

# Course Syllabus

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## Course Information

Course Name: Introduction to Computer Architecture II

Course Number: CS270

Prerequisites: A grade of C or better in [CS 150 \(https://catalog.odu.edu/search/?P=CS%20150\)](https://catalog.odu.edu/search/?P=CS%20150) and [CS 170 \(https://catalog.odu.edu/search/?P=CS%20170\)](https://catalog.odu.edu/search/?P=CS%20170)

## Instructor Information

Instructor: Susan Zehra

Instructor Email: [szehra@odu.edu \(mailto:szehra@odu.edu\)](mailto:szehra@odu.edu)

Instructor Office Hours: Via Zoom - 12:30pm to 2:30pm, Wednesdays, or by appointment

Office Hours Zoom Link: <https://odu.zoom.us/j/91696336483?pwd=dE8wa2JRNSt0WS9UbzhISUFZSk9vQT09>  [. \(https://odu.zoom.us/j/91696336483?pwd=dE8wa2JRNSt0WS9UbzhISUFZSk9vQT09\)](https://odu.zoom.us/j/91696336483?pwd=dE8wa2JRNSt0WS9UbzhISUFZSk9vQT09)

## Course Type

This is an asynchronous course offered online through Canvas. This course does not have any required lecture times.

## Course Readings

### Required Textbook

- Computer Organization & Design, 5th edition, 2013
- David A. Patterson and John L. Hennessy.
- ISBN
  - Textbook: 9780124077263
  - Digital: 9780124078864

### Other Requirements

As this is an (asynchronous) online course, therefore you must have access to a computer with high-speed internet. If you are an on-campus student, you may use the university computer labs or Computer Science computer labs. Otherwise, you must provide your own computer and internet access.

# Course Description

## From the ODU Catalog

Fundamentals of the architecture and operation of modern computers. Topics to be covered include:

- Building an ALU
- The Cache-Ram Interaction
- The Virtual Memory System
- The Fetch/Execute Cycle
- Implementing a Set of the ALU
- Load/Store and Branch Instructions in a Single Cycle Implementation
- Basics of microprogramming
- Design of the Control Unit
- A pipelined implementation
- Multicores, Multiprocessors and Clusters

In this **asynchronous online class**, you will study the architectural and operational basics of modern computers. The course is designed to give students a good understanding of design and operation of an ALU (Arithmetic/Logic Unit), and implementation and control of single and multicycle processors. Further, the course covers processor pipelining, technology and operation of the memory hierarchy, virtual memory, and the importance of performance.

## Goals and Objectives

After completing this course, students should have a strong foundation in the principles of the computer architecture, building a Datapath, an overview of pipelining, exploiting memory hierarchy, and virtual memory and parallel processors.

## How the Course Works

### Methods of Delivery/Learning Activities

This online course employs several methods of delivery and learning activities including online videos and screencasts, discussions, readings, homework assignments, quizzes, exams, etc.

The course material is divided into modules. All the modules will be available on Canvas.

Almost every week there will be a Quiz.

Homework Assignments will be announced through out the semester.

### Discussion Board Policy

Almost every week there will be a discussion question related to the material covered that week. Each student will be required to participate in all the discussion questions during the semester.

## Grading Criteria

Your grade in this class will be based on the following:

Criteria	Percentage
Homework Assignments	25%
Quizzes	15%
Discussion	5%
Course Project	5%
Mid-term Exam	25%
Final Exam	25%
<b>Total</b>	<b>100%</b>

## Grading Scale

The grading scale is as follows (+ and - modifiers will be applied as appropriate):

Letter Grade	Range
A	93 – 100
A-	87 – 92
B+	84 – 86
B	80 – 83
B-	77 – 79
C+	74 – 76
C	70 – 73
C-	67 – 69
D+	64 – 66
D	60 – 63
D-	57 – 59
F	0 – 56

## Late Submissions

Any submission after its deadline is considered late. The following penalties for late submissions apply:

- 0-24 hours late: -20%
- 25-48 hours late: -40%
- **After 48 hours: not accepted**

This time limit includes weekends--they are counted just like weekdays.

