DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
UNIVERSITY OF BRITISH COLUMBIA
CPEN 391 – Computer Systems Design Studio
2015/2016 Term 2

Module 1 Project Demo and Report

Most of the marks for your project will be based on your project demonstration (Feb 25th/26th) and your final report (due March 4th at 11:59pm on the Connect site). Each of these deliverables, as well as the marking criteria, is described in this document.

Project Presentation/Demo:

On Feb 25th/26th, you will give a final demo of your Project 1. Demos will be 20 minutes each and will be presented to both TAs in your section (as well as the instructor and/or other guest judges). The presentation/demo will be structured as follows:

a) Five Minute Power-Point Presentation: The power-point presentation should contain at most 5 slides (3 to 4 is preferred). It should introduce your overall project topic and goals, and summarize the features that were successfully implemented (and those that were <u>not</u> implemented). You won't have time to describe the details of your design (you will be able to do that in your report).

b) Ten Minute Demo on the DE2 board: show your project running and the major features.

c) Five Minutes to answer questions.

If either your presentation/demo goes over-time, you will be cut-off, so ensure you practice to make sure you are as efficient as possible.

Note that you do not have to complete the entire power-point presentation before starting the demo. In the past, many of the most compelling demos intermingled the power point presentation and the demo itself. This is about what is most suitable for your project.

Please be "ready to run" at the appointed time. "Ready to run" means that your code is *up and running* before the demo starts. Time will be tight between some demos so we will not have time to wait for people to set up. If it takes time to boot your system and get it running, this will take away time available for your demo, which will make it harder for you to convince the TAs that you deserve top marks.

Each group member must participate in the project presentation, demo, or question period. That means each group member must speak. How you divide your time among your group members is up to you.

(continued on next page)

Project Report:

Your final report for Module 1 will consist of a Group Report and four Appendices (each authored by one group member). The details of each section are as follows.

Group Report: [10 page maximum]

Your group report must be structured as follows:

a) **Introduction:** Introduce your project, focusing on your problem statement and target market. (approx ½ page)

b) **Development Process:** Describe the development process followed (from target market selection all the way to detailed design). Even if you followed the process exactly described in the handouts and lectures, document the process anyway. If you deviated from the suggested process in any way, or if you added anything to the process, describe it. If you encountered any particular challenges, describe those here. (approx 1 page)

c) **Work Accomplished:** In this section, list the features that you successfully implemented. If any of the features were especially challenging, indicate this. (approx 1 page)

d) **Detailed Design:** Describe the design of your project. You should include (where relavent):
   - Block Diagram of the hardware part of your embedded system
   - Architecture of your software : Modules, submodules, libraries, components etc.
   - List of functionality and features (from the users perspective) that you implemented. Describe the level of completeness of each.
   - User interface/GUI description e.g. screen shots
   - Major data structures and where they are stored.
   - Functionality you implemented in <u>hardware</u> inside the Graphics accelerator, e.g. draw horizontal line, vertical line, line from [x1,y1] to [x2,y2], plus anything you did above and beyond this e.g. rectangles, triangles, text + fonts etc.
   - What have you included to make sure your design could be extended in the future? (all companies want to allow for subsequent versions and upgrades)
   - Any other Technical details regarding any interesting features you implemented.

   (Some of this would have been in your earlier high-level design submission, however the details have likely changed). This section should be approx 5-8 pages.

e) **Results (Solution Assessment):** Assess your design based on the original project goals. Did your design meet the stated requirements? How did you test it to ensure correctness and robustness? (approx 1 page)

f) **Conclusions and suggested future work**: Summarize your project, and suggest a few directions that you would follow if you were to continue this project. (approx ½ page)

g) **Source Code Link:** Provide a link to where the TA can download the C and HDL source code, or print it out (not included in page limit).

Note that the report does not need to include the potential high-level design(s) that you did not select to implement and their initial evaluations, nor the requirements list. You have already submitted those to your TA earlier in the project, so you do not need to repeat them here.

Individual Appendix: [2 pages maximum each]

Each group member should also prepare an individual appendix. The appendix must clearly indicate the student name, and should contain:

a) **Individual Contribution**: List all of the tasks you worked on personally. For each task, indicate whether you performed the task yourself or in conjunction with someone else. If any of these tasks required an especially large amount of effort, indicate this. If you believe any of the parts you did are of exceptionally high quality, provide details to justify this.

b) **Team Effectiveness**: Evaluate the effectiveness of your team, and give suggestions for improvement (that you can consider incorporating in Module 2)

c) **Other Comments**: Include comments on items such as:
   a. How did you ensure that your tasks would integrate with your group?
   b. What hurdles did you have to overcome?
   c. What did you do to ensure success, or at least improve the likelihood of success?
   d. What did you learn?
   e. Were there any team dynamic issues?
   f. Anything else you spent your time on (related to the project :-)

Your demo and project will normally be marked according to the following criteria. These rubrics are not meant as a marking scheme, but will serve as a guide when we read your report/view your demo. Reading through the rubrics will give you an idea of what we will be looking for, so make sure you address each of these criteria.

Note that the TAs have been asked to limit their use of the top score in each category, so if you want to achieve that score, your report/demo will have to explicitly make a very strong case.

