KENNESAW STATE UNIVERSITY
COLLEGE OF COMPUTING AND
SOFTWARE ENGINEERING
Department of Computer Science

Fall 2025 CS 5020W Computer Organization and Architecture Dr. Clincy

SYLLABUS

FACULTY AND COURSE INFORMATION

Prerequisites:	Program Admissions
Textbook and Resources:	Linda Null and Julia Lobur, The Essentials of Computer Organization and Architecture; and Handouts (5th or 6th Editions)
Professor:	Dr. Clincy
Office:	Atrium Building – Office J-3041
Email Address:	vclincy at kennesaw.edu
Phone:	470-578-4440
Office Hours:	**F2F Office Hours:** M 530pm-630pm *(except for virtual office hours on 9/15, 10/13 and 11/10)* **Virtual Office Hours:** W 530pm-630pm
Course Time & Location:	MW 940pm-1055pm
Website Address:	http:/ /ksuweb.kennesaw.edu/ ~vclincy/ D2L (course lectures, lab assignments and exams)
Dissemination:	Online – both synchronous and asynchronous

COURSE DESCRIPTION, CREDIT HOURS, AND PREREQUISITES

CS 5020: Computer Organization and Architecture
3 Class Hours 0 Laboratory Hours 3 Credit Hours
This course covers the following topics: Number Systems, Two-level combinational logic, Multilevel combinational logic, Sequential logic design, Finite state machine design, Arithmetic circuits, Assembly and machine languages with a focus on concepts, and the principles of computer organization. The objective of this course is to learn the Concepts of Digital Systems, Combinational Circuits, Sequential Circuits, and Computer Architecture.

COURSE LEARNING OUTCOMES

As a result of completing this course, students will be able to:

1. Manipulate number systems and codes as well as performing the conversions among different number systems
2. Demonstrate familiarity with Boolean algebra
3. Explain design concepts and analysis methods of digital systems
4. Demonstrate the design and analysis of a variety of combinational and sequential circuits
5. Demonstrate familiarity with assembly programming logic and hardware association.

COURSE CONTENT AND REQUIREMENTS/GRADING SCALE

WEEK	MON	WED	COURSE ACTIVITY
1	18-Aug	20-Aug	Introduction/Lecture 1 (Ch 1 History), Lecture 2 (Ch 2)
2	25-Aug	27-Aug	Lecture 3 (Ch 2), Lecture 4 (Ch 2)
3	**1-Sep**	3-Sep	**HOLIDAY**, Lecture 5 (Ch2)
4	8-Sep	10-Sep	Lecture 6 (Ch 2), Lecture 7 (Ch 2)
5	**15-Sep**	17-Sep	**EXAM1 (Ch 2),** Lecture 8 (Ch 3)
6	22-Sep	24-Sep	Lecture 9 (Ch 2), Lecture 10 (Ch 3)
7	29-Sep	1-Oct	Lecture 11 (Ch 3), Lecture 12 (Ch 3)
8	6-Oct	8-Oct	Lecture 13 (Ch 3), Lecture 14 (Ch 3)
9	**13-Oct**	15-Oct	**Exam 2 (Ch 3),** Lecture 15 (Ch 4)
10	**20-Oct**	22-Oct	**Exam 3 (Ch 3),** Lecture 16 (Ch 4)
11	27-Oct	29-Oct	Final Project Rollout, Lecture 17 (Ch 4)
12	3-Nov	5-Nov	Lecture 18 (Marie), Assembly Project Rollout
13	10-Nov	12-Nov	Lecture 19 (Ch 4), Lecture 20 (Ch 5)
14	17-Nov	19-Nov	Final Project Workday, Final Project Due
15	**24-Nov**	**26-Nov**	**BREAK, BREAK**
16	1-Dec	**3-Dec**	Circuit Test, **Exam 4 (Ch 4/5)**

Disclaimer: This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected..

