

Risk Analysis and Mitigation Memo

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Project Introduction

Regatta University will embark on a new project “The Student Degree Progress Application”. The purpose of the project is to provide a web friendly graphical interface which visually displays academic progress as students work towards completing their degree. The Student Degree Progress Application will be housed on the existing web portal. The application will leverage data from the college’s back-end data system. The back-end system will be modified through the processes of this project in order to relay back to the student’s academic information. The project will include several specific Project Outcomes as follows:

- The project will provide the functionality for graphical elements in a web friendly format, with necessary modification changes to the back-end data system, and provide a web service to securely expose student information to the graphical elements and web view
- The project will be delivered without incurring any additional associated cost.
- The project will be free from any significant errors and without causing any system downtime.
- The project’s completion will happen no later than two weeks from the target timeframe define within the milestone schedule (see Student Degree Project Charter)

Formal specific documentation and requirements on this project will be captured in the Student Degree Project Charter. The project charter will provide details on the project description which will include: the preliminary scope statement, out of scope statement, project objectives and success criteria, constraints, and assumptions. The project charter will provide other additional information as follows: project deliverables; project resource estimate; a summary of milestone schedule; summary budget; project approval requirements, project

organization; and authorization. In order to gain a full comprehensive understanding of this project scope and end objectives or project outcomes, review the Project Description section on page 4 of the charter.

Stakeholders and Roles

The Student Degree Progress Application project will enlist several key professional stakeholders to administer/monitor the project, and to carry out the actual work tasks associated with the completion of the degree progress application. Regatta University has assembled a competent and cohesive project team that have worked together on other successful IT development projects for the College.

Arthur Bowman is the **Core Stakeholder**. Mr. Bowman oversees the Information Technology Department at the College. He along with other high-level College faculty has commissioned the development of this project. He will be briefed by the project sponsor on all operational aspects and deliverables associated with the Student Degree Progress Application.

Jane Smith is the **Project Sponsor**. Jane Smith is a top-level executive within the college. She will have the authority to assign money and resources to the project. She will also act as an advisor to the project manager and will act as the decision-maker when consensus cannot be reached among various stakeholders. The significance of the Project Sponsor role is to generate enthusiasm and support for the project as it moves forward. General responsibilities for the Project sponsors role are:

- Provide or obtain financial resources
- Approve the project charter
- Approved the project baseline help define and approve the high-level requirements

- Negotiate support from key stakeholders
- Monitor and control delivery of major milestones

John Doe will assume the **Project Manager** role. His role is to make sure stakeholders are satisfied with the deliverables and end product, services, or result of the project. The significance of the Project Manager's role is to oversee the project and provide clear and concise communications to all stakeholders and project team members involved in the project. General responsibilities include:

- Manage the project team
- Communicate with stakeholders and project team members
- Manage scope
- Manage risk
- Manage the project budget
- Manage schedule
- Manage quality assurance

The **Project Team Members** are the professionals who will create, develop, and complete the task outlined in the Preliminary Scope Statement of the project charter. The team members are Shila Cole (Systems Analyst), Ana Fischer (Middleware Applications Developer), and John Jones (Backend Systems Analyst). Their significance to the project is to work together in a collaborative environment to complete all web development task associated with this project. Shila's role will be to create, define, test scenarios, and perform adequate integration testing for the project. Ana's role is to develop a user-friendly interface, creating code for front-end architecture and implementing interactive functionality for end users. John Jones will oversee the

backend development portion of the project. John and Ana will oversee the integration of the front end and back end systems to transition the application into a live web environment. General responsibility for each project team member are:

Systems Analyst

- Examining current systems
- Talking to users (requirements gathering)
- Producing specifications for new or modified systems
- Liaising with other IT staff such as programmers to produce new systems
- Implementing new systems

Middleware Applications Developer

- Configure and/or develop standard applications according to development standards.
- Partner with infrastructure teams to enable configuration and development.
- Setup and/or Utilize development environment that ensures limited or no production impact
- Transition components to another environment

Backend Systems Analyst

- Responsible for Web Backend/API/Database technical design, development, enhancement, maintenance and testing
- Monitor programmers including quality assurance activities such as code review, compliance check to project standards

Technical Project Role

The technical role of Systems Analysts will be performed by me *Shila Cole*. I will work closely with Ana Fischer (Middleware Applications Developer) and John Jones (Backend System Analyst). We are task with web development and backend data processing of the Student Degree Progress Application. The Systems Analysts timeframe committed to this project is 12 hours.

