GAM300/302: Project III

Fall 2019

Schedule:	**LECTURE THEATER 6C (BSGD/RTIS):** Friday 5-7:10 pm **EDISON (BAGD):** Friday 5-7:10 pm **TESLA/BONTAGO:** Monday 1:00-4:20 pm
Instructor:	Rahul Nath (rahul.nath@digipen.edu) Jonathan Kwek (jkwek@digipen.edu
Instructor (technical):	Tomas Arce-Gil (tomas.arcegil@digipen.edu)
Class Web Page:	The GAM 300/ 302 course at http://distance.sg.digipen.edu (join GameCentralSG as well).
Office Hours:	By appointment.

Description:

This project is divided into two semesters and focuses on the design of an advanced real-time game or simulation. Additional topics may include online portfolios, effective presentations, managing scope, and advanced team dynamics. Students may choose to make a game or a simulation/serious game or interactive experience. All products MUST be built using custom engines. Commercial engines are only allowed for prototyping in the first ten weeks of the project.

Course Objectives and Learning Outcomes:

After completing this course, students will have applied what they have learned in their game design, writing, and art courses to a large, team-based project. Students will also learn how to take a basic game design and improve it through iteration and playtesting, how to form strong aligned teams and deal with team conflict, and how to communicate effectively in written and verbal forms. After completing this course, students will be ready to move on to their final project in GAM 400.

Textbooks:

There are no required books for this class. Links to websites and other resources that can be useful for your projects will be posted on the class's Moodle page.

Optional Textbooks:

The Art of Game Design, by Jesse Schell, Morgan Kaufmann (ISBN: 0123694965). Optional textbooks for the course will be posted on the class's Moodle page.

References:

The optional books listed above are a good starting point for a beginning game developer, but there are many more books, websites, and other resources that can be extremely useful for anyone making a game or simulation. You can find the current list of recommended resources on the GameCentral page.

Outline and Tentative Dates:

This class will roughly follow the outline below, although the order and/or content of the lectures are subject to change. The milestones will only be changed in extreme and unexpected circumstances (and will never be moved earlier). Unless stated otherwise in the schedule below, all labs are reserved for meeting with your team, working on your project, or meeting with the instructors.

WEEK 01

Lecture GAM 302/300 (shared LT6C): Syllabus, Rubrics and Course Expectations
Lab: Read the syllabus and job descriptions. Team structure and roles. Form teams and talk to instructors if you don't have a team.
Homework: Set up SVN repository and task / bug-tracking system. Form teams.

WEEK 02

Lecture: RTIS/BSGD: C++ for games/ Defensive programming

Lecture: BAGD: Core Game Design and High Concept

BAGD : Defining your art style in 3D (BFA's are invited)

Lab: Questions and meetings. Work out initial team roles and responsibilities.

WEEK 03

Lecture: RTIS/BSGD: Introduction to multicore programming

Lecture: BAGD: Cameras in 3D

BAGD: Creating 3D art assets. (BFA's are invited)

WEEK 04

Lecture GAM 302/300 (shared LT6C) : Presentation 1 tips and rundown.

Lab: Questions and meetings.

WEEK 05 **ENGINE PROOF and PROOF OF CONCEPT MILESTONE**

Lecture GAM 302/300 (shared LT6C): Lecture time is devoted to engine proof presentations.

Lab: Each team performs the engine proof presentation to the entire class. These presentations are split across both labs.

WEEK 06

Lecture: RTIS/BSGD: Engine Architecture 1

Lecture: BAGD: Metrics in 3D

BAGD : System Design

Lab: Questions and meetings.

WEEK 07

BREAK WEEK

WEEK 08

Lecture GAM 302/300 (shared LT6C): RTIS/BSGD: Editor Architecture 1

Lab: Questions and meetings.

WEEK 09

Classes replaced by lab time.

WEEK 10: **PROTOTYPE MILESTONE PRESENTATIONS**

Lecture GAM 302/300 (shared LT6C): Lecture time is devoted to presentations.

Lab: Each team performs the engine proof presentation to the entire class. These presentations are split across both labs.

WEEK 11

Lecture: BAGD: Creating mood in your game world

Lecture: RTIS/BSGD: Editor Architecture 1

Lab: Questions and meetings.

WEEK 12

LAB TIME

WEEK 13

Classes replaced by lab time.

