CSE 682 – A Review of Wi05 Offering

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Outline

- Salient Points of Wi05 Offering

- ABET Criteria – how they were met

- Summary

Salient Points - Logistics

- Course taught once a year in Winter Quarter.
- Ideally – a two day, 2 hour class is ideal
- In practice – we met MWF 48 minutes class
- Additionally, we met most Tuesday evenings for 2 hours at least at ACCAD.
- Course was populated by undergraduates only
- 23 students were enrolled

Salient Points - ACCAD

- Earlier CSE faculty Co-taught with ACCAD faculty
- Collaboration with ACCAD a very useful feature
- ACCAD facilities (computing, production) were used extensively
- MAYA was promoted as the environment of choice
- ACCAD provided interdisciplinary environment
- Allows an animation production house environment
- Maria Palazzi went over her call of duty to help
- Graduate Students were also instructed to help
- Palazzi and students were present at presentations

Salient Points - Course

- The course consists of:
  - Lectures from instructor
  - showing videos of computer animations
  - student presentations and
  - Tutorials classes at ACCAD on Maya and post-production facilities
  - Dreamwork instructors for a week
- Maya instruction was given much emphasis
- Single, group, quarter-long project
  - ACCAD provided the projects
  - Three were chosen by our students
- Homework was comprised Maya exercises
- Oral quizzes were conducted
- A mini-project was cancelled given scheduling problems with Dreamworks. Points were accorded to group participation, instead.
- No exams were administered !

Salient Points - Projects

- A vignette or action sequence suffices - doesn't have to be an entire story
- Art should drive the idea
- Keyframing can be a part of the animation
- Every technical student should program some procedural aspect of the animation
- Project information (need to provide Neelam ?)
- Four progress reports during the quarter
- Final presentation during exam week
- Web pages to document plan and progress

Salient Points - Grading

- State-of-the-Art and Progress Reports: 20 %
- Group and Class Participation, Quizzes (Oral/Written): 20%
- Final Project: 60%
- Project Criteria
  - completing on time --- very important
  - difficulty of the techniques considering the background and number of students involved in the project,
  - the overall quality of the presentations to the class,
  - the sufficiency of the information in the group web site,
  - the quality of the results presented during the final presentation
- Project Grading
  - Instructor on technical aspects - 30 %
  - ACCAD faculty - 30 %
  - Grader on use of tools like Maya, etc. - 20%
  - Inter-group assessment - 20 %

Salient Points - Projects

- Four
  - Worm - not ACCAD driven
  - Carousel – ACCAD driven. Artist Min Lee.
  - Gesture Lines – ACCAD driven. Artist Maria Palazzi.
  - Comet – ACCAD driven. Artist Shana Burns.

CRITERION 1

- **Level -**

  Must be at the senior level.
- **Evaluation** – yes

CRITERION 2 (1)

- **Prerequisites -**

  Must include as prerequisites all relevant courses that are part of the CSE core or the option for which the capstone course is intended. Specifically, CIS 560, and at least one upper division course that is either in the CSE core or is in the required part of the option for which the course is intended, should be prerequisites. CIS 601 should also be a prerequisite (601 helps develop oral and written communication skills, and addresses important ethical and professional issues).

- **Evaluation** – Almost ! Current prerequisites are:
  - 541
  - 560
  - 581 or 681
- **Violation** – cse601 is not required.

CRITERION 2 (2)

- **Comments** –
  - Students are required to have only one graphics course (cse681 or cse581).
  - In a class replete with undergraduate students, the students cannot fall back on graduate students with advanced training.
  - This was a problem.
  - Ideally a course on computer animation should be taught for an entire quarter where the algorithms are the primary focus.
  - This course should be then followed by a quarter-long course that is essentially the project.
  - We currently teach a fair amount of basic algorithms and techniques. The focus is not that strong on the project.
  - 10 weeks is not enough !
  - Good looking animation is hard

CRITERION 3

- **Design** -

    Design must be the major component of the course. Students should explore and evaluate possible design alternatives.

- **Evaluation** - Design is the main activity - except not so much programming design. It is more of a large creative activity that is realized through software and user interaction.

- **Examples** -
    – Design of story (storyboard):
    – design action of characters, models, lighting, camera, motion, textures (although textures and rendering are not emphasized)

- **Planning of Design Task** –
    – Assignments and timelines are made by the students.