As Systems Analyst my duties within this project will focused on the creation of a defined test plan for all system components, scenario-based testing, and application integration testing. The Gantt Chart figure below shows in detail the order in which web development task will be conducted within the project. Project Task 7 through 12 are Web (Front-End) and Back-End (Data Processing) development specific. Task 13 through 15 are systems analyst specific task.

Task Mode	Task Name	Duration	Start Day	End Day	Predecessors	Resource Names
7	Create the architectural design for the front end of the application (user-facing)	2 days	Day 9	Day 11	5	Ana Fischer
8	Create the architectural design for the back end of the application (for data processing)	2 days	Day 9	Day 11	5	John Jones
9	Develop the graphic user interface (GUI) for the degree tracker	5 days	Day 11	Day 16	6	Ana Fischer
10	Develop the web code to receive data from the back end and place data within the GUI	5 days	Day 11	Day 16	7	Ana Fischer
11	Develop the back-end code to process data and send it to the web application	5 days	Day 11	Day 16	8	John Jones
12	Create and Develop the web code to receive data from the back end to populate data within the animated timeline	5 days	Day 16	Day 21	7,10,11	Ana Fischer
13	Create a defined test plan for all system components	2 days	Day 21	Day 23	7,8,12	Shila Cole
14	Test the scenarios defined in the test plan for proper application behavior	5 days	Day 21	Day 26	9,10,11,12	Ana Fischer, John Jones, Shila Cole
15	Perform integration testing to ensure that the front-end components and back-end components speak to each other as well as integrate seamlessly with the rest of the web application	5 days	Day 26	Day 31	14	Ana Fischer, John Jones, Shila Cole

The predecessor column in the above figure displays the task numbers that should be completed in order for another task to start. For example, Project Task 13 states “create a defined test plan for all system components”. To create a concise test plan task 7, 8, and 12 should be completed in its entirety. These specific predecessor tasks focused on the architectural design of the application’s front-end, back-end, and animated degree progress timeline addition. Without these system components completed I cannot move forward with a comprehensive testing plan that will feature test-based scenarios

Triple Constraint Matrix

The web development team has been tasked to implement a new feature to the Student Degree Progress Application. The new feature is an animated degree progress timeline. Students will be able to view an aesthetically pleasing animated timeline of their progress towards completion of their degree. The link “Show My Degree Timeline” will be embedded on the main Graphical User Interface (GUI) located on a left or right-side panel

An additional funding resource in the amount of \$10,000 has been allocated to complete this new feature. Work towards completion of the new feature will increase development time. Our team will have an additional 5-day timeframe for development. The animated timeline is aligned with the overall scope of the project. The new feature will leverage student information retrieved from the updated backend database. In leveraging the updated database, the project will not incur additional cost or more usage of development resources.

Ana Fischer (Middleware Applications Developer) will be assigned to create and develop the web code to receive data from the back end to populate data within the animated timeline. Based on my experience working with programmers/developers an additional 5-day timeframe is more than enough time to develop and implement this new feature. Although development time within the project has been altered this will not affect the overall project completion date. Once completion of the new animated timeline feature is completed on Day 21 (Task 12 on Grantt Chart). I Shila Cole (Systems Analyst) will create a comprehensive testing plan (Task 13 on Grantt Chart) which will include the new feature's components. The testing plan will also include new scenario-based testing for this feature as well. In adherence to the original project expectations and goal completion, implementing the new feature will have minimal if no effect on the triple constraint of schedule, cost, and scope of the project.