I reserve the right to specify that late submissions will not be accepted for specific submissions.

## Student Responsibilities

### Time Management

Students are expected to spend 10 hours per week on the course materials and assignments. Out of 10 hours, students are expected to spend approximately 5 hours/week to read the material, approximately another 4 hours/week for the homework assignment and quiz. another 1 hour/week for discussions.

### Attendance

Since this is an on-line course, there is no mandatory attendance policy. However, students are expected to actively participate in the discussions, homework submissions, and quizzes. Each of these components is graded and counted toward the final grade.

## Course Policies

### Academic Integrity

You are responsible for understanding the policies and procedures in the undergraduate catalog that pertain to academic integrity. Violations of the academic honesty code will be dealt with in the strictest terms. Students are advised to become familiar with the university's academic honesty code (also posted on Blackboard). It is the student's responsibility to ensure that both the letter and intent of this code are met in all circumstances. Ignorance of this code, or of proper rules of citation, provides no defense. The instructor's policy concerning enforcement of this code is inflexible; no exceptions will be made. Cheating or plagiarizing an assignment will result in an automatic "F" for the course and a referral to university authorities.

### Course Disclaimer

Every attempt is made to provide a complete syllabus that provides an accurate overview of the courses. However, circumstances and events may make it necessary for me to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the students who registered for the course.

## University Policies

### Class Conduct

The following standards are intended to define acceptable behavior that preserves academic integrity and ensures that students have optimum environmental conditions for effective learning.

1. Students should notify instructors in advance when falling behind. In the event of an emergency that might affect the progress in the course, instructors must be notified as soon as possible.

2. Students will activate their Old Dominion email accounts and check them before each class. If the student chooses to have his/her messages forwarded to another account, it is the student's responsibility to take the necessary steps to have them forwarded.
3. Offensive language, gestures and the like are disrespectful and disruptive to the teaching-learning process.

## Academic Integrity

Old Dominion University is committed to students' personal and academic success. In order to achieve this vision, students, faculty, and staff work together to create an environment that provides the best opportunity for academic inquiry and learning. All students must be honest and forthright in their academic studies. Your work in this course and classroom behavior must align with the expectations outlined in the Code of Student Conduct, which can be found at [www.odu.edu/oscai](http://www.odu.edu/oscai) (<https://www.odu.edu/oscai>). The following behaviors along with classroom disruptions violate this policy, corrupt the educational process, and will not be tolerated.

- **Cheating:** Using unauthorized assistance, materials, study aids, or other information in any academic exercise.
- **Plagiarism:** Using someone else's language, ideas, or other original material without acknowledging its source in any academic exercise.
- **Fabrication:** Inventing, altering or falsifying any data, citation or information in any academic exercise.
- **Facilitation:** Helping another student commit, or attempt to commit, any Academic Integrity violation, or failure to report suspected Academic Integrity violations to a faculty member.

**Important Note on the Use of AI Tools:** Please note that the use of AI tools such as ChatGPT is strictly prohibited in this course. Any use of such tools will be considered a violation of the university honor code and will result in disciplinary action. Students must use their own knowledge and skills to complete any homework, assignments, quizzes, Course project, discussion posts, etc.

Academic dishonesty will be reported to the Office of Student Conduct & Academic Integrity and may result in sanctions up to and including expulsion from the University.

## Plagiarism

No plagiarism will be tolerated under any circumstances. As faculty, I am bound to report any instances of plagiarism. All cases are heard before the honor council. If found guilty, the student automatically receives a failing grade in the course, and a notice is entered into the permanent record for a period of time.

## College Class Conduct

The following standards are intended to define acceptable classroom behavior that preserves academic integrity and ensures that students have optimum environmental conditions for effective learning.