LECT	TOPIC(S)	LECT	TOPIC(S)
1	Introduction, Overview, History	11	Various canned circuits
2	Number systems	12	Kmaps
3	Signed binary numbers	13	Clocks, Flip Flops
4	Binary multiplication, Booth's Algorithm, character codes	14	Sequential circuits
5	Error detection and correction	15	Basic structure of computers, Memory organization
6	Error control continued	16	CPU structure and registers
7	Floating point	17	Instruction Set Architecture, RTN/RTL
8	Intro to Boolean algebra and identities	18	Assembly Programming
9	Logic gates, Combinatorial circuits	19	Assemblers, Decoding
10	Consensus theorem, POS, SOP	20	Instruction formats in general, infix, postfix

Grading Assessment and Evaluation

Assessment:		Grade Evaluation:	
Exam 1 *(Ch2) - closed*	22%	**A**	90% - 100%
Exam 2 *(Ch 3) – closed*	20%	**B**	80% - 89%
Exam 3 *(Ch 3) - open*	20%	**C**	70% - 79%
Exam 4 *(Ch 4, 5) - open*	22%	**D**	60% - 69%
Final Project	8%	**F**	59% or below
Various Assignments/Labs	8%		*Possible Extra Credit*

Exam statistics and results will be posted within a week of the exam date. The grading approach will be fully explained in the course introduction on day one.

Course Policies:

Attendance [viewing] of all lectures is highly encouraged. Concepts and ideas discussed in one class [lecture] are used as building blocks for more concepts and ideas in the next class [lecture]. In being successful in this subject matter, a good rule-of-thumb is to study at least 3 hours per one hour of lecture. Any class session missed by the student is the student's responsibility to make up, not the Professor's. Makeup exams will NOT be given; instead, the last exam will count in place of one missed exam. If the last exam is missed, instead of a zero for the missed exam, 70% of the average of the first three exams will be used as the exam grade for the last exam. Students must have access to a cam for online exams for the lockdown browser. Project assignments MUST be turned in on time to receive full credit. Late project assignments (or labs) will be graded severely – for each hour the assignment is late, the assignment's grade will be reduced by 5%. Students will not be allowed to makeup missed project (lab) assignments. Students are expected to read the text and any other supporting documentation the Professor distributes. If the student requires additional materials to read or additional problems to solve in better understanding the topics and concepts, the Professor expects the student to take the initiative in locating additional materials or problems. The Professor expects students to take advantage of office hours when needing clarification or help. The Professor greatly supports students sending emails at any time – it will be the goal of the Professor to reply to emails within a 24-hour time span given the 24-hour window doesn't spans into the weekend. Only use the KSU email system and not the D2L email system if you want a reply – Professor can't readily reply using the D2L email system. Only use the KSU email system and not the D2L email system if you want a reply – Professor can't reply using the D2L email system. If you are taking an online version of this course, there will be additional general policies and expectations covered specific to online courses. Be sure to familiarize yourself with those additional policies and expectations. Also, in general, there could be additional or special course policies and expectations mentioned in the course introduction. For online exams, there will not be in-class reviews, students are more than welcomed to stop by the office during office hours in seeing and reviewing their exams. Refer to D2L daily in determining assignments' releases and due dates – all assignments are course-flow based and not time-based.

AI USE PROHIBITED

You are expected to generate your own work in this class. When you submit any kind of work, you are asserting that you have created it completely on your own unless you indicate otherwise using quotation marks and proper citation for the source(s) you used to help you. Submitting content that has been generated by someone other than you, or that was created or assisted by an AI generative tool is cheating and constitutes a violation of the KSU Code of Academic Integrity.

INSTUCTIONAL CONTINUITY PLAN

Kennesaw State University (KSU) may decide to close campuses, operate on a delayed schedule, or transition to remote instruction for inclement weather or in case of emergency.   The University will announce campus closures, delayed schedules, or remote instruction through KSU Alerts sent to your cell number on file and to your university email account. In addition, announcements will be posted on KSU's home page: www.kennesaw.edu.
Our class continuity plan includes:

1. Communication: Please check D2l Brightspace or e-mail for necessary instructions.
2. Virtual Classes: If in-person classes are not possible, we may transition to D2L recorded lectures
3. Assignments and Assessments: Deadlines for assignments and assessments may be adjusted to accommodate the emergency situation.

We understand that emergencies create unique challenges. If you need additional support during an emergency, reach out via Brightspace or e-mail. The university also offers resources such as counseling and academic support, which can be accessed remotely.

