Rational Software

Course Registration System Use-Case Model

Version 2003

Revision History

Date	Issue	Description	Author
9/5/2000	V2000	Generation for beta	Shawn Siemers
10/2/2000	V2000	Final release	Shawn Siemers
01/14/2003	V2003	Final Release	Alex Kutsick

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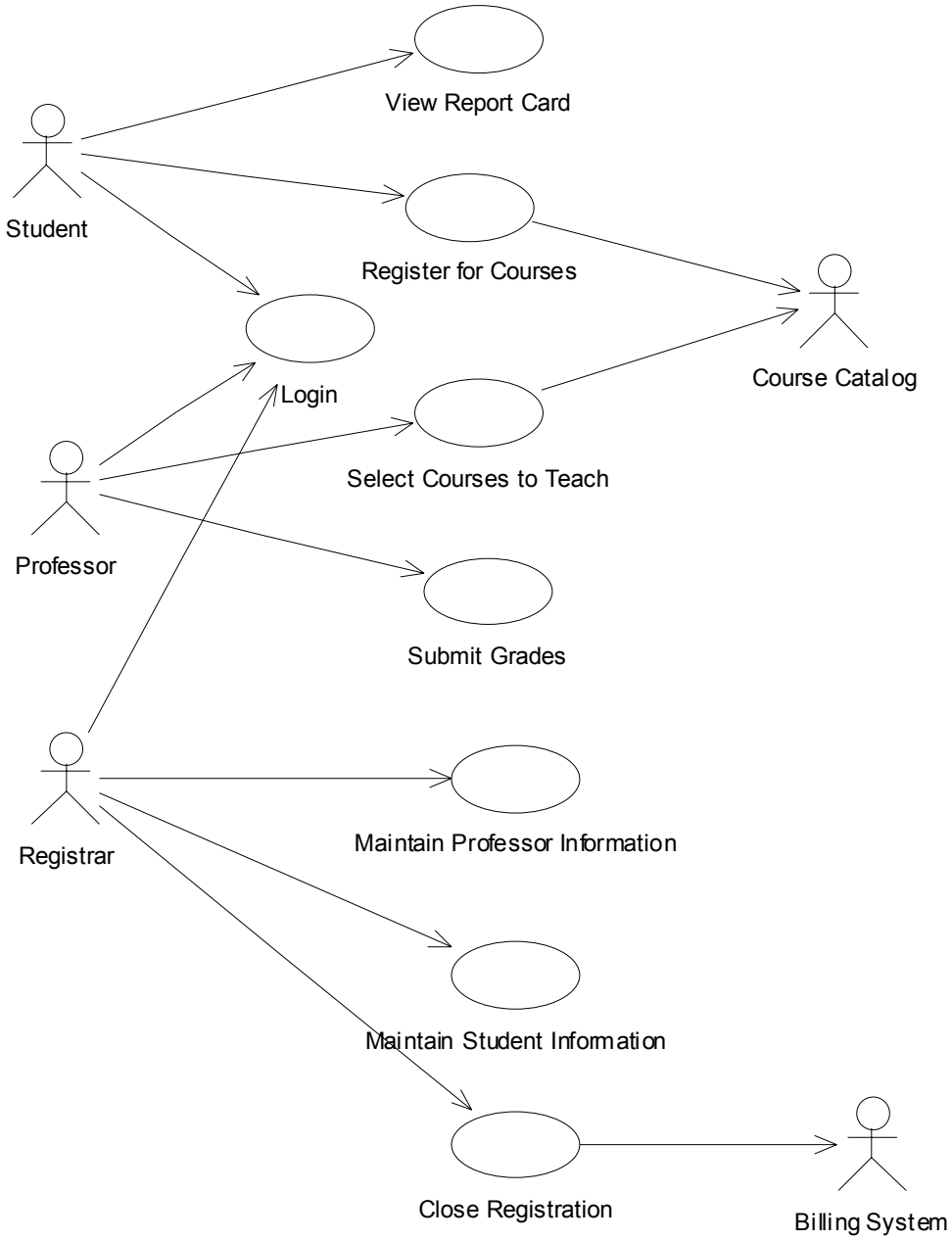
1. Course Registration System Use-Case Model Main Diagram



2. Close Registration

2.1 Brief Description

This use case allows a Registrar to close the registration process. Course offerings that do not have enough students are cancelled. Course offerings must have a minimum of three students in them. The billing system is notified for each student in each course offering that is not cancelled, so the student can be billed for the course offering.

