Seneca | SCHOOL OF SOFTWARE DESIGN & DATA SCIENCE

Course Addendum

Semester: **Fall 2021** Subject Code: **SPO600** Section: **NSA,NSB**
Subject Title: **Software Portability and Optimization**
Professor: **Chris Tyler** Office: **(Online)**
E-mail: **chris.tyler@senecacollege.ca** Ext. **22103**
Office Hours: See https://wiki.cdot.senecacollege.ca/wiki/User:Chris_Tyler

Approved by: *Kathy Dumanski*

Kathy Dumanski, Chair, School of Software Design and Data Science

Please read this addendum to the general course outline carefully. It is your guide to the course requirements and activities.

Please refer to the course outline for learning outcomes, course description and text and materials.

Please also visit sdds.senecacollege.ca for key information on courses, graduation requirements, transfer credit, and more from the School of Software Design and Data Science.

Assessment Summary

- Project Deliverables – 60%
  - Stage 1 – 15%
  - Stage 2 – 20%
  - Stage 3 – 25%
- Communication – 20%
  - Blogging – 4 marking periods (roughly monthly) x 5% each
- Labs and Quizzes – 20%
  - Lab completion – 10% - submitted by blogging about your lab results (with links)
  - Quizzes – 10% - There will be a minimum of five and a maximum of ten quizzes, one page (or online equivalent) each, marked out of 10 points. There is no opportunity to rewrite missed quizzes, but the lowest three quiz scores will not be counted.

Course Policies

- Each student is expected to sign the Open Source Professional Option Student Agreement.
- The Seneca Academic Policy applies in full to this course. With respect to Section 9, Academic Honesty, it is expected that code will be reused and extended within the open source context -- however, all licenses must be respected, and you must not claim authorship of work which is not your own.
- Project and lab work is submitted by blogging. Please blog frequently (at least 1-2 times per week), following the Blog Guidelines. Ensure that your blog is included in the SPO600 Participants table and Telescope.
- Release dates (Project stages) are firm. Please ensure that you release what is required on the release date / project stage due date. If your work is not complete, please release what you have completed by that date (i.e., DO NOT release late -- release incomplete instead).
- If you will be absent for a class, please make arrangements to cover the material (e.g., for in-person classes, arrange to have another student make notes).
- If you will be absent for an extended period (multiple classes) due to illness or other causes, please contact your professor.
- Quizzes may not be announced in advance. If you miss a quiz, no make-up will be given. However, the three lowest quiz scores will be dropped, so you can miss some without impacting your mark. For students with accommodations, an alternate monthly test can be made available through the Test Centre.

Academic Policies:

http://www.senecacollege.ca/about/policies/academics-and-student-services.html

PLEASE RETAIN THIS DOCUMENT FOR FUTURE EDUCATIONAL AND/OR EMPLOYMENT USE.

TENTATIVE WEEKLY SCHEDULE
Fall 2021

Week	Topic or Skill	Reading	Assessment	Weight (See note below regarding quizzes)
Week 1 September 7-10	Introduction to the Course / Introduction to the Challenge of Portability and Optimization / How is code accepted into an open source project? (No Monday class due to Labour Day)	*See links on course web site*	Set up course accounts and tools Lab 1	Lab 1: 1%
Week 2 September 13-17	Binary Representation of Data / Computer architecture basics / Introduction to Assembly Language	*See links on course web site*	Lab 2 – 6502 Assembly Basics	Lab 2: 1% +Quizzes
Week 3 September 20-24	Assembly language registers and math	*See links on course web site*	Lab 3 – 6502 Math	Lab 3: 1% +Quizzes
Week 4 September 27th – October 1	Addressing modes	*See links on course web site*	Lab 4 - 6502 Strings September blog posts	September Comm: 5% +Quizzes
Week 5 October 4-8	System routines / Building Code / Strings	*See links on course web site*	Lab 4 (Con't)	Lab 4: 1% +Quizzes
Week 6 October 12-15	x86_64 and AArch64 assembly language (No Monday class due to Thanksgiving)	*See links on course web site*	Lab 5	Lab 5: 1% +Quizzes
Week 7 October 18-22	X86_64 and AArch64 assembly language (Con't) / Compiler Optimizations / Project selection	*See links on course web site*	Lab 6	Lab 6: 1% +Quizzes

Study Week				
Week 8 November 1-5	Profiling	*See links on course web site*	October blog posts Project stage 1	October Comm: 5% Project stage 1: 15% + Quizzes
Week 9 November 8-12	Algorithm Selection	*See links on course web site*	Lab 7	Lab 7: 1% + Quizzes
Week 10 November 15-19	SIMD and Vectorization	*See links on course web site*	Lab 8 Project blogging	Lab 8: 1% + Quizzes
Week 11 November 22-26	Intrinsics and Inline Assembler	*See links on course web site*	Project blogging	Project stage 2: 20% + Quizzes
Week 12 November 29- December 3	Project discussion	*See links on course web site*	Lab 9 Project blogging	Lab 9: 1% November comm: 5% +Quizzes
Week 13 December 6-10	Project discussion	*See links on course web site*	Lab 10 Project blogging	Lab 10: 1% +Quizzes
Week 14 December 13-15	Future Directions in Architecture / Course Wrap-up Discussions	*See links on course web site*	Project blogging	Project stage 3: 25% December comm: 5%

Notes:

- Quizzes may be held at the start of any synchronous (in-person or synchronous on-line) class. They are one page in length (or equivalent online) and 20 minutes are allowed for completion.
- This course schedule is tentative and is subject to change. The current version of the course schedule is available at https://wiki.cdot.senecacollege.ca/wiki/Fall_2021_SPO600_Weekly_Schedule

PLEASE RETAIN THIS DOCUMENT FOR FUTURE EDUCATIONAL AND/OR EMPLOYMENT USE.