COURSE WITHDRAWAL

The last day to withdrawal without academic penalty is **October 31, 2025**. Ceasing to attend class or oral notice thereof DOES NOT constitute official withdrawal and will result in the rendering of a grade of "F" for the class. Students wishing to withdrawal must obtain and complete a withdrawal form from the Academic Services Department in the Registrar's Office.

GRADE APPEALS AND STUDENT COMPLAINTS

A student's rights to grade appeals are defined in the University catalogs. The Professor must specify the grading policy in the syllabus at the beginning of the course. The Professor may change the grading policy for cause after that time but must do so uniformly with ample notification to students.

Students can find more details regarding the appeal process here:
http://catalog.kennesaw.edu/

ACADEMIC INTEGRITY

Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section 5c of the Student Code of Conduct addresses the university's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.
The Student Code of Conduct is available at: https://scai.kennesaw.edu/codes.php

Additional information can be found at the following locations:
- https://cia.kennesaw.edu/instructional-resources/syllabus-policy.php
- http://www.apa.org/journals/webref.html
- http://bailiwick.lib.uiowa.edu/journalism/cite.html
- http://www.indiana.edu/~wts/wts/plagiarism.html
- http://www.virtualsalt.com/antiplag.htm

CAMPUS POLICIES
Confidentiality and Privacy Statement (FERPA):
Kennesaw State University adheres to the Family Educational Rights & Privacy Act of 1974 - FERPA. See the following link for more information:
https://ferpa.kennesaw.edu/index.php

Ethics Statement:
All students are responsible for knowing the information, policies and procedures outlined in the Kennesaw State University Codes of Conduct. The KSU Codes of Conduct include: the general Student Code of Conduct, the Residential Code of Conduct, and the Code of Academic Integrity. Kennesaw State University reserves the right to make changes to this code as necessary and once those changes are posted online, they are in effect. Students are encouraged to check online for the updated versions of all policies.
http://scai.kennesaw.edu/codes.php

Sexual Misconduct Policy:
Kennesaw State University is committed to providing programs, activities, and educational environment free from all forms of sex discrimination. For more information click here. KSU issues this statement of policy to inform the community of the University's comprehensive plan addressing sexual misconduct, educational programs, and procedures that address sexual assault, domestic violence, dating violence, and stalking, whether the incident occurs on or off campus. This policy generally covers faculty, students, and staff of the University, as well as third-parties. Third parties include but are not limited to guests, vendors, contractors, retirees, and alumni.
Further information associated with this university policy can be found under sexual misconduct on the Policy Portal website located at: https://policy.kennesaw.edu/
http://scai.kennesaw.edu/procedures/sexual-misconduct.php

Course Accessibility Statement (ADA Statement):

Kennesaw State University provides program accessibility and reasonable accommodations for persons defined as disabled under Section 504 of the Rehabilitation Act of 1973 or the Americans with Disabilities Act of 1990 as amended. Students who require accommodation in facilities, services, programs or activities should contact the Assistant Director for Disabled Student Services to arrange an individual assistance plan. Should a student require assistance or have further questions about the ADA, please contact either the ADA Compliance Officer for Students at 770-423-6443; the ADA Compliance Officer for Facilities at 470-578-6224; or the Director of Human Resources, ADA Compliance Officer for staff and faculty at 470-578-2666. For more information, go to: http://sds.kennesaw.edu/

ADDITIONAL STUDENT RESOURCES

For CCSE Student resources:
http://ccse.kennesaw.edu/student-resources.php

KSU Service Desk:
The KSU Service Desk is your portal to getting assistance or access to University IT Services. Students call: 470-578-3555 or email studenthelpdesk@kennesaw.edu

For Academic Advising information and to schedule appointments:
http://ccse.kennesaw.edu/advising/index.php

Links to frequently used and helpful services:
http://www.kennesaw.edu/myksu/

Department of Career Planning & Development
https://careers.kennesaw.edu

Counseling and Psychological Services
https://counseling.kennesaw.edu

Center for Health Promotion and Wellness
https://wellness.kennesaw.edu

Student Health Services
https://studenthealth.kennesaw.edu