2.2 Flow of Events

2.2.1 Basic Flow

This use case starts when the Registrar requests that the system close registration.

1. The system checks to see if registration is in progress. If it is, then a message is displayed to the Registrar, and the use case terminates. The Close Registration processing cannot be performed if registration is in progress.
2. For each course offering, the system checks if a professor has signed up to teach the course offering and at least three students have registered. If so, the system commits the course offering for each schedule that contains it.
3. For each schedule, the system "levels" the schedule: if the schedule does not have the maximum number of primary courses selected, the system attempts to select alternates from the schedule's list of alternates. The first available alternate course offerings will be selected. If no alternates are available, then no substitution will be made.
4. For each course offering, the system closes all course offerings. If the course offerings do not have at least three students at this point (some may have been added as a result of leveling), then the system cancels the course offering. The system cancels the course offering for each schedule that contains it.
5. The system calculates the tuition owed by each student for his current semester schedule and sends a transaction to the Billing System. The Billing System will send the bill to the students, which will include a copy of their final schedule.

2.2.2 Alternative Flows

2.2.2.1 No Professor for the Course Offering

If, in the **Basic Flow**, there is no professor signed up to teach the course offering, the system will cancel the course offering. The system cancels the course offering for each schedule that contains it.

2.2.2.2 Billing System Unavailable

If the system is unable to communicate with the Billing System, the system will attempt to re-send the request after a specified period. The system will continue to attempt to re-send until the Billing System becomes available.

2.3 Special Requirements

None.

2.4 Pre-Conditions

The Registrar must be logged onto the system in order for this use case to begin.

2.5 Post-Conditions

If the use case was successful, registration is now closed. If not, the system state remains unchanged.

2.6 Extension Points

None.

3. Login

3.1 Brief Description

This use case describes how a user logs into the Course Registration System.

3.2 Flow of Events

3.2.1 Basic Flow

This use case starts when the actor wishes to log into the Course Registration System.

1. The system requests that the actor enter his/her name and password.
2. The actor enters his/her name and password.
3. The system validates the entered name and password and logs the actor into the system.

3.2.2 Alternative Flows

3.2.2.1 Invalid Name/Password

If, in the **Basic Flow**, the actor enters an invalid name and/or password, the system displays an error message. The actor can choose to either return to the beginning of the **Basic Flow** or cancel the login, at which point the use case ends.

3.3 Special Requirements

None.

3.4 Pre-Conditions

None.

3.5 Post-Conditions

If the use case was successful, the actor is now logged into the system. If not, the system state is unchanged.

3.6 Extension Points

None.

4. Maintain Professor Information

4.1 Brief Description

This use case allows the Registrar to maintain professor information in the registration system. This includes adding, modifying, and deleting professors from the system.

4.2 Flow of Events

4.2.1 Basic Flow

This use case starts when the Registrar wishes to add, change, and/or delete professor information in the system.

1. The system requests that the Registrar specify the function he/she would like to perform (either Add a Professor, Update a Professor, or Delete a Professor)
2. Once the Registrar provides the requested information, one of the sub flows is executed.
   If the Registrar selected "Add a Professor", the **Add a Professor** subflow is executed.
   If the Registrar selected "Update a Professor", the **Update a Professor** subflow is executed.
   If the Registrar selected "Delete a Professor", the **Delete a Professor** subflow is executed.

4.2.1.1 Add a Professor

The system requests that the Registrar enter the professor information. This includes:
- name
- date of birth
- social security number
- status
- department

1. Once the Registrar provides the requested information, the system generates and assigns a unique id number to the professor. The professor is added to the system.
2. The system provides the Registrar with the new professor id.

4.2.1.2 Update a Professor

1. The system requests that the Registrar enter the professor id.
2. The Registrar enters the professor id. The system retrieves and displays the professor information.
3. The Registrar makes the desired changes to the professor information. This includes any of the information specified in the **Add a Professor** sub-flow.
4. Once the Registrar updates the necessary information, the system updates the professor record.