WEEK 14

FIRST PLAYABLE

WEEK 15 FINALS WEEK

This class has no finals, but any resubmissions due to TCR failures happen during this week.

Grading Policy:

The grades for this class are calculated based on the team scores obtained at each milestone: proof of engine (**25%**), prototype (**25%**) and minimum viable product (**50%**). The same base score is given to all members (75%) of the same team within the same general discipline (coding, design, art). However, each student has their overall score adjusted by several modifiers based on several activities and contributions they personally have made to the project (code, design, art, music, testing, producing, etc.) along with modifiers for participation, teamwork, attendance, etc. These categories of modifiers are explained below. It is possible to get an adjustment of a full letter grade up (and several letter grades down), so it is not necessary for a student's project score to be an A in order to get an A in the class (and a passing project score does not guarantee that an individual will pass). All grades in this class are given as percentage amounts on the normal DigiPen scale.

Mid-term grades are based on the first presentation and first milestone report of the semester and it is a good indication of whether you are in trouble or not.

Individual Score = Project Scores (25%+25%+50%) +
+ Attendance + Extras

Milestone Reports

Each milestone, every team in the class must submit a milestone report through https://distance.sg.digipen.edu (include it in your milestone submission).
This report should include all the stories you've worked on. The stories must be broken down into tasks (including points and who worked on them).
The report must include all retrospective reports done on a sprint basis (every week), playtest reports done this milestone as well as the individual champion report.
Please see the milestone report template included in this syllabus for a detailed description of each point.
Failing to deliver the milestone report has a penalty of **-10%** on the final grade for each member of the team (note extra penalties might apply if the content of report is incorrect).

Extras and Champion Individual Performance

Any other elements of the class are considered "extras" (i.e. failed to submit assignments or milestone reports), positive and active attitude during the course. Additionally you can get bonuses of **+0%** to **+5%** for performing well in your champion role, helping out other teams extensively, participating consistently and constructively in class, or just doing something exceptional. Skipping a milestone presentation is a **-10%** penalty in the final grade.

Attendance

Attendance at all labs and lectures is required, although if you email the instructor about any absences, they might be excused (especially if you send the email beforehand, but send one regardless). Each missed lecture or lab is a **-5%** penalty. Note that absences are counted by the number of attendance sheets that you have not signed. Even if you have photographic proof that you were in class, it does not count if you do not sign the attendance sheet, as this is an accreditation requirement (email the instructor if you forget to do so).

If any team member must leave the class or lab they for prolonged periods they must inform a lecturer in charge.

You are not allowed to sign the attendance sheet if you arrive to the lab or lecture class 15 minutes late or more.

Late Policy

If an assignment is turned in late, its grade is reduced by **1%** for each day (including weekends) .After one week, assignments can no longer be turned in.

Late penalties for the final project of a semester are **-5%** per day. If a final project requires a resubmission due to major penalties from failed TCRs (which is the only reason a resubmission is allowed), then the grade is reduced by **5%** if it is resubmitted within a day of the team being informed of the problem. Each additional day after that results in an additional **5%** deduction. If additional resubmissions are required, any additional penalties are cumulative. If your total score for TCRs is **-5%** or better, you will not even be notified or allowed to resubmit.

Milestone Rubrics

Each milestone has a rubric used to score that particular milestone. Rubrics will be given to the students a few weeks in advance before the milestone (this window of time will be determined by the lecturers of the course), once the rubric for the milestone is public read though it and ask any question you might have in the forums (or e-mail the lecturers if your question is a personal question).

Champions

Every student will take the role to champion a specific element of the game or process. Championing is the responsibility of the students to master, push a specific technology, design, art, element of the game or process. Every student will report their objectives to champion to the lecturers and to the team.

More than one student can champion the same feature of the development, but they might have different orientations and goals. For example two team members want to champion level

design, one of them can champion the architecture approach of level design, while the other can champion the camera implementations.

Team Size

Teams must have a minimum of 2 BAGD+2 BSGD+2 RTIS. Additionally 2 members from any other degree can be added to the team but this composition should not exceed a total team size of 8. If the team has 9 members their base score will start off from 70 per milestone as oppose to 75 for other teams.

A team can have up to, but not exceeding, 3 BFA students.