1. Students must turn off cell phones and pagers during class or have them set to vibrate mode.
2. Classes are expected to begin on time, and students will respect the time boundaries established by the professor. If classroom doors are locked, students may not knock or seek entrance in other ways.
3. Students should notify instructors in advance when a class will be missed. In the event of an emergency that causes a class to be missed, instructors must be notified as soon as possible.
4. Instructors may require that cell phones and other electronic devices be left on their desks during tests or examinations.
5. Students must not engage in extraneous conversations during classes. Such acts are considered to be violations of the Code of Student Conduct.
6. Students will activate their Old Dominion e-mail accounts and check them before each class. If the student chooses to have his/her messages forwarded to another account, it is the student's responsibility to take the necessary steps to have them forwarded.
7. Consumption of food and drink during class is prohibited, except when the professor has specifically approved of such acts.
8. Offensive language, gestures and the like are disrespectful and disruptive to the teaching-learning process.

## **Honor Code**

The Old Dominion University Honor Code will be strictly enforced. By attending Old Dominion University, you have signed a pledge accepting the responsibility to abide by the following Honor Code found at [Office of Student Conduct and Academic Integrity \(http://www.odu.edu/oscai\)](http://www.odu.edu/oscai).

*We, the students of Old Dominion University, aspire to be honest and forthright in our academic endeavors. Therefore, we will practice honesty and integrity and be guided by the tenets of the Monarch Creed. We will meet the challenge to be beyond reproach in our actions and our words. We will conduct ourselves in a manner that commands the dignity and respect that we also give to others. ODU Honor Code*

This is an institutional policy approved by the Board of Visitors. The University Honor Code applies to all assignments.

## **Honor Pledge**

*I pledge to support the honor system of Old Dominion University. I will refrain from any form of academic dishonesty or deception, such as cheating or plagiarism. I am aware that as a member of the academic community, it is my responsibility to turn in all suspected violators of the honor system. I will report to Honor Council hearings if summoned. ODU Honor Pledge*

By attending Old Dominion University you have accepted the responsibility to abide by this code. This is an institutional policy approved by the Board of Visitors. For more information, please visit [Policies and Student Responsibilities \(https://online.odu.edu/admissions/policies-and-student-responsibilities\)](https://online.odu.edu/admissions/policies-and-student-responsibilities).

## **Educational Accessibility**

In compliance with PL94-142 and more recent federal legislation affirming the rights of disabled individuals, provisions will be made for students with special needs on an individual basis. The student must be identified by the university and provide a letter from the Office of Educational Accessibility (OEA), located at 1021 Student Success Center. Any accommodations will be based upon written guidelines from the Office of Educational Accessibility (OEA). All students are expected to fulfill all course requirements.

Old Dominion University is committed to ensuring equal access to all qualified students with disabilities in accordance with the Americans with Disabilities Act. The Office of Educational Accessibility (OEA) is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you experience a disability which will impact your ability to access any aspect of my class, please present me with an accommodation letter from OEA so that we can work together to ensure that appropriate accommodations are available to you.
- If you feel that you will experience barriers to your ability to learn and/or testing in my class but do not have an accommodation letter, please consider scheduling an appointment with OEA to determine if academic accommodations are necessary.

The Office of Educational Accessibility is located at 1021 Student Success Center and their phone number is [\(757\)683-4655 \(tel:+17576834655\)](tel:(757)683-4655). Additional information is available at the [OEA Website](http://www.odu.edu/educationalaccessibility/) (<http://www.odu.edu/educationalaccessibility/>).

## **University Email & Electronic Messaging Systems Policies**

Electronic messaging systems and communication services are provided by Old Dominion University for the purpose of enhancing productivity and maintaining effective communication.

Old Dominion University employees, students, employees of affiliated organizations, and guests, volunteers, and researchers who are provided official email accounts must activate and maintain regular access to these accounts. These accounts must be used to send and receive electronic communications related to official University business.

Failure to access the email account will not exempt individuals from their responsibility of being aware of and meeting requirements and responsibilities included in electronic communications.