4.2.1.3 Delete a Professor

1. The system requests that the Registrar enter the professor id
2. The Registrar enters the professor id. The system retrieves and displays the professor information.
3. The system prompts the Registrar to confirm the deletion of the professor.
4. The Registrar verifies the deletion.
5. The system deletes the professor from the system.

4.2.2 Alternative Flows

4.2.2.1 Professor Not Found

If, in the **Update a Professor** or **Delete a Professor** sub-flows, a professor with the specified id number does not exist, the system displays an error message. The Registrar can then enter a different id number or cancel the operation, at which point the use case ends.

4.2.2.2 Delete Cancelled

If, in the **Delete A Professor** sub-flow, the Registrar decides not to delete the professor, the delete is cancelled, and the **Basic Flow** is re-started at the beginning.

4.3 Special Requirements

None.

4.4 Pre-Conditions

The Registrar must be logged onto the system before this use case begins.

4.5 Post-Conditions

If the use case was successful, the professor information is added, updated, or deleted from the system. Otherwise, the system state is unchanged.

4.6 Extension Points

None.

5. Maintain Student Information

5.1 Brief Description

This use case allows the Registrar to maintain student information in the registration system. This includes adding, modifying, and deleting Students from the system.

5.2 Flow of Events

5.2.1 Basic Flow

This use case starts when the Registrar wishes to add, change, and/or delete student information in the system.

1. The system requests that the Registrar specify the function he/she would like to perform (either Add a Student, Update a Student, or Delete a Student)
2. Once the Registrar provides the requested information, one of the sub flows is executed.
   If the Registrar selected "Add a Student", the **Add a Student** subflow is executed.
   If the Registrar selected "Update a Student", the **Update a Student** subflow is executed.
   If the Registrar selected "Delete a Student", the **Delete a Student** subflow is executed.

5.2.1.1 Add a Student

1. The system requests that the Registrar enter the student information. This includes:
   - name
   - date of birth
   - social security number
   - status
   - graduation date
2. Once the Registrar provides the requested information, the system generates and assigns a unique id number to the student. The student is added to the system.
3. The system provides the Registrar with the new student id.

5.2.1.2 Update a Student

1. The system requests that the Registrar enter the student id.
2. The Registrar enters the student id. The system retrieves and displays the student information.
3. The Registrar makes the desired changes to the student information. This includes any of the information specified in the **Add a Student** sub-flow.
4. Once the Registrar updates the necessary information, the system updates the student information.

5.2.1.3 Delete a Student

1. The system requests that the Registrar enter the student id
2. The Registrar enters the student id. The system retrieves and displays the student information.
1. The system prompts the Registrar to confirm the deletion of the student.
2. The Registrar verifies the deletion.
3. The system deletes the student from the system.

5.2.2 Alternative Flows

5.2.2.1 Student Not Found

If, in the **Update a Student** or **Delete a Student** sub-flows, a student with the specified id number does not exist, the system displays an error message. The Registrar can then enter a different id number or cancel the operation, at which point the use case ends.

5.2.2.2 Delete Cancelled

If, in the **Delete A Student** sub-flow, the Registrar decides not to delete the student, the delete is cancelled and the **Basic Flow** is re-started at the beginning.

5.3 Special Requirements

None.

5.4 Pre-Conditions

The Registrar must be logged onto the system before this use case begins.

5.5 Post-Conditions

If the use case was successful, the student information is added, updated, or deleted from the system. Otherwise, the system state is unchanged.

5.6 Extension Points

None.

6. Register for Courses

6.1 Brief Description

This use case allows a Student to register for course offerings in the current semester. The Student can also update or delete course selections if changes are made within the add/drop period at the beginning of the semester. The Course Catalog System provides a list of all the course offerings for the current semester.

6.2 Flow of Events

6.2.1 Basic Flow

This use case starts when a Student wishes to register for course offerings, or to change his/her existing course schedule.

