Project Title:

Mind Mapping Techniques and Its Influence on Student Learning and Faculty Course Delivery

Applicant(s):

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<th>Name</th>
<th>Telephone</th>
<th>Dept.</th>
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1. **Title of proposed project:**
Mind Mapping Techniques and Its Influence on Student Learning and Course Delivery

**Summary:**
- Expose first year students to Mind Mapping by use of this technique for their Pumpkin Launching project.
- Mind Mapping is a technique that uses a visual chart to represent ideas, concepts, tasks, and shows the associations between these elements. The map can be generated either by hand or using software. It can be used to aid in decision making, problem solving, scheduling, studying, planning, or organization. An example of a recent mind map is attached.
- Software will be required that will allow students to capture their ideas and schedules for the deliverables of this project.
- This technique is taught in the Academic Support Center (ASC) and was received enthusiastically when results of a students’ post-use survey was reviewed with the ASC.

2. **Targeted learners or population:** (include cluster, departments, year level, number of learners impacted).
- Initially, all first year students in CAST MMET/PS and associated Learning Communities, along with students in the CAST Undeclared program, will be exposed to this technique.
- The current courses that will incorporate mind mapping techniques are:
  - 0617-220 Manufacturing Processes I
  - 0617-221 Manufacturing Processes II
  - 0606-101 Undeclared Engineering Technology Seminar
  - 0610-870 Robust Design and Production Systems
  - 0692-310 History and Manufacture of Siege Weapons
- Based on successful assessment, the program will be expanded to courses throughout the MMET/PS curriculum through course revisions.

3. **The number of students who will be affected:**
- CAST MMET/PS typically has 100-130 first year students.
- CAST Multidisciplinary Studies include another 20-30 students.
- When expanded to other courses, the numbers should reach most of the CAST student population.
- Will be offered as a future honors class to allow all future honors students to take as they prepare to enter their freshman year.
4. **Project Rationale:**
   - Get students to think logically in their development of projects, notes, schedules, and writings.
   - Let them see a visual way to present their thoughts.
   - Give them a tool to organize their knowledge, notes, project planning, or scheduling.
   - Help them learn brainstorming techniques.
   - Assist in teamwork development by providing a structured tool for community based learning, where relationships can be seen visually and students can comment on classmates' ideas.
   - Promote cross-disciplinary teamwork and understanding through a clear representation of concept relationships. Utilize upper-class mentors to provide assistance in project management, teamwork and engineering design tools.
   - Build connections with the engineering community through guidance of professional mentors working in the engineering field.

5. **Anticipated impact on teaching and/or learning:**
   - These techniques can be used across any discipline or course, regardless of college or program.
   - Better organizational skills provide a clearer understanding of expectations, which may improve retention.
   - Students will see an advantage in taking notes as clarity of relationships becomes obvious.
   - Faculty encouraging the use of these techniques should see a marked improvement in understanding and presentation of information.
   - Mentoring from upper classman from outside professionals will help the students to see real-life applications of these techniques, as they are currently used in industry.

6. **Impact on Student Success:**
   - Mind Mapping has been incorporated in current class sessions, and according to student feedback, is a highly effective learning tool. The results of this survey are shown on the last page of this proposal.
   - A clearer understanding of relationships and facts.
   - Better notes.
   - Easier studying.
   - Ability to reach across varying cultures and learning abilities.
   - Is beneficial to all students regardless of their academic standing or year level.
   - May result in increased retention of first year students by providing students with organizational and classroom skills that promote academic success.

7. **Measure of course impact, and what will be shared about our project in a faculty forum:**
   - Students will be surveyed prior to and after completion of the courses utilizing Mind Mapping in order to determine benefits or negative impacts of this approach.
   - A focus group will be followed throughout the project to determine the value of the technique.
   - Retention of first year students will be tracked and evaluated at the end of the academic year.
   - Findings will be presented to the larger faculty community through a venue such as FITL or a CAST Colloquium.
• We would be open to inputs and collaboration with other RIT Colleges and faculty.

8. Timetable for project development:

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<th>TimeLine</th>
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| August 2009      | • Develop curricula to introduce the use of Mind Mapping as part of the Pumpkin Launching project  
|                  | • Contact local professional organizations to recruit professional mentors and / or sponsors of student teams  
|                  | • Develop assessment instruments                                                          |
| September 2009   | • Meet with professional mentors to discuss project details  
|                  | • Introduce project and Mind Mapping in first year courses: Manufacturing Processes I and Undeclared Engineering Technology Seminar  
|                  | • Introduce project and mentoring responsibilities in upper class courses: Robust Design and the History and Manufacture of Siege Weapons  
|                  | • Assess students’ organizational skills as a “before” reference                          |
| October 2009     | • Pumpkin Launching Competition  
|                  | • Obtain feedback from students on project success                                          |
| November 2009    | • Assess organizational skill development utilizing Mind Mapping  
|                  | • Faculty team review of assessment results                                               |
| Winter 2009-2010 | • Based on assessment results, revise Mind Mapping curriculum for use in Manufacturing Processes II  
|                  | • Track focus group to determine if Mind Mapping techniques are being utilized in other courses |
| Spring 2009-2010 | • Track focus group to determine if Mind Mapping techniques are being utilized in other courses  
|                  | • Develop project plan for Fall 2010                                                     |
| June 2010        | • Evaluate retention numbers and compare to past academic years                           |

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<th>Budget Items</th>
<th>Details</th>
<th>Cost</th>
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<tr>
<td>Summer Pay</td>
<td>4 weeks of summer pay for curriculum development, survey development, and identification and development of professional mentors</td>
<td>$1500</td>
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<tr>
<td>Mind Mapping Software</td>
<td>Academic Site License</td>
<td>$2400</td>
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<tr>
<td>Trebuchet Simulation Software</td>
<td></td>
<td>$200 ($19.95 per copy; academic pricing available.)</td>
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<tr>
<td>Funds for Project</td>
<td>$30 gift card to a Home Improvement Store for each of 30 teams</td>
<td>$900</td>
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| Total             | $5000                                    |