Project Risk

The Student Degree Progress Application does have potential risks associated with the project. Risk are a potential future event that may affect the project in a negative or positive manner. Risk identification is a critical process within project planning, it involves determining and documenting the potential risks that can occur. All potential risks are logged and rated from low -to- high in the Risk Matrix. The Project Manager along with the project team members have identified several high-risk factors that can potentially negatively impact the Student Degree Progress Application. These Risk Factors are: GUI performance, deployment of the application (rollout issues), and delay of final deliverable of the project, due to two concurrent projects being developed at the same time within the same code base.

From the above risk factors the rollout issue will serve as a focal point for this in-depth project risk analysis. The Risk Matrix noted there is a risk for rollout issues when deploying to production due to complexity of merging code with the "go-live" of another project on the same system. The Student Degree Progress Application is a user-friendly graphical user interface that will be integrated into the Student Portal. If the Student Degree Progress merged code contains errors the go live date would have to be pushed back as developers would have to sift through lines of code to resolve issues.

Task 15 on the Gantt Chart figure below refers to performing integration testing to ensure that the front-end components and the back-end components speak to each other as well as integrate seamlessly with the rest of the Student Portal web application. Potential risk can occur if the integration testing and solution resolution was not conducted in a comprehensive and appropriate manner. Results of the failed integration testing could lead to seamless integration of error prone code into the production environment.

	Task Mode	Task Name	Duration	Start Day	End Day	Predecessors	Resource Names
14		Test the scenarios defined in the test plan for proper application behavior	5 days	Day 21	Day 26	9,10,11,12	Ana Fischer, John Jones, Shila Cole
15		Perform integration testing to ensure that the front-end components and back-end components speak to each other as well as integrate seamlessly with the rest of the web application	5 days	Day 26	Day 31	14	Ana Fischer, John Jones, Shila Cole
16		Transition web application into production environment (go-live)	1 day	Day 31	Day 32	15	Ana Fischer, John Jones
21		Perform project reflections	1 day	Day 32	Day 33	16	John Doe

Error prone code (merge code issues) introduced to the Student Portal production environment could have disastrous effects on the projects triple constraint.

- **Cost:** Additional funding would have to be allotted to the project for project team members to fix any and all programming code issues within the Student Degree Progress

Application. This budgetary cost was not for scene in the original implementation of the plan, so approval of additional funding may be met with scrutiny by stakeholders.

Potentially putting the whole project at risk.

- **Time:** The risk of finding code errors late in the project deliverable stage, has caused the Project Manager to ask for a budgetary increase on the project. If approved, time for project completion will need to be pushed back, Gantt chart tasks will need to be updated, and stakeholders will need to be updated with the new extended schedule for project deliverables.
- **Scope:** The scope of the project is to create an area that displays user specific academic progress within the appropriate roles, leveraging data through a backend system as stated in the Student Degree Progress Project Charter. The potential rollout issues risk will put the project out of scope if errors in the code are not fixed and tested for reliable functionality.

Risk Mitigation

Risk mitigation is defined as taking steps to reduce adverse effects. Risk mitigation planning needs to be an ongoing effort that cannot stop after a qualitative risk assessment. Risks mitigation strategies and specific action plans should be incorporated in the early stages of a project execution plan. Steps included in a mitigation plan to address identified risk are:

1. Characterize the root causes of risks that have been identified and quantified in earlier phases of the risk management process.
2. Evaluate risk interactions and common causes.
3. Identify alternative mitigation strategies, methods, and tools for each major risk.

4. Assess and prioritize mitigation alternatives.
5. Select and commit the resources required for specific risk mitigation alternatives.
6. Communicate planning results to all project participants for implementation.

