optional, using historical data and student profile.
- The system shall allow students to submit details of external courses (course name, description, provider) for equivalency evaluation .
- The system shall allow students to upload relevant documentation (certificates, transcripts) to support exemption requests .

- The system shall allow students to submit exemption requests electronically.
- The system shall allow students to track the status of their exemption requests.
- The system shall provide alternative course suggestions based on student program, interests, and career goals.

**3. Faculty/Advisor Module:**

- The system shall display details of student exemption requests, including uploaded documents.
- The system shall provide tools to evaluate external courses for equivalency based on established criteria.
- The system shall allow faculty/advisors to recommend alternative courses suitable for the student's program and goals.
- The system shall provide decision-making tools (student transcripts, performance data) to assess exemption requests.
- The system shall allow faculty/advisors to approve or reject exemption requests with clear communication to students.

**4. Administration Module:**

- The system shall allow administrators to define exemption criteria (semester, GPA, etc.) for student eligibility.
- The system shall allow administrators to define criteria for course equivalency evaluation.
- The system shall allow administrators to maintain a database of approved courses.
- The system shall allow administrators to integrate with external credential verification services.
- The system shall generate reports on exemption trends (courses exempted, student demographics), student progress, and faculty workload .
- FR-4.6: The system shall allow administrators to configure user access, system settings, and integration with existing university systems.

# NON-FUNCTIONAL REQUIREMENTS:

**1. Performance:**

- The system response time for basic functionalities (login, viewing student data) should be less than 3 seconds.
- The system should be able to handle concurrent access by a high number of users (e.g., during peak registration periods) without significant performance degradation.

**2. Security:**

- The system shall implement secure authentication protocols for user login.
- The system shall encrypt sensitive student data (grades, transcripts) at rest and in transit.
- The system shall comply with relevant data privacy regulations (e.g., FERPA).

**3. Availability:**

- The system should be available for use at least 99% of the time during business hours.
- The system shall have a documented disaster recovery plan to minimize downtime in case of outages.

**4. Usability:**

- The system interface shall be user-friendly and intuitive for all user roles (students, faculty, administrators).
- The system shall provide clear instructions and error messages for users.
- The system shall be accessible for users with disabilities.

**5. Scalability:**

- The system shall be designed to accommodate a growing number of students and courses over time.
- The system should be able to integrate with future university systems and data sources.

**6. Maintainability:**

- The system code shall be well-documented and easy to understand for future maintenance.
- The system should be modular to allow for easy updates and bug fixes.

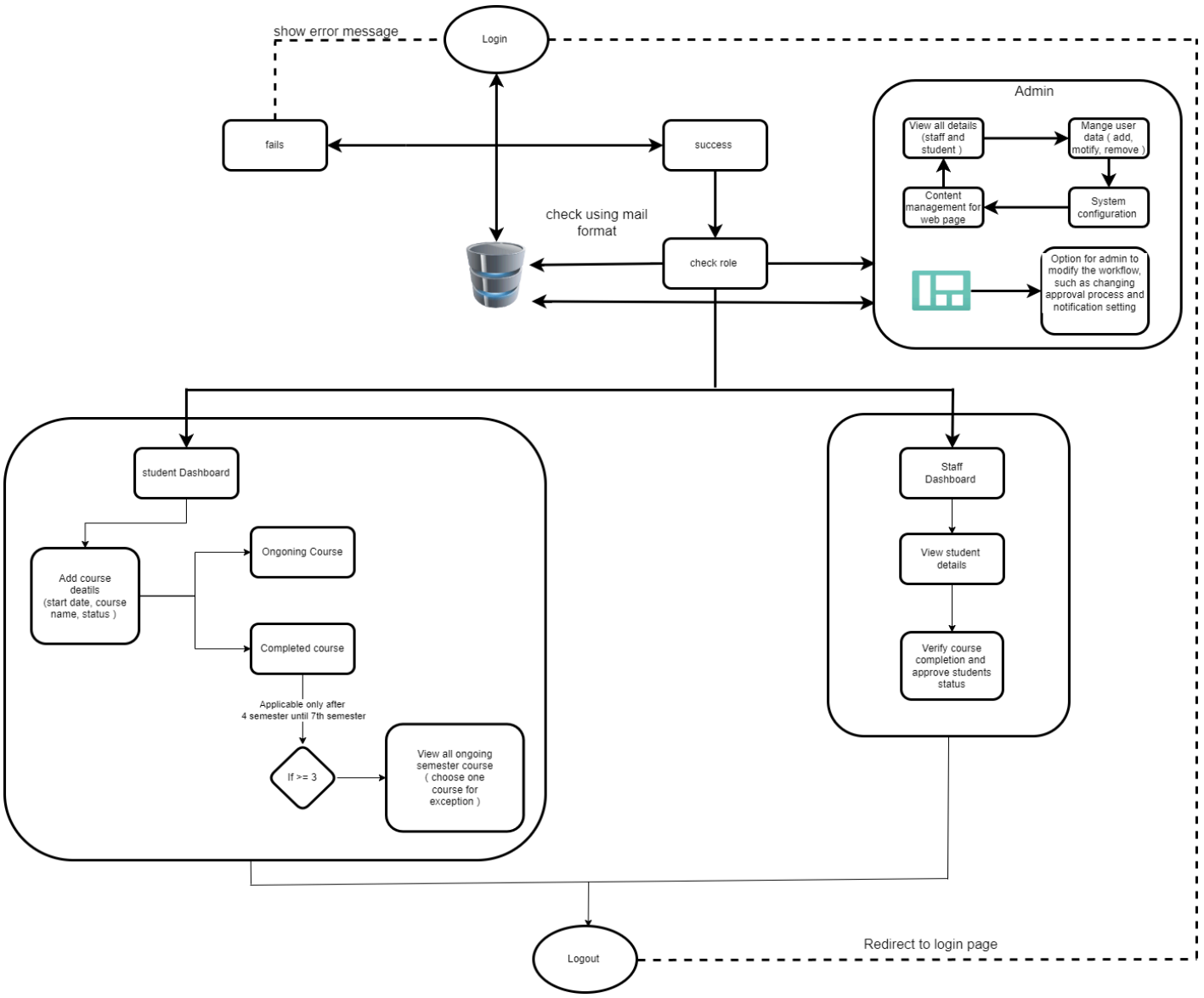
**7. Interoperability:**

- The system shall be able to exchange data with the university's student information system seamlessly (e.g., student records, course offerings).
- The system shall integrate with external credential verification services (optional) to verify external course completion.

**8. Logging and Auditing:**

- The system shall log all user activities (logins, exemption requests, approvals) for audit purposes.
- The system shall generate reports on system usage and exemption trends.

# WORK FLOW:


show error message
Login
fails
success
check using mail format
check role
Admin
View all details (staff and student )
Mange user data ( add, motify, remove )
Content management for web page
System configuration
Option for admin to modify the workflow, such as changing approval process and notification setting
student Dashboard
Add course deatils (start date, course name, status )
Ongoning Course
Completed course
Applicable only after 4 semester until 7th semester
If >= 3
View all ongoing semester course ( choose one course for exception )
Staff Dashboard
View student details
Verify course completion and approve students status
Logout
Redirect to login page