1. The system requests that the Student specify the function he/she would like to perform (either Create a Schedule, Update a Schedule, or Delete a Schedule).
2. Once the Student provides the requested information, one of the sub flows is executed.
   If the Registrar selected "Create a Schedule", the **Create a Schedule** subflow is executed.
   If the Registrar selected "Update a Schedule", the **Update a Schedule** subflow is executed.
   If the Registrar selected "Delete a Schedule", the **Delete a Schedule** subflow is executed.

6.2.1.1 Create a Schedule

1. The system retrieves a list of available course offerings from the Course Catalog System and displays the list to the Student.
2. The Student selects 4 primary course offerings and 2 alternate course offerings from the list of available offerings.
3. Once the student has made his/her selections, the system creates a schedule for the Student containing the selected course offerings.
4. The **Submit Schedule** subflow is executed.

6.2.1.2 Update a Schedule

1. The system retrieves and displays the Student's current schedule (e.g., the schedule for the current semester).
2. The system retrieves a list of available course offerings from the Course Catalog System and displays the list to the Student.
3. The Student may update the course selections on the current selection by deleting and adding new course offerings. The Student selects the course offerings to add from the list of available course offerings. The Student also selects any course offerings to delete from the existing schedule.
4. Once the student has made his/her selections, the system updates the schedule for the Student using the selected course offerings.
5. The **Submit Schedule** subflow is executed.

6.2.1.3 Delete a Schedule

1. The system retrieves and displays the Student's current schedule (e.g., the schedule for the current semester).
2. The system prompts the Student to confirm the deletion of the schedule.

3. The Student verifies the deletion.
4. The system deletes the Schedule. If the schedule contains "enrolled in" course offerings, the Student must be removed from the course offering.

6.2.1.4 Submit Schedule

For each selected course offering on the schedule not already marked as "enrolled in", the system verifies that the Student has the necessary prerequisites, that the course offering is open, and that there are no schedule conflicts. The system then adds the Student to the selected course offering. The course offering is marked as "enrolled in" in the schedule.
The schedule is saved in the system.

6.2.2 Alternative Flows

6.2.2.1 Save a Schedule

At any point, the Student may choose to save a schedule rather than submitting it. If this occurs, the Submit Schedule step is replaced with the following:

The course offerings not marked as "enrolled in" are marked as "selected" in the schedule.

The schedule is saved in the system.

6.2.2.2 Unfulfilled Prerequisites, Course Full, or Schedule Conflicts

If, in the **Submit Schedule** sub-flow, the system determines that the Student has not satisfied the necessary prerequisites, or that the selected course offering is full, or that there are schedule conflicts, an error message is displayed. The Student can either select a different course offering and the use case continues, save the schedule, as is (see **Save a Schedule** subflow), or cancel the operation, at which point the **Basic Flow** is re-started at the beginning.

6.2.2.3 No Schedule Found

If, in the **Update a Schedule** or **Delete a Schedule** sub-flows, the system is unable to retrieve the Student's schedule, an error message is displayed. The Student acknowledges the error, and the **Basic Flow** is re-started at the beginning.

6.2.2.4 Course Catalog System Unavailable

If the system is unable to communicate with the Course Catalog System, the system will display an error message to the Student. The Student acknowledges the error message, and the use case terminates.

6.2.2.5 Course Registration Closed

When the use case starts, if it is determined that registration for the current semester has been closed, a message is displayed to the Student, and the use case terminates. Students cannot register for course offerings after registration for the current semester has been closed.

6.2.2.6 Delete Cancelled

If, in the **Delete A Schedule** sub-flow, the Student decides not to delete the schedule, the delete is cancelled, and the **Basic Flow** is re-started at the beginning.

6.3 Special Requirements

None.

6.4 Pre-Conditions

The Student must be logged onto the system before this use case begins.

6.5 Post-Conditions

If the use case was successful, the student schedule is created, updated, or deleted. Otherwise, the system state is unchanged.

6.6 Extension Points

None.

7. Select Courses to Teach

7.1 Brief Description

This use case allows a Professor to select the course offerings from the course catalog for the courses that he/she is eligible for and wishes to teach in the upcoming semester.

7.2 Flow of Events

7.2.1 Basic Flow

This use case starts when a Professor wishes to sign up to teach some course offerings for the upcoming semester.