Team Structure

Team structure must be determined by mutual agreement among all team members. No single degree teams are allowed. One of the team member must assume the role of production champion (scrum-master), who will be the team's primary contact person with the instructors. While there are many other possible champions roles (see annex at the end of this document), only the production champion is required. Note that being your team's scrum-master does not get you out of the other requirements for the class (coding, designing, etc.).
There are many different structures you can choose to organize your team, each with its advantages and disadvantages.

Producer Suggested Responsibilities

Producers should be responsible for driving all scheduling and planning for your project. They create and maintain the sprint/ milestone backlog for all coding, content creation, and bug fixing tasks (using scrum boards, TRAC, FogBugz, etc.). The producer holds sprint/milestone planning and prioritization meetings, along with at least one scrum each week. Producers must also attend the weekly producer meetings and convey information to the rest of your team. Producer should submit all the deliverables for each of the milestones (including Game Journal, milestone reports, game submission, etc.) – however any team member can do it. If a team member does not update their status, just list that as part of the report.

Mechanisms and Procedures

There are a variety of procedures and mechanisms used in this class to make it run as smoothly as possible. Make sure you read each of these sections thoroughly so that you understand what the instructors expect.

Instructor Questions and Meetings

You will undoubtedly have many questions for the instructors and will often wish to have individual or team meetings as well. To make this work efficiently, you must email any questions (about any topics you wish) or meeting requests to one or more of the instructors. Make sure you start the subject of the email with "GAM300", "GAM302", etc. so that it won't be filtered out (failure to do so will result in unanswered emails—note that it must be capitalized and have no spaces or dashes).

In addition to asking questions through email, if you talk with an instructor in person (whether in class or otherwise) and there is some follow-up action the instructor has agreed to perform, you must email that instructor with a reminder. If you don't send a follow-up email, whatever you talked about will be forgotten and not followed up on (regardless of what the instructor said at the time). Making follow-up emails a habit is excellent practice for the real-world of working with busy bosses, producers, executives, etc.

Team Names

Students can generally select any team name they wish, so long as it would be appropriate for an E-10 rated game. However, the official name of the team for competitions and / or press interactions must be DigiPen ***teamname*** (or similar wording). For example, the official name of "Team Nitronic" would be "DigiPen Team Nitronic". Note that team logos (even ones that include the team name), do not have to include "DigiPen" as part of them.

Game Competitions

DigiPen games can only be submitted to competitions by the DigiPen faculty—you cannot enter them yourself. If you think you have a game good enough to be entered into competitions (or that is the goal you are aiming for), make sure you inform your instructors as soon as possible, as they can give you advice directly targeted at making your game better for competitions. As general rule, any game that doesn't get a final score of **85%** or higher will not be submitted to a competition (unless it is later improved).

Changing Teams

Students can leave or change teams with no penalty. You can kick someone off your team with a unanimous vote by the rest of the team. You must talk to an instructor about this, but they will not overturn your decision. If you leave your team and cannot find a new one, you will fail the course as soft skills are a big part of game projects. Solo projects are strictly not allowed. **The team must present the instructor with a duly signed letter as to why a member was removed from the team with signatures of the team members.**

Also, all members must behave in a professional manner with each other and with instructors. Any rudeness, threats or unprofessional behavior upon investigation can have a penalty of up

to 10%. This also includes not attending meetings, handing in work late on a constant basis and other such incidents which disrupt the functioning of the team.

Teams can only remove members during week 6, week 11 and week 15. Once in GAM 350/52 you will not be allowed to remove any team members.

If you do not stay on the same team for the entire semester, your grade is broken up into thirds (1st milestone, 2nd milestone, 3rd milestone) and each third comes from the final score of the project you worked on during that milestone. If you changed teams in the middle of a milestone, your grade for that milestone will be from the new project you are working on.

Game Content

DigiPen games must be able to get an EC, E, or E10+ ESRB rating. Anything that would require a T (13+) rating requires permission from an Assistant Dean. M (17+) and AO (18+) ratings are not allowed under any circumstances.

Violence: only cartoon / fantasy violence is allowed—no gore, body parts, realistic blood, etc.
Social Issues: any references to real-world politics or alcohol/tobacco/drugs require approval.
Sexual Content: nudity, sex, strongly suggestive sexual themes or references are not allowed.
Language: profanity and disparaging / stereotyping of race / gender / culture / disability are not allowed.

