CSIT 256-99V Computer Architecture & Assembly Language CRN 33627

Summer 2025 - Syllabus v0.1

Section Info: 99V - CRN 33627

Online Section

Course Modality: Remote Synch and Classroom

Course Modality: "Online"

As an online course, there is no lecture. There are slides to look at, and the instructor has created some (lame) videos.

As an online course, you will work on the labs independently each week. If you get stuck instead of raising your hand you will send an email to the instructor or drop-in to one of the office hours which will be hosted through Zoom. (Links are in Canvas)

This Online Section uses a Learning Management System (LMS) called Canvas.

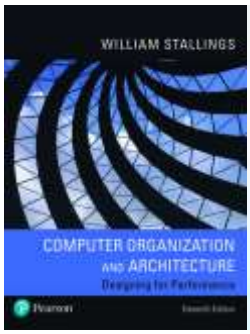
Canvas is the official source for: Syllabus, Class Schedule, Slides, Demos, Homework/Lab/Project Assignments, Exam Information.

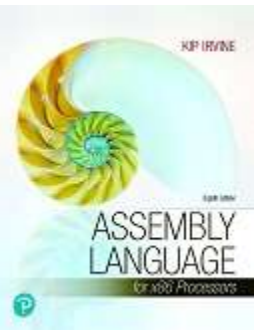
Syllabus Versions

- Version 0.1 – 6/5/2025 – First Release
- Version 0.0 - 5/18/2025 - First Draft

Book Information

There are two books for the course:





Computer Organization & Architecture, William Stallings, Pearson/Prentice Hall, 11th Edition
https://console.pearson.com/enrollment/vds2lb
Note: homework will be from the Stallings Book

Assembly Language for x86 Processors, Kip Irvine, Pearson/Prentice Hall, 8th Edition
https://console.pearson.com/enrollment/bejqp5

Note: To complete the labs in Assembly Language, the Irvine book is a needed reference
Author's Website: http://asmirvine.com/

Instructor Information:

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Work # (908) 526-1200 x8259 **preferred email:** stephen.brower@raritanval.edu

Department Information:

Math and Computer Science Department. Chair: Aditi Patel, Aditi.Patel@raritanval.edu

Summer 2025 "Student Hours" (6/9-8/15):

- *To be determined*
- and by appointment

Course Overview

(Prerequisite: CSIT 254 Data Structures & MATH 151 Calculus I or equivalent)
This course is the third in the sequence for students in Computer Science planning to transfer to a four-year college. It may also be taken as a free elective by interested students with sufficient background. This course focuses on the components of a computer that describe its architecture: storage, the central processing unit, the instruction set and addressing modes. The course also examines the way these components are interconnected and the nature of the information flow between them. Students will use Assembly language to reinforce these concepts.

Course Learning Outcomes

At the conclusion of the course, students will be able to:

1. Apply creative and critical thought in designing computing solutions that demonstrate knowledge of the computer architecture (GE-4)
2. Apply quantitative reasoning to interpret data used in solving problems (GE - 2)
3. Describe the main components of computer systems that define its architecture such as CPU, storage, memory, instruction sets, and addressing modes (GE-1,4)
4. Discuss the way the main components of computers are interconnected (GE-1,4)
5. Recognize assembly language syntax while reading and analyzing assembly language programs (GE-4)
6. Design, develop and test programs using MS Assembly Language commands while featuring various basic Assembly Language operations (data/program transfer, arithmetic instructions, indirect memory, addressing, procedures and stack operations) (GE-4)
7. Design, develop and test programs in the MS Assembly Language that include strings, arrays, macros, and conditional processing (Boolean instructions, loops)

Course Management, Structure and Pace

During a regular semester, this course meets for approximately five (5) hours a week for 14 weeks. Students should plan on putting in at least two hours of study time for every hour spent in class for lecture. Additionally, students should plan study time of another half hour for every hour spent in the lab. Students who are successful in this class typically spend approximately seven (7) hours *outside of class* each week working on the subject. This includes reviewing class notes, reading and studying the textbooks, doing homework and reviewing demo Assembly programs provided by the author and the instructor.