1. The system retrieves and displays the list of course offerings the professor is eligible to teach for the current semester. The system also retrieves and displays the list of courses the professor has previously selected to teach.
2. The professor selects and/or de-selects the course offerings that he/she wishes to teach for the upcoming semester.
3. The system removes the professor from teaching the de-selected course offerings.
4. The system verifies that the selected offerings do not conflict (i.e., have the same dates and times) with each other or any course offerings that the professor has previously signed up to teach. If there is no conflict, the system updates the course offering information for each offering the professor selects (i.e., records the professor as the instructor for the course offering).

7.2.2 Alternative Flows

7.2.2.1 No Course Offerings Available

If, in the **Basic Flow**, the professor is not eligible to teach any course offerings in the upcoming semester, the system will display an error message. The professor acknowledges the message and the use case ends.

7.2.2.2 Schedule Conflict

If the systems find a schedule conflict when trying to establish the course offerings the Professor should take, the system will display an error message indicating that a schedule conflict has occurred. The system will also indicate which are the conflicting courses. The Professor can either resolve the schedule conflict (i.e., by canceling his selection to teach one of the course offerings), or cancel the operation, in which case, any selections will be lost, and the use case ends.

7.2.2.3 Course Catalog System Unavailable

If the system is unable to communicate with the Course Catalog System, the system will display an error message to the Student. The Student acknowledges the error message, and the use case terminates.

7.2.2.4 Course Registration Closed

,When the use case starts, if it is determined that registration for the current semester has been closed, a message is displayed to the Professor, and the use case terminates. Professors cannot change the course offerings they teach after registration for the current semester has been closed. If a professor change is needed after registration has been closed, it is handled outside the scope of this system.

7.3 Special Requirements

None.

7.4 Pre-Conditions

The Professor must be logged onto the system before this use case begins.

7.5 Post-Conditions

If the use case was successful, the course offerings a Professor is scheduled to teach have been updated. Otherwise, the system state is unchanged.

7.6 Extension Points

None.

8. Submit Grades

8.1 Brief Description

This use case allows a Professor to submit student grades for one or more classes completed in the previous semester.

8.2 Flow of Events

8.2.1 Basic Flow

This use case starts when a Professor wishes to submit student grades for one or more classes completed in the previous semester.

1. The system displays a list of course offerings the Professor taught in the previous semester.
2. The Professor selects a course offering.
3. The system retrieves a list of all students who were registered for the course offering. The system displays each student and any grade that was previously assigned for the offering.
4. For each student on the list, the Professor enters a grade: A, B, C, D, F, or I. The system records the student's grade for the course offering. If the Professor wishes to skip a particular student, the grade information can be left blank and filled in at a later time. The Professor may also change the grade for a student by entering a new grade.

8.2.2 Alternative Flows

8.2.2.1 No Course Offerings Taught

If, in the **Basic Flow**, the Professor did not teach any course offerings in the previous semester, the system will display an error message. The Professor acknowledges the message, and the use case ends.

8.3 Special Requirements

None.

8.4 Pre-Conditions

The Professor must be logged onto the system before this use case begins.

8.5 Post-Conditions

If the use case was successful, student grades for a course offering are updated. Otherwise, the system state is unchanged.

8.6 Extension Points

None.

9. View Report Card

9.1 Brief Description

This use case allows a Student to view his/her report card for the previously completed semester.

9.2 Flow of Events

9.2.1 Basic Flow

This use case starts when a Student wishes to view his/her report card for the previously completed semester.

1. The system retrieves and displays the grade information for each of the course offerings the Student completed during the previous semester.
2. When the Student indicates that he/she is done viewing the grades, the use case terminates.

9.2.2 Alternative Flows

9.2.2.1 No Grade Information Available

If, in the **Basic Flow**, the system cannot find any grade information from the previous semester for the Student, a message is displayed. Once the Student acknowledges the message, the use case terminates.

9.3 Special Requirements

None.

9.4 Pre-Conditions

The Student must be logged onto the system before this use case begins.

9.5 Post-Conditions

The system state is unchanged by this use case.

9.6 Extension Points

None.