Remember that all art and audio must either be created by a current DigiPen student/instructor or be from the DigiPen approved art and audio libraries. You cannot use your friends, family members, public domain material, or other students not in your class (unless you talk to your instructor first). You can never use outside artists / musicians at all.

Source Control

Each team is responsible for setting up and managing source control for their project. See https://svn.digipen.edu/ for details (Mercurial repositories are also available). Contact the IT department to get a repository for your project. You must use DigiPen's source control, not an external server.

Technical Restrictions

All teams will have to build their own engine own engine. You must use C++. Ask lecturers which 3rd party libraries you can use freely. All teams must do a 3D game for this course. All teams must use original art, audio, music, characters, gameplay, etc.

Last Day To Withdraw:

In order to withdraw from a course it is not sufficient simply to stop attending class or to inform the instructor. In accordance with the policy, contact your advisor or the registrar to begin the withdrawal process.

Academic Integrity Policy:

Cheating, or academic dishonesty in any form, will not be tolerated in this course. Penalties for cheating may include receiving a zero on an assignment, or a failing grade in the course, or even expulsion from DigiPen. For further details, please consult the DigiPen Academic Integrity Policy. Note that in this team project class, working directly with your teammates, or even with other teams, is not cheating (and is highly encouraged). However, each student is required to accurately inform the instructors of the exact work they personally did on the project—any deception is cheating and will be punished harshly.

Disability Support Services:

Students who have special needs or medical conditions and require formal accommodations in order to fully participate or effectively demonstrate learning in this class should contact the Student Life & Advising Office (studentlife.sg@digipen.edu) at the beginning of each semester. A Student Life & Advising Officer will meet with the student privately to discuss how the accommodations will be implemented.

OUT of Class Work

It is expected that the students in this class spend 10 hours on average per week for outside classroom activities through the trimester, including, but not limited to, homework, reading assignments, project implementation, group discussions, preparation of examinations, etc.

EXAMPLES OF CHAMPION ROLES

Following there is a list with examples of champion roles, sorted out by discipline. Remember the following points are just examples, you don't necessarily need to aim at this objectives nor restricted by them. Please check with the course lecturers for any question.

Technical champions may include:

- Engine champion.
    - Hardware optimized mesh pipeline. ○ Motion-capture skeletal animation.
    - Multicore resource loading.
- Gameplay champion.
    - Multicore game entities. ○ Behavior trees AI.
    - Physics based vehicle system.
- Editor champion.
- Pipeline champion. Render champion.

Design champions may include:

- Story champion.
    - Universe specification.
    - Story script.
    - Emotions.
- Level design champion.
    - Scripting events. ○ Pacing.
    - Cameras.
- Mechanics champion.
- "Systems" designer champion.

Production champions may include:

- Scrum-Master champion. ○ Roadmap / milestone.
    - Deliveries. ○ Meetings and impediments.

Art champions may include:

- Characters champion. ○ Normal mapped characters.
    - Cloth simulation.
    - In game character creation.
- Animation champion. ○ Motion capture face and body. ○ IK & ragdolls.

    - Procedural animations.
- Environments / levels champion. Concepts champion.

Audio champions may include:

- Game music champion. ○ Emotional. ○ Multilayer.
    - Sounds mixing.
- Sound drivers champion. ○ Surround.
    - Sound traveling though the environment. ○ 3D positioning.
    - Streaming.
- SFXs champion.

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Art, Music and Audio Copyright Agreement

As a student of DigiPen Institute of Technology Singapore (the "Institute"), engaging in project work for display internally at the Institute or externally on the internet, or as demonstrations or presentations at festivals or other events, I recognize the importance of respecting international copyright law as well as the Institute's rules regarding the inclusion of art, music and audio content in animation and game projects.

I also recognize that the inclusion of art, music and audio content, which is not owned, licensed or approved by the Institute will result in a grade of zero for such projects, and may also result in disciplinary action.

I agree to solely use art, music and audio assets which are generated by the students or staff of the Institute, or are purchased and owned by the Institute, in any animation or game project work as described above.

I recognize that failure to abide by this agreement may result in disciplinary action at the Institute, which may include expulsion from the DigiPen Institute of Technology Singapore for intentional copyright infringement, and possible legal action.

I agree to indemnify and hold DigiPen Institute of Technology Singapore, its officers, directors, employees, contractors and agents harmless from any damages and/or claims arising out of the breach of this agreement.

_____ Student name, printed

_____ Date: _____
Student signature