Message content is the sole responsibility of the individual sending the message and users must adhere to [University Policy 3500, Use of Computing Resources](https://www.odu.edu/about/policiesandprocedures/university/3000/3500) (<https://www.odu.edu/about/policiesandprocedures/university/3000/3500>), and [Information Technology Standard 09.1.0, Acceptable Use Standard](http://www.odu.edu/about/policiesandprocedures/computing/standards/09/01) (<http://www.odu.edu/about/policiesandprocedures/computing/standards/09/01>). Users are also encouraged to practice generally accepted online etiquette.

Instructors retain the discretion of establishing class expectations for email and other electronic messaging communication as a part of the course requirements.

Alternative messaging services should be arranged in cases where users' access to information technology resources is limited or unavailable.

## Incomplete

Documented illnesses, deaths in family, car accidents, or other traumatic occurrences call for flexibility and good judgment on the part of the student and instructor. These situations are rare and are handled individually. Should such a situation occur, students **MUST** contact **Student Outreach & Support** (<https://www.odu.edu/life/support/student-outreach>). Email [oducares@odu.edu](mailto:oducares@odu.edu) (<mailto:oducares@odu.edu>) or by phone [757-683-3442 \(tel:+17576833442\)](tel:+17576833442) to acquire the necessary documentation. An incomplete grade will only be given under the following circumstances

1. The student has completed ½ or more of the course requirements with a C or better
2. There is legitimate deficiency due to the illness or emergencies deemed acceptable to the instructor
3. There is not neglect on the student's part.

## Withdrawal

A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes. For more information, please visit the Office of the Registrar.

## Student Acknowledgement

"I, \_\_\_\_\_, have completely read this syllabus and understand and agree to the course requirements".

## Notes about the Course Summary given below:

- There is no Quiz 8 in this course.
- There is no Discussion 8 in this course.

## Course Summary:

Date	Details	Due
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Date	Details	Due
Sun Jan 25, 2026	 <a href="#">Module 1 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025718">https://canvas.odu.edu/courses/201514/assignments/3025718</a> ) due by 11:59pm 	
	 <a href="#">Module 1 - Discussion (Personal Introduction)</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025731">https://canvas.odu.edu/courses/201514/assignments/3025731</a> ) due by 11:59pm 	
Sun Feb 1, 2026	 <a href="#">Homework-1 (module 1 and 2)</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025742">https://canvas.odu.edu/courses/201514/assignments/3025742</a> ) due by 11:59pm 	
	 <a href="#">Module 2 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025730">https://canvas.odu.edu/courses/201514/assignments/3025730</a> ) due by 11:59pm 	
	 <a href="#">Module 2 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025711">https://canvas.odu.edu/courses/201514/assignments/3025711</a> ) due by 11:59pm 	
Sun Feb 8, 2026	 <a href="#">Module 3 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025729">https://canvas.odu.edu/courses/201514/assignments/3025729</a> ) due by 11:59pm 	
	 <a href="#">Module 3 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025717">https://canvas.odu.edu/courses/201514/assignments/3025717</a> ) due by 11:59pm 	
Sun Feb 15, 2026	 <a href="#">Module 4 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025728">https://canvas.odu.edu/courses/201514/assignments/3025728</a> ) due by 11:59pm 	
	 <a href="#">Module 4 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025709">https://canvas.odu.edu/courses/201514/assignments/3025709</a> ) due by 11:59pm 	
Sun Feb 22, 2026	 <a href="#">Homework-2 (module 3 - 5)</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025743">https://canvas.odu.edu/courses/201514/assignments/3025743</a> )	due by 11:59pm