Group Mark: (out of 36)

Work Accomplished: (based on group report and presentation/demo)

0	4	8	12
The project is relatively pedestrian.	The group's project has successfully integrated a small number of facets from the tutorials/exercises	The group was able to successfully integrate a number of facets from the tutorials/exercises, OR contains interesting algorithmic development	A very significant amount of work has been done, far beyond what most other groups have accomplished

Robustness and Deliverable Quality: (based on demo and group report)

0	2	4	6
The overall deliverable is not of an acceptable academic standard. The deliverable either consists of un-integrated parts, or has numerous bugs	The overall deliverable is of an acceptable academic standard. The deliverable has multiple "bugs" or "glitches", that would need to be fixed before the product could be released. Some parts	The overall deliverable is of a good academic standard. The deliverable is mostly robust with only a few minor execution errors or "glitches".	The overall deliverable is of a professional standard. The deliverable is robust and deals correctly with corner cases. Execution speed is

and/or "glitches". The execution speed is not sufficient.	have not been integrated into the main code base. The execution speed is either slower that it should be, or demonstrates slowdowns at times.	Corner cases are mostly handled properly. Execution speed is sufficient and mostly consistent.	sufficient and consistent.

Overall Design Quality: (based on group report, not including code quality)

0	2	4	6
The project appears to be "hacked" together. The design would be very difficult to extend. Poor use of interrupts and timers.	Although some effort was made to create a quality design, the final project lacks in extend-ability and testability. Questionable use of interrupts and timers	The quality of the design (including project structure, use of interrupts and timers, project extend-ability and testability) are of an acceptable academic standard.	The quality of the design (including project structure, use of interrupts and timers, project extend-ability and testability) are all of a professional standard.

Code Quality: (based on source code):

0	1	2	3
Code is lacking in structure and comments	Code is of sufficient "academic code" quality, including some comments.	Code is of good "academic code" quality including extensive comments. Code is well structured.	Code is of industrial quality, including evidence of unit tests and/ or extensive system tests.

Development/Design Process: (based on group report)

0	1	2	3
The document does not describe the development process followed, OR the process was not suitable for this project.	The document attempts to describe the development process followed in the project, however the description is not clear enough to make it possible to judge whether the process was appropriate.	The document clearly describes the development process. The process followed that discussed in class, or deviated in a minor way.	The document clearly describes the development process from this project. The process was an improvement over that discussed in class in a meaningful way (a way that would have made a difference to the success of the project).

Group Report Writing and Figures: (based on report):

0	2	4	6
The quality of the writing is poor, and makes it difficult to	The quality of the writing is adequate. There are numerous	The writing is at a good academic level. There are few	The writing is at a professional level. The writing is

understand what the author is trying to describe. The language sometimes impedes meaning because of errors in usage.	spelling/grammar errors, however, it is possible to understand what the author is trying to describe.	spelling/grammar errors. Explanations and arguments are structured in a logical manner.	extremely clear and skillfully communicates meaning with clarity and fluency. The writing is virtually error-free.

Individual Mark: (out of 24)

Technical Contribution: (based on individual appendix, Scrum Result reports, presentation/demo, IPeer evaluations, and TA observations). Note, if the group members contributed equally, this should be equal to the scaled score from the "work accomplished" rubric above. However, if some students contributed far more or far less, their score here might be different. Also note that as described in the project roadmap, the group marks may be scaled based on individual contribution as well.

0	6	9	12
The group member's contribution was pedestrian.	The group member has successfully integrated a small number of facets from the tutorials/exercises.	The group member was able to successfully integrated a number of facets from the tutorials/exercises, OR contains interesting algorithmic developments.	A very significant amount of work has been done by the group member, far beyond what most other students in the class have done.

Quality of Group Member's Work: This is based both on the quality of the deliverable and the quality of the design. Ideally, these would be the same for all group members, however, may be adjusted if some group member's work was obviously of higher or lower quality. Note that if it is impossible to identify what part of the design a group member worked on, it may be impossible to give anything but a 0 for this part.

0	2	4	6
The part of the project completed by the group member was of low quality.	The quality of the part of the project completed by the group member was lacking in one or more aspects.	The part of the project completed by the group member was of good academic quality.	The part of the project completed by the group member was of professional quality.

Presentation:

0	1	2	3
The group member's part of the presentation was not well organized, and did not adequately convey what has been accomplished, OR the group member was unable to adequately answer questions about their project.	The group member's part of the presentation was somewhat organized, although in some parts, it was somewhat difficult to grasp what had been done, OR the group member was able to answer some questions, but a significant number of	The group member's part of the presentation was complete and well organized, OR the group member was adequately able to answer questions, although	The group member's part of the presentation was of a professional standard. There is clear evidence the group member thought hard about what would be presented and how it would be presented, and it seemed well rehearsed. OR the group member was able to answer questions completely yet concisely

	the questions were either not answered or answered poorly.	occasionally missed the point (answered the wrong question) or rambled.	(without rambling). The answers showed significant insight.

Individual Appendix Writing: (based on individual appendix):

0	1	2	3
The quality of the writing is poor, and makes it difficult to understand what the author is trying to describe. The language sometimes impedes meaning because of errors in usage.	The quality of the writing is adequate. There are numerous spelling/grammar errors, however, it is possible to understand what the author is trying to describe.	The writing is at a good academic level. There are few spelling/grammar errors. Explanations and arguments are structured in a logical manner.	The writing is at a professional level. The writing is extremely clear and skillfully communicates meaning with clarity and fluency. The writing is virtually error-free.