Rowan College SOUTH JERSEY

Science, Technology, Engineering, and Mathematics (Stem) Division
1400 Tanyard Road, Sewell, NJ 08080
856-468-5000

CSC 203: ASSEMBLY LANGUAGE AND COMPUTER ORGANIZATION

Syllabus

Lecture Hours/Credits: 3/3/4

Catalog Description

Prerequisite: CSC 111 – Intermediate Programming

This course offers fundamentals of computer organization, registers, buses, processors, I/O and memory system. It also covers data representation, instruction sets, addressing models, subroutines, interrupts and traps of assembly language programming. Students will write and debug assembly language programs at the machine level.

Textbook and Course Materials

It is the responsibility of the student to confirm with the bookstore and/or their instructor the textbook, handbook, and any other materials required for their specific course and section.

Click here to see current textbook prices at rcgc.bncollege.com.

Evaluation Assessment
Online Proctoring

All courses offered at RCSJ, whether they are web-enhanced, hybrid, or fully online, may include assessments that make use of Online Proctoring. To find out more about Online Proctoring, and to learn about the minimum technical requirements, visit rcsj.edu/elearning/online-proctoring.

Grading Distribution

Grading to be determined by individual instructors.

Individual instructors may include the following assessment(s):

- Exams
- Quizzes
- Class Discussions
- Written Assignments
- Attendance and Participation

Grading

The grading scale for each course and section will be determined by the instructor and distributed the first day of class.

Rowan College of South Jersey Core Competencies

(Based on the NJCCC General Education Foundation - August 15, 2007; Revised 2011; Adopted 2014)

This comprehensive list reflects the core competencies that are essential for all RCSJ graduates; however, each program varies regarding competencies required for a specific degree. Critical thinking is embedded in all courses, while teamwork and personal skills are embedded in many courses.

1. **Written and Oral Communication**: Students will communicate effectively in both speech and writing.
2. **Quantitative Knowledge and Skills:** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems
3. **Scientific Knowledge and Reasoning:** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
4. **Technological Competency:** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals
5. **Society and Human Behavior:** Students will use social science theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens.
6. **Humanistic Perspective:** Students will analyze works in the fields of art, history, music, or theater; literature; philosophy and/or religious studies; and/or will gain competence in the use of a foreign language
7. **Historical Perspective:** Students will understand historical events and movements in World, Western, non-Western or American societies and assess their subsequent significance.
8. **Global and Cultural Awareness:** Students will understand the importance of a global perspective and culturally diverse peoples.
9. **Ethical Reasoning and Action:** Students will understand ethical issues and situations.
10. **Information Literacy:** Students will address an information need by locating, evaluating, and effectively using information.

CSC 203 CORE COMPETENCIES

This course focuses on one of RCSJ's Core Competencies:

- Technological Competency
- Information Literacy

Student Learning Outcomes: CSC 203 – INTERMEDIATE PROGRAMMING

Successful completion of CSC 203 will help students:	RCSJ Core Competencies	Evaluation / Assessment (Additional means of evaluation may be included by individual instructors
Understand the Binary Number system and hexadecimal representation.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand conversation between decimal, binary, hexadecimal number systems.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand computer architecture.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand Intel microprocessors and its registers.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand assembly language instruction set and writing source code.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand data transfer and addressing techniques.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand mathematical operations.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand branching instructions-conditional processing.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand stacks and procedures.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand shift and rotate instructions.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand strings, arrays, structures and macros.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Learn 32-bit/64-/bit windows programming and 16-bit MS-DOS programming.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand disk storage systems – file systems, disk directory, reading and writing disk sectors.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams
Understand BIOS – level programming.	Technological Competency Information Literacy	Homework, Lab Assignments, Exams

Topical Outline

Introduction to Assembly Language

     Basic Concepts – binary numbers, hexadecimal number system, translating binary to decimal, translating decimal to binary

     Two's Complement Notation, Converting Hexadecimal to Decimal and Converting Decimal to Hexadecimal Boolean Operations

     Processor Architecture – instruction execution cycle, processor architecture, memory management, components of an 1A-32 microcomputer.

     Assembly Language Fundamentals – basic elements of assembly language assembling, linking and burning programs

     Defining Data, Symbolic Constants, Data Transfers, Addressing and Arithmetic Data Transfer Instructions, Addition and Subtraction

     Data-related Operators and Directives Indirect Addressing, JMP and Loop Instruction

     Procedures – linking to an external library, stack operations, defining and using procedures

     Conditional Processing – Boolean and comparison instruction, conditional jumps, conditional

     Integer Arithmetic – shift and rotate instructions, shift and rotate applications, multiplication and division instructions, extended addition and subtraction, ASCII and Packed Decimal Arithmetic.

