Masters of Science in Game Design & Development

Team-Based Capstone FAQ

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Rochester Institute of Technology

Winter Quarter 2005
Version 1.0.0

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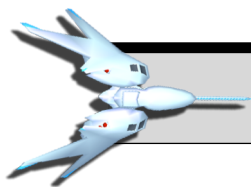Rochester Institute of Technology

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I. Purpose of this document

This document offers supplemental materials not found in the formal proposal for the Masters in Game Design and Development. The formal proposal is constructed around the proposal formally prescribed by the RIT Provost's Office, and has strong overlap with the proposal format for the New York State Office of Education. As such, the specifics of implementation are often not addressed in the formal proposal. In presenting the proposal to a number of faculty and administrators, there were numerous questions about the specific way the capstone experience would work, and how it would "fit" students at RIT.

II. A Culture of Team-Based Work

First and foremost, it should be noted that students will not come to the capstone experience devoid of experience with team based projects. Coursework in several areas relies on team-based projects, some only few weeks in duration, others to run the entire quarter. Projects in 2D and 3D graphics, animation, and AI have all used this model in-class prior to a students work in

the capstone portion of the degree. Additionally, the concept of team dynamics and planning are integral to several of the seminar-track courses, that are required of all students in the program. Team-based work is reflective of the entire degree as well as the entire field of Game Design & Development. To work effectively in the field, students must demonstrate mastery in not only technological implementation, but in communicating and interacting with the rest of the development community, and we feel that this skill is so critical that it has led us to the idea of the team-based capstone experience.

III. Definition of the Proposed Team-Based Capstone

A. Individual Assessment of Group Work

At the outset, it is important to note that our definition of a "team based capstone" does not release a student from requirements for individual review. Rather, it enforces the notion that there requirements are both individual and group in nature, and both of these must be fulfilled in order to complete the degree. It must be stressed that students *will still be evaluated on an individual basis by the faculty*. They will work in teams to create completed works within the field of Game Design & Development, but the will do so in clearly delineated roles of specialty, with individual responsibilities and deliverables. Students in the program will have completed a major and minor track in a given area of study, preparing them for roles in the capstone development teams, as well as a seminar series that studies the breadth of game development and the overlap between the tracks and specialties.

B. Procedural Flow of Capstone Experience

1. Winter Quarter Group Formation

At the start of the winter quarter of a student's second year of the program, and informational meeting will be held for all members of the student's cohort. At this meeting an initial call for the formation of project teams will be announced. Students will then have the next week or two to formulate rough plans, and to recruit from the cohort the various team members necessary for completion of the project. Development teams will likely be approximately 4-5 students each. At the end of this period, the student teams will submit to the faculty a rough sketch of the proposed project, along with a clearly defined set of roles and responsibilities for each member of the team. Students are expected to specialize based upon interests discovered within the major and minor tracks, in mimicry of the roles on a professional game development team. This model of group formation and role-definition has been used with great success for the past three years in the Game Programming Concentration, and we expect it will be well received.

The program faculty will then review each proposal, and each development team will be assigned a faculty "chair," similar to the chair of a thesis committee. Each member of the team will then report both individually and as a group to their faculty chair as needed throughout the development cycle.

2. Winter Quarter Capstone Design

During the next phase of winter quarter, students will flesh out the design of their proposed project, write their respective individual portions of a game design treatment, co-develop the overlapping portions of the same treatment, and work with their faculty chair to effectively plan and develop assets for implementation during the spring quarter. Also during this period, students will be finishing their remaining coursework (1 major sequence course and 1 seminar).

3. Winter Quarter Group Deliverables

At the end of the winter quarter, each student team will be required to submit:

Design Document:
- A script for the game, and associated backstory
- Appropriate Story Boards
- Appropriate Development Flow Chart
- A formal Game Design Document including:
  - Treatment
  - Flowchart
  - Storyboard
  - Character design
  - World Design
  - Logical design
  - Level descriptions
  - User Interface

Requirements Analysis
- Feasibility Study
- Team and Process Model Plan
- Quality Assurance Plan
- Planned Development Lifecycle

4. Winter Quarter Individual Deliverables

In addition, each individual student will submit individual capstone design documentation that includes:
- Final description of self-role on the development team
- Task list and responsibility check sheet
- Individual plan for implementation of goals as related to the group project
- Formal literature review of work area as appropriate
- Self-assessment of team interaction during the capstone design phase

5. Winter Quarter Assessment:

At the end of this period, the program faculty will confer and the team chairs will assign a letter grade to each member of the team, individually based upon both the group and individual

submissions, and possibly individual interviews with the students if necessary. The faculty will also meet with each team as a group to discuss any outstanding issues as the project moves into the development phase of spring quarter.