The project team through their comprehensive risk analysis has identified *rollout issues when deploying to production due to complexity of merging code with the "go-live" of another project on the same system* as a high-level risk. The evaluation risk interactions have resulted in several identifiable common causes for this risk

- Project Team members assigned to programming task do not have expertise in the student portal's development environment.
- The development environment and code base of the Student Degree Progress Application does not mirror the Student Portal programming environment.
- Test integration Task 15 on the Gantt chart was not conducted in an appropriate manner to flag or catch errors in the code.

The identified mitigation strategy is Risk Avoidance. Risk avoidance is the elimination or avoidance of some risk, or class of risk, by changing the parameters of the project. To avoid or lessen the risk of rollout issues to the production environment, the project team members should have some expertise with the code base and development environment of the student portal. The Student Degree Progress application code base should mirror the Student Portal's development environment. This will lessen integration errors when merging code. Another avoidance mitigation strategy is to have the System Analyst create and conduct a comprehensive integration system testing strategy that will flag and resolve potential coding errors.

The Avoidance Mitigation strategy outlined above if implemented should eliminate or even reduce the risk factor of rollout issues associated with this project. This mitigation strategy should be of high priority implemented in the early stages of project planning and development. The Avoidance Mitigation strategy should not have any adverse effects on the triple constraint as rollout issues with merging code would be nonexistent due to the project code base being the same as the student portal. The project will also have a knowledge base of experts that are familiar with the student portals programming structure. Lessening the chance of possible errors due to incompatible code base. Integration testing will follow a robust and comprehensive plan that will yield flagging and resolution of code errors in a five-day timeframe. These modifications and adherence to the Avoidance Mitigation strategy should keep the project aligned with final project deliverables.

Conclusion

In conclusion the Student Degree Progress Application project upon completion will feature a user-friendly graphical interface where students, faculty, and other stakeholders can view the academic progress of individual students as they work towards completing their degree. The beneficial components of the degree progress application are as follows:

- Seamless integration with the current Student Portal. The New application will be housed in the same college web portal that all students, faculty and or stakeholders have access to
- The New Application's front-end and back-end would adhere to the Student Portal's Role-based system. For example, students that login could only view their individual degree progress within the system. Faculty members such as Student Advisors would only have access to view their specific students of which they are assigned to.

- The Student Degree Progress Application will feature an interactive visual representation of the progress students are making toward the completion of their degree. Students will be able to view current/past courses, GPA status, course schedule, grades, and other relevant information deemed necessary from the college.

The Project Manager, Project Sponsor, and Core Stakeholder have agreed to ongoing web monitoring, and have decided to assign the Degree Progress application to the IT Department's Web Monitoring Division. The IT Department Web Monitoring Division tracks users visit and interactions with specific pages in the student web portal. This Web Monitoring Division provides a detailed assessment of all web page visitors. By continuous web monitoring of the Student Degree progress application the Project Sponsor and Core Stakeholders would ensure the project is meeting agreed upon goals.

The Regatta University through the Student Degree Progress Application project will have an additional user-friendly feature to their student portal, which will display the academic progress of students pursuing their specific degree of study. Students pursuing their degree would have online access to all other information regarding their coursework, schedule, GPA, grades, etc. this will foster student awareness and possibly keep them on track to completing their degree. The University administration (faculty) through this project can also keep track of student academic progress and possibly intervene if they notice slippage in academic performance. The student degree progress application can also provide an aggregate or high-level view of academic requirements needed for courses, which can help inform the office of student enrollment. The concise and comprehensive rollout of the student degree progress application will have positive benefits to Regatta University way beyond its initial implementation.

References

Regatta University (SNHU). (2019). *IT Project Charter for Student Degree Progress*.

Retrieved from: <http://snhu>

media.snhu.edu/files/course_repository/undergraduate/it/it328/it328_student_degree_progress_project_charter.docx

Regatta University (SNHU). (2019). *Project Management Documents*.

Retrieved from: <http://snhu->

media.snhu.edu/files/course_repository/undergraduate/it/it328/it328_project_management_documents.xlsx

Regatta University (SNHU). (2019). *Gantt Chart*. Attached