     Advanced Procedures Local Variables, Stack Parameters, Stack Frames

     Strings and Arrays – string primitive instructions, selected string procedures, two-dimensional arrays

     Structures and Macros – structures, macros, conditional-assembly directives

     32-bit Windows Programming – Win32 Console Programming

     High-level Language Interface Inline Assembly Code, Linking to C++ Programs

     16-bit MS-DOS Programming – MS-DOS Function Calls, MS-DOS File I/O Services

     Disk Fundamentals – disk storage systems, files systems, disk directory

                                        Revised Fall 2018

Affirmative Action Statement

The Board of Trustees is committed to providing a work and academic environment that maintains and promotes affirmative action and equal opportunity for all employees and students without discrimination on the basis of certain enumerated and protected categories. These categories are race, creed (religion), color, national origin, nationality, ancestry, age, sex (including pregnancy and sexual harassment), marital status, domestic partnership or civil union status, affectional or sexual orientation, gender identity or expression, atypical hereditary cellular or blood trait, genetic information, liability for military service, or mental or physical disability, including AIDS and HIV related illnesses.

For questions concerning discrimination, contact Almarie J. Jones, Special Assistant to the President, Diversity and Equity/Title IX and Compliance, 856-415-2154 or ajones@rcsj.edu or (Cumberland) Nathaniel Alridge, Jr., JD, Director, Diversity and Equity/Title IX and Judicial Affairs, 856-691-8600, ext. 1414 or nalridge@rcsj.edu. For disability issues or any barriers in the learning or physical environment related to a document condition/disability please contact: Gloucester campus – Dennis M. Cook, Director, Department of Special Services, ADAAA/504 Officer at 856-415-2265 or dcook@rcsj.edu; or Cumberland Campus – Meredith Vicente, Senior Director, Physical & Learning Disabilities, Center for Academic & Student Success (CASS) at 856-691-6900 ext. 1282 or mvicent1@rcsj.edu

Department of Special Services

The Department of Special Services is located in the Instructional Center, room 425A. The Special Services Department is committed to providing support services and ensuring equal access to eligible students with documented disabilities as outlined by the Americans with Disabilities Act (ADA) and the Americans with Disabilities Act with Amendments. If you are an eligible student with a documented disability please visit our website at RCSJ.edu/SpecialServices or call the office at 856-415-2265 or 856-415-2247 to speak to the Assistant Director Carol Weinhardt, cweinhar@rcsj.edu

Reporting Allegations of Sexual Assault and Resource Referrals (8/2020)
Gloucester Campus

There are multiple safe places for students to report allegations of sexual assault, both on and off campus. Reports of sexual assault can be made to any of the following offices listed in the chart below.

All students are encouraged to report alleged crimes on campus. Crimes that pose a threat to the campus community must be reported to 9-1-1, Security, the Sheriff's Office or the Deptford Township Police Department. All employees, including Security staff, must report incidents of discrimination, harassment or sexual misconduct to the Title IX Officer.

Service	Resource	Phone Number/Location/Website
Non-Confidential Reporting Local Law Enforcement	Gloucester County Sheriff's Office	**856-681-2200**
	Deptford Township Police Dept.	**856-845-2220**
	Gloucester Co. Prosecutor's Office	**856-384-5500**
	Sexual Assault Response Team	**856-384-5555**
Non-Confidential Reporting 9-1-1 and **Campus Security**	**9-1-1** Gloucester County Emergency Management Dispatch Campus Security **Blue Light** Emergency Phones **OR ext. 4444 from any campus desk phone**	**9-1-1 or push RED button on** Campus **Blue Light** Emergency Phones **856-681-6287**
Non-Confidential On-Campus Reporting Support Services	Almarie J. Jones Special Assistant to the President **Diversity and Equity/Title IX and Compliance** John F. Ryder Director **Student and Veteran Affairs**	**856-415-2154** **College Center, Room 116** **ajones@rcsj.edu** **856-468-5000, ext. 6456** **College Center, room 202** **jryder@rcsj.edu**
Confidential On-Campus Counseling and Support Services	Lois Y. Lawson-Briddell, Ph.D. MSW, LSW, Director **Counseling & Wellness Services Center** William Leonard, Ph.D. **Intervention Teams Consultant** Crystal Noboa, LSW, MSW Director, The Center for **People in Transition (PIT)** Diane Mussoline, EdS, LMFT **Director of Behavioral Services**	**856-464-5236 llawsonb@rcsj.edu** **College Center, Room 206** **856-415-2119 wleonard@rcsj.edu** **College Center, STEM Office C-168** **856-415-2264 cnoboa@rcsj.edu** **Workforce Development Bldg., room 809** **856-494-5665 dmussoli@rcsj.edu** **College Center, Room 200A**
Confidential Off-Campus Full-Service Support	**Center for Family Services/ Services Empowering Rights of Victims (SERV)**	**1-866-295-7378** **Camden and Gloucester counties** **centerffs.org/serv**
Hospitals with Sexual Assault Nurse Examiners	**Inspira Medical Center** **Jefferson Washington Township Hospital**	**700 Mullica Hill Rd.** **Mullica Hill, NJ · 856-508-1000** **435 Hurffville-Crosskeys Rd.,** **Turnersville, NJ · 856-582-2500**

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