CRITERION 4 (1)

- **Course content –**

  The course must incorporate consideration of as many of the following issues as are appropriate to the course:
  - <u>Realistic constraints:</u> Realistic constraints of time, storage, CPU architecture have to be dealt with as the students complete the project. Trade-offs need to be made and the students are asked to justify their choices. For instance, higher the fidelity of physics, the computation is more expensive. Hence, the students explore use of approximate techniques which look good enough. These approximate techniques are often cheap to execute.
  - <u>Standards:</u> Standards aren't discussed too much, although the students need to be cognizant of standards for image and animation storage formats and general file formats. Coding is done in MEL, a script language. Hence, it is untenable to enforce strict coding standards.

CRITERION 4 (2)

- <u>Maintainability:</u> Since some of the projects were provided by ACCAD, there was a need to provide well-documented and maintainable code. The level of maintenance was really an agreement between the group and ACCAD. The instructor did not enforce any standards.

- <u>Ethical, social, professional issues:</u>
  - The students were expected to follow all the ethical standards that the University expects them to adhere to.
  - They were encouraged to protect Intellectual Property rights. They were taught to cite and quote the appropriate sources when they borrowed some work.
  - There was an issue of using copyrighted information. Game industry is very touchy on these topics and can be very aggressive ! The errant students quickly corrected their inadvertent use of the material.

CRITERION 4 (3)

Ethical, social, professional issues

- They were encouraged to seek pertinent knowledge and learn much about the animation environments on their own. The tutorial classes helped. However, the learning curve is steep for many. Learning MAYA and MEL (MAYA embedded language) did provide them competitive skills that will exposed them to industry standards. The additional skills and knowledge base on modeling and motion capture should also help them if they wish to continue in animation-like endeavors.

- As a result, the students acquired a life-long-learning skills. The task of completing a complex project while acquiring new knowledge and skills is daunting. And one does learn the hard way when they complete a complex project.

CRITERION 5

- **Documentation -**

  Deliverables should include suitable documentation of both the design and any significant implementation performed in the project. The grading scheme should account for the quality of the documentation.

- **Evaluation -** The course is big on documentation. Since some of the groups had to provide ACCAD faculty working code, documentation was necessary. Additionally, the students have to maintain a web site with
  - storyboard
  - task assignments
  - timeline
  - animatic
  - models (as available)
  - images from animation (as available)
  - sample sequences (as available)
  - See current information

CRITERION 6 (1)

Oral presentation:

Each student should be required to make at least one significant oral presentation (10 minutes or longer), or two or more shorter presentations about his/her design/implementation. The grading scheme should account for the quality of the presentation's), possibly using peer evaluation for the purpose.

Evaluation: The course emphasizes oral presentations:

– There were four presentations during the quarter plus the final presentation at the end. Everyone has to participate in all the presentations.

– Presentations were at least semi-formal.

– The final presentation was formal.

– The grading scheme accounted for the presentations

CRITERION 6 (2)

Evaluation (contd.)

- The presentation material had to be well-assembled after the third group presentation.

- Each group presentation took about 20 minutes. At least.

- There was a class Q&A at the end of each.

- In addition to oral presentations, the students were asked to write state-of-the-art surveys of relevant animations and technical algorithms.

- It is fair to say that the course did engender oral and written presentation skills.

CRITERION 7

Team working -

Students should be organized into appropriate teams for working on their design projects. Where possible, these teams should be multi-disciplinary.

Evaluation –

- We had only CSE students. However, the project goals were interdisciplinary. Artistic sensibilities were paid adequate homage. And graded accordingly.
- Groups form themselves based on interest.
- Some groups worked well together.
- A good group is one where the final project was exemplary and all students contributed in an equitable way. Two groups did meet that criteria.
- One group did engage in back-biting and bickering.
- The students graded each other. That kept them on their toes, perhaps.
- The frequent number of presentations did maintain a high level intensity and encouraged all members to contribute and not let down the group.

CRITERION 8

- **Course size-**

  Enrollment in each section of capstone courses should be capped at 30 students.

- **Evaluation -**
  - Class enrollment was 23. A good number !
  - Five is an optimal number of groups in these courses. We had four !
  - The size of the groups ranged between 5-6.
  - Each group has an artist to consult
  - Students form their own groups.
  - The groups need to be formed by the second week for sure.

Summary (1)

- **PROs:**
  - web-based documentation
  - oral presentations
  - Written summaries and surveys
  - interdisciplinary content
  - Real constraints - of getting it calculated and recorded
  - Design of animation and project management
  - Life-long learning skills imparted
  - Students meet industry standards and should be competitive in the market place.

Summary (2)

- **CONs:**
  - no software design reviewed
  - no maintenance standards enforced
  - new material covered in class
  - Material in class does not cover project goals.
  - 10 weeks is not enough
  - Only undergraduates can be an issue
  - Students were ill prepared