6. Spring Quarter Development

During the spring quarter, students in the program are wholly devoted to the completion of their capstone development. At any time, any member of the group, or the faculty chair may request a meeting of the entire group, and any individual member may meet with their faculty chair on a formal or informal basis. Also during this time, faculty will periodically review progress made towards the completed project based upon the design document produced in winter quarter.

C. Defense and Presentation

1. Spring Quarter Defense & Private Presentation

At the end of the spring quarter, all students in a development team in the MS in Game Design & Development are required to present at the end-of-quarter "show." This show has two distinct components, a private faculty review, and a public demonstration and presentation. During the private faculty review, each member of each development team will be responsible for presenting their work on the project, issues encountered, new approaches to problems within the given sub-domain etc. This presentation will be made to the faculty chair of the development team, as well as at least two other program faculty members.

2. Spring Quarter Show & Public Presentation

During the public demonstration, the entire development team is responsible for presenting their final implementation, from concept through completion. How this is accomplished will be left for the group as a whole to decide, but it must be clear who on each team was responsible for each task, and how the final implementation succeeds (or fails) at the attempted design. The audience for the public show will include the program faculty, any or all students in the GD&D program, other interested students at RIT, and professionals from the Game Design & Development industry. Electronic Arts and Vicarious Visions have already announced support of the show, and their commitment to attend.

3. Final Capstone Deliverables

Final Group Capstone Development Deliverables

At the completion of the capstone, all student development teams will be required to submit:
- A final write-up of their design & implementation, from concept to completion, discussing both successes and failures relative to the overall design, and the game development process.
- A detailed copy of their public presentation.
- A packaged demo-capable version of their developed work, complete with any required documentation.

Final Individual Development Deliverables

At the completion of the capstone, all students individually will be required to submit:

- Final description of self-role on the development team
- Task list and responsibility check sheet, with discussion as appropriate
- Individual review of implementation of goals as related to the group project
- Self-assessment of team interaction during the capstone design phase
- Discussion of the development role relative to the development team, and the field of Game Design & Development.
- Discussion of development issues and resulting problem-analysis.
- Review of technical contribution, its relevance to the project as a whole, and its place within the field.

Spring Quarter Assessment

Following the private and public presentations, and the submission of the group and individual deliverables, the faculty chair of the development team, as well as the other faculty in attendance at the private presentation, will meet and assign a grade to each student in the cohort for the capstone development course, thus fulfilling the remaining requirement for graduation.

IV.   Individual Questions Related to Team-Based Capstone Design & Development

Q: *What if one student doesn't pull their weight*?
A: Then that student may not pass the capstone component, and depending on the circumstances will have to complete additional work, or may be unsuitable for graduation from the program. The projects are team-based, but the responsibilities of each student are individual.

Q: *This seems to place an undue burden on the faculty, as compared to traditional capstone/thesis students. What can be done about this?*
A: Actually, we believe this to be an incorrect assumption. Consider a faculty member that has 4-5 existing capstone students, each doing an individual project. By operating as a team, the projects are more unified, and while each student has individual goals and responsibilities, the faculty will have fewer individual projects to manage. We believe it will actually be more effective to have 5-6 design teams in operation as opposed to 28-30 individual capstone projects. This approach has been very effective in courses in the Game Programming Concentration, and we fully expect to build on that success here.

Q: *What if students aren't ready to present their work at the end of Spring quarter?*
A: There will be a trailing show late August for students that need the extra time to complete their project. In very rare circumstances, it may be the case that only one student of a team will need to complete their portion of the project, in which case that student would defend later than his peers, provided he has met the group submission requirements at the earlier date.

Q: *Why do this at all, why not have a traditional capstone experience?*
A: The Masters in Game Design & Development is a practitioner's degree, fundamentally focused on students that choose to work professionally in the games industry or a related field. In consultation with several major game development firms, they reiterated to us our suspicion that it is teamwork and interaction, more than any other skill, that is key to successful long-term viability within the industry. In fact, employers identified this as their number-one reason for both dismissal and hesitancy to hire fresh graduates. In seeking support for this program, the team-based philosophy found throughout the program, and in particular in the capstone design, has been the number one selling point of the proposed curriculum.