Date	Details	Due
Sun Mar 1, 2026	 <hr/>  <a href="#">Module 5 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025727">https://canvas.odu.edu/courses/201514/assignments/3025727</a> ) due by 11:59pm  <hr/>  <a href="#">Module 5 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025715">https://canvas.odu.edu/courses/201514/assignments/3025715</a> ) due by 11:59pm 	
Sun Mar 1, 2026	 <a href="#">Module 6 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025726">https://canvas.odu.edu/courses/201514/assignments/3025726</a> ) due by 11:59pm  <hr/>  <a href="#">Module 6 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025710">https://canvas.odu.edu/courses/201514/assignments/3025710</a> ) due by 11:59pm 	
Sun Mar 1, 2026	 <a href="#">Homework 3 (module 5, 6 and 7)</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025739">https://canvas.odu.edu/courses/201514/assignments/3025739</a> ) due by 11:59pm 	
Sun Mar 8, 2026	 <a href="#">Module 7 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025725">https://canvas.odu.edu/courses/201514/assignments/3025725</a> ) due by 11:59pm  <hr/>  <a href="#">Module 7 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025716">https://canvas.odu.edu/courses/201514/assignments/3025716</a> ) due by 11:59pm 	
Thu Mar 12, 2026	 <a href="#">Midterm Exam</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025705">https://canvas.odu.edu/courses/201514/assignments/3025705</a> ) due by 11:59pm 	
Sun Mar 29, 2026	 <a href="#">Module 9 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025724">https://canvas.odu.edu/courses/201514/assignments/3025724</a> ) due by 11:59pm 	

Date	Details	Due
Sun Apr 5, 2026	 <a href="#">Module 9 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025719">https://canvas.odu.edu/courses/201514/assignments/3025719</a> ) 	due by 11:59pm
Sun Apr 5, 2026	 <a href="#">Module 10 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025723">https://canvas.odu.edu/courses/201514/assignments/3025723</a> ) 	due by 11:59pm
Sun Apr 5, 2026	 <a href="#">Module 10 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025707">https://canvas.odu.edu/courses/201514/assignments/3025707</a> ) 	due by 11:59pm
Sun Apr 12, 2026	 <a href="#">Homework 4 (module 10 and 11)</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025740">https://canvas.odu.edu/courses/201514/assignments/3025740</a> ) 	due by 11:59pm
Sun Apr 12, 2026	 <a href="#">Module 11 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025722">https://canvas.odu.edu/courses/201514/assignments/3025722</a> ) 	due by 11:59pm
Sun Apr 12, 2026	 <a href="#">Module 11 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025712">https://canvas.odu.edu/courses/201514/assignments/3025712</a> ) 	due by 11:59pm
Sun Apr 19, 2026	 <a href="#">Homework 5 (module 12)</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025741">https://canvas.odu.edu/courses/201514/assignments/3025741</a> ) 	due by 11:59pm
Sun Apr 19, 2026	 <a href="#">Module 12 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025721">https://canvas.odu.edu/courses/201514/assignments/3025721</a> ) 	due by 11:59pm
Sun Apr 19, 2026	 <a href="#">Module 12 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025708">https://canvas.odu.edu/courses/201514/assignments/3025708</a> ) 	due by 11:59pm
Sun Apr 26, 2026	 <a href="#">Course Project</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025736">https://canvas.odu.edu/courses/201514/assignments/3025736</a> )	due by 11:59pm

Date	Details	Due
	 <hr/>  <a href="#">Module 13 - Discussion</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025720">https://canvas.odu.edu/courses/201514/assignments/3025720</a> ) due by 11:59pm  <hr/>	
	 <a href="#">Module 13 - Quiz</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025706">https://canvas.odu.edu/courses/201514/assignments/3025706</a> ) due by 11:59pm  <hr/>	
Mon May 4, 2026	 <a href="#">Extra Credit - Student Opinion Survey - Screenshot</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025738">https://canvas.odu.edu/courses/201514/assignments/3025738</a> ) due by 11:59pm  <hr/>	
Fri May 8, 2026	 <a href="#">Final Exam</a> ( <a href="https://canvas.odu.edu/courses/201514/assignments/3025714">https://canvas.odu.edu/courses/201514/assignments/3025714</a> ) due by 11:59pm  <hr/>	