*Translated into a 9-week semester, 12 * 14 / 9 = ~18.7 hours a week to work on the course content*

Grade Determinants:

Item	Percent
Homework (~9) *	5%
Assembly Labs (~10) *	10%
Architecture Labs (~8) *	5%
Assembly Projects (3)	10%
Exam #1 (7/8)	15%
Exam #2 (7/29)	25%
Final Exam (8/15) **	30%

* At the end of the semester the lowest Homework grade, the lowest Assembly Lab grade, and the lowest Architecture Lab grade will be dropped

***** In order to pass the course, you will need an overall average of 60 in the course and you will need a 60 or above on the average of Exam 2 and Final Exam.***

Grade	% Range
A	89.5-100.0+
B+	86.5-89.4
B	79.5-86.4
C+	76.5-79.4
C	69.5 - 76.4
D	59.5 - 69.4
F	0 - 59.4

Software/Computer Requirements:

To use the Irvine Library that accompanies the Irvine book, “Visual Studio 2022 Community” running on a Windows computer is needed to complete the Assembly labs. The Author’s Library and sample project has to be installed; a .zip file is in Canvas that contains all of the files needed.

If you own a computer that can run the Visual Studio 2022 software, you can download the “Visual Studio 2022 Community” version which is free from Microsoft (see https://visualstudio.microsoft.com/downloads/)

The Irvine Library that is in Canvas in the “Visual Studio 2022 - Library Addendum” module, is configured to be installed on the root of the C:\ drive

If you wish to install the Irvine Library on a different driver or a different folder, you need to edit the configuration files. The author of the Assembly book, Kip Irvine, has installation/running notes on his web page: See http://kipirvine.com/asm/ and then click on "Getting Started with MASM and Visual Studio 2022".

The installation process takes time, so don't wait until the evening when an Assembly Program is due to install the software.

Which Email to use and Email Response Time

If you have a question or have an issue submitting an assignment in Canvas, the preferred (fastest) way to contact the instructor is via his preferred email**:** stephen.brower@raritanval.edu

Over the last several semesters, I found the email system embedded in Canvas frustrating, and the Canvas alerts are not always punctual.
So please email me at: stephen.brower@raritanval.edu

The goal is to respond in less than 24 hours. Please don't expect a response after 10 pm.

Occasionally there are known exceptions such as around "July 4th break" where a response may take a little longer. If the instructor knows ahead of time there will be a period of unavailability longer than 24 hours, that will be communicated to the class.

Homework

Homework will only be from the Architecture book and the page/question numbers will be posted in Canvas.

Homework must be submitted electronically via Canvas :

- Typed in assignment
- Typed and saved as a .docx or .rtf file and attached to assignment
- Only for a problem-based homework (Hw for S10/S12) you can handwrite, scan/take a pic and the image attached to assignment

Once an assignment is due it is closed in Canvas and work cannot be submitted through Canvas. Attaching files to the "comments" is not allowed and those files will be ignored.

See below for the Late Policy (don't be late) and the Cheating Policy (don't cheat)

Assembly Labs

The Assembly Labs will be posted in Canvas.

The Assembly Labs correspond to the chapters covered in the Assembly book. They are designed as "In-Class Labs" meaning the intent is that the labs can be completed in about 2 hours. Some labs have multiple parts.

The expectation is that the Assembly programs will compile, but this course doesn't have the "if it doesn't compile it's a 0" policy the way the CSIT 105 and CSIT 254 have. However, **20 minutes is the max time that will be spent trying to fix syntax errors; if there are still syntax errors it will be a 0**.

To submit the lab the *.asm file(s) must be attached to the assignment in Canvas. This way the instructor can run the assembly code.

Once an assignment is due it is closed in Canvas and work cannot be submitted through Canvas. Attaching files to the "comments" is not allowed and those files will be ignored.

See below for the Late Policy (don't be late) and the Cheating Policy (don't cheat)

Architecture Labs

The problem-based questions that would have been part of the homework, are now done as an "Architecture Lab". There are only ~8 Architecture Labs.

The Architecture Labs were designed to be distributed on paper and returned on paper.

