ECE 4122 Unsupervised Laboratory Syllabus

Advanced Programming Techniques for Engineering Applications ECE 4122, Section AL, 0 Credits

Fall 2026

Instructor Information

Instructor: Jeffery Hurley

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General Course Information

Description

Laboratory is unsupervised and must be taken at the same time as the course and counts towards 10% of your grade in the course. The laboratory reinforces the concepts covered in class of a number of programming techniques for distributed and parallel computing and other advanced methods, such as multiprecision arithmetic and nonblocking I/O. Credit not awarded for ECE 4122 and ECE 6122.

Course Learning Outcomes

Develop multi-threaded C++ applications using standard threading models

Develop 3D enabled C++ applications using OpenGL

Develop distributed C++ applications on (high performance computing) HPC systems

Develop C++ applications using shortest path algorithms and optimization techniques

Develop distributed C++ applications using TCP and UDP sockets for communication

Develop GPU enabled C++ applications

Required Course Materials

There is not a required textbook. We will be using free online textbooks through GaTech library and other online resources

Grading Policy:

Online Concept Quizzes 100%

A>90; B>80; C>70; D>60

Assignments

- Quiz 1, 20%
- Quiz 2, 20%
- Quiz 3, 10%
- Quiz 4, 10%
- Quiz 5, 10%
- Quiz 6, 10%
- Quiz 7, 10%

Description of Graded Components

There is a quiz for each of the major topics covered.

Course Policies

Attendance and/or Participation

This is an unsupervised laboratory, therefore attendance/participation will not be considered towards the laboratory grade.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

This laboratory does not count towards a Core IMPACTS area course.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Pre- &/or Co-Requisites

ECE 2035 [min C] or ECE 2036 [min c] Prerequisite.

Collaboration, Group Work, and Use of Generative AI

All quizzes must be completed without any outside assistance.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Quizzes must be completed by the due dates. Quiz extensions are given for illness, approved Institute activities or religious observances.