It is possible that some of the Architecture labs may be easier for you to complete on paper and then attach a scan/pic of the paper into Canvas

See below for the Late Policy (don't be late) and the Cheating Policy (don't cheat)

Assembly Projects

The idea behind the Projects is they demonstrate your mastery of the material. Projects are more complex than labs and are expected to take longer

Unlike the Assembly Labs which can be done in 2 hours, the Assembly Projects will be a larger more complicated program which will take longer to write. Students in the past ignored this warning, waited until the night it was due to start, were unable to complete it in time, and complained that Brower is a lousy instructor.

The expectation is that the Assembly Projects will compile, however, **5 minutes is the max time that will be spent trying to fix syntax errors; if there are still syntax errors it will be a 0**.

To submit the project the *.asm file must be attached to the assignment in Canvas. This way the instructor can run the assembly code.

Once an assignment is due it is closed in Canvas and work cannot be submitted through Canvas. Attaching files to the "comments" is not allowed and those files will be ignored.

See below for the Late Policy (don't be late) and the Cheating Policy (don't cheat)

Exams

The schedule has the dates/times of the exams.

For all of the exams, about a week before the exam an "Information Sheet" with format, content, and sample questions will be loaded into Canvas and reviewed in class

In a traditional course, Exam 1 and the Final Exam is a paper-exam and is closed note / closed book / no electronic devices

In a traditional course, Exam 2 is a computer-based exam and is open note / open book / open computer.

> ***We will be using "Respondus Monitor with Lockdown Browser" for Exam 1 and "Lockdown Browser" for the Final Exam.***
>
> ***For Exam 1, a webcam will be required, and at the end of the exam you will show your scratch paper(s) to the camera for the calculations you do by hand.***
>
> ***See: https://www.respondus.com/products/lockdown-browser/student-movie.shtml***
>
> ***Note: In order to pass the course, you will need an overall average of 60 in the course and you will need a 60 or above on the average of Exam 2 and the Final Exam.***

Cheating Policy…don't cheat!

You must work alone on the Homework, Assembly Projects, and Assembly Labs. Cheating is not allowed. All parties involved in cheating will be dealt with according to the school's policy on cheating. The penalty can range from 0 on the assignment to F for the course.

For the assembly labs, asking the instructor for hints is not considered cheating.

NOTE: you have permission to use the instructor's demo .asm files, in whole or in part, for your labs and projects

Late Policy

Homework, Assembly Labs, Assembly Projects can be submitted up until 11:59 pm on the days that they are assigned. They are not accepted after the deadline.

According to the RVCC Catalog, students are not to be penalized for 1 week of absences. To accommodate this, at the end of the semester the lowest “Homework” grade, the lowest “Assembly Lab” grade, and the lowest “Architecture Lab” grade will be dropped. No Assembly Projects are dropped.

"Life Happens"

According to the RVCC Catalog, students are not to be penalized for 1 week of absences. To accommodate this, at the end of the semester the lowest “Homework” grade, the lowest “Assembly Lab” grade, and the lowest “Architecture Lab” grade will be dropped. That handles “life happens”. No Assembly Projects are dropped.

Extra Credit

Some exams/assignments contain extra credit questions/opportunities. Other than that, no extra credit opportunities will be provided.

For example, if you choose not to submit ANY homework and then in August you ask for "Extra Credit" to make up for the missed homework, the answer is NO.

Additional Policies:

Student Handbook

You are responsible for all policies stated in the Student Handbook, including Academic Integrity Policy and Code of Student Conduct.

In Canvas, there is a tab on the left “RVCC Student Resources”, it is there

Class Attendance:

See “RVCC Student Resources” for official policy, but for an online course, attendance is measured by presence which for this course will be submitting assignments.

Students will be dropped for non-attendance on 6/18

Withdrawal Procedure

See school's webpage for Summer 2025 Withdrawal and Refund Schedule and Refund Info (see: https://commons.raritanval.edu/admin/finance/Documents/Summer%202025%20Withdrawal%20and%20Refund%20ScheduleR.pdf)

(see: https://commons.raritanval.edu/admin/finance/Pages/refund_info.aspx)

Class Schedule

Please see the Class Schedule for topics. See Canvas for assignment details.

Syllabus Part 2 - College Policies and Resources

In Canvas, there is a tab on the left “RVCC Student Resources”, additional policies and information about resources are found there

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