CIS 1400-NET01 Programming Logic & Technique

Course Information

Semester Credit Hours: 4 **Lecture Hours:** 3 **Lab Hours:** 2

Course Meeting Dates and Times:

Online
Start Date: 1/26/26 **End Date:** 5/20/26

Instructor Name: Carolyn England

Instructor Contact Information:

COD Main #: 942-4125 Voicemail (*email preferred*)
Office: BIC 1544B (Division Office TEC1034)
Mailbox: BIC 1E01
Office Hours: see https://www.cod.edu/faculty/websites/england/index.aspx
Email: england@cod.edu
An honest effort for all email responses will be made within 24 hours, except for holidays and weekends. Please include **CIS1400-NET01** in the email subject line for timely response.

Course Description

An introduction to computer-based problem-solving techniques. Includes software design tools such as structure charts, Input Processing Output (IPO) charts, flowcharts, pseudocode and Unified Modeling Language (UML) diagrams, and Graphical User Interface (GUI) wireframe prototypes. Concepts such as documentation, structured design, modularity, Object Oriented Program (OOP) design, and event driven programming are covered. Programming of algorithms are implemented using a high level language that emphasize structured and object oriented design techniques.

Repeatable for credit: No

Prerequisites:

MATH 0482 Foundations for College Mathematics II with a grade of "C" or better, or equivalent; or MATH 1115 Technical Mathematics I with a grade of "C" or better, or equivalent; or Consent of Instructor.

Course Objectives

Upon successful completion of the course the student should be able to do the following:

1. Explain steps used in program development cycle
2. Identify tools used in software design
3. Design algorithms to solve both verbal and written problems using Input Processing Output (IPO) charts, pseudocode, and flowcharts
4. Differentiate simple data types
5. Differentiate variables, constants, and literals
6. Apply concepts of structured program design such as modularity, sequence, selection, and repetition
7. Differentiate arithmetic, relational, and logical operators in algorithm design
8. Demonstrate variable scoping in program design for local and global variables
9. Apply data transfer techniques between modules using pass by value parameters, pass by reference parameters, and return values
10. Construct applications to use files for input and output
11. Implement arrays as structures to contain data
12. Apply searching and sorting algorithms in problem designs
13. Utilize a higher level programming language to code, test, and debug software designs
14. Implement concepts of abstraction and encapsulation using Object Oriented Programming (OOP) design
15. Create Unified Modeling Language (UML) diagrams for OOP design
16. Explain advanced OOP design techniques such as inheritance and polymorphism
17. Describe integration of Graphical User Interfaces (GUIs) and event driven programming
18. Create wireframe prototypes for GUI design

Topical Outline

1. Software Development Lifecycle (SDLC)
2. Software design techniques
3. Program documentation
    a. Pseudocode
    b. IPO charts
    c. UML diagrams
    d. GUI wireframes
4. Computer based paradigms
5. Simple data types
6. Variables, constants, and literals

7. Control structures
    a. Sequential
    b. Selection
    c. Repetition
8. Arithmetic, relational, and logical operators
9. Local and global variable scope
10. Modularity, parameter passing, and return values
11. File access
12. Arrays
    a. Single dimensional
    b. Multi-dimensional
    c. Parallel
13. Searching and sorting algorithms
14. Programming and debugging
15. Test cases for desk checking, testing, and debugging
16. OOP design concepts
17. GUI and event driven programming

Textbook

- **Starting Out with Programming Logic & Design** by Tony Gaddis, Publisher: Pearson Education, Sixth Edition, ISBN-13: 978-0-13-760214-8.

Tentative Course Outline

Any modifications to the outline below are up to the discretion of the instructor and will be discussed during class time and/or announced on Blackboard:

Week(s)	Topic(s)
1	Course Introduction/PreTest *(where applicable)* 1 → Computers and Programming
2	2 → Simple Data Types and the Sequential Control Structure
3-4	3 → Selection Logic
5	4 → Repetition Logic
6-7	5 → Modules
7-8	6 → Functions
9	7 → Arrays
10	Spring Break
11	8 → Data Files
12	9 → Algorithms

Week(s)	Topic(s)
13-14	10 → Object Oriented Programming
15-16	11 → GUI and Event Driven Programming
17	Course Summary and Feedback/PostTest/Final Exam

See Blackboard for details on specific topic objectives, readings, lectures, supplemental material, postings, assignments, and quiz due dates/times. Please email the instructor if you have any questions, concerns or suggestions regarding course material and delivery. Assistance is also available free of charge through the **Tutoring & Academic Support Center**: https://www.cod.edu/academics/tasc/

Please refer to the **Tutoring & Academic Support Center** under the **Institution Page** (*in Blackboard*) for more information about tutoring.

Methods of Evaluation

Category	Weight %
Discussions	10
Assignments	50
Quizzes/Tests/Exams	40

Grading Scale

Grade	% of Total
A	>= 90%
B	80% to 89%
C	70 to 79%
D	60 to 69%
F	< 60%

Course Policies

Academic Integrity

The CIS Department believes personal honesty and integrity are as important in the computer field as technical skill. We want our degrees and certificates to reflect this belief. To help students understand what constitutes dishonesty in a CIS course, we have developed the following policy:

1. A student should complete all assignments, projects, quizzes, and tests individually unless the instructor gives permission to work with a partner or a group.

2. If an instructor requests the source files or data files used to produce the output, a student should be able to submit storage media that contains his/her individual work.
3. A student must not intentionally use, or attempt to use, another student's work.
4. A student must not knowingly assist another student in the dishonest use of course materials.
5. A student must not copy material from the Internet, books, magazines, newspapers, or any other source without acknowledgment.
6. A student must not copy material from the course for the purpose of providing to other students and/or posting on Internet site(s).

Topic objectives are based upon **content in the course textbook, lectures, and supporting online resources as indicated with each topic's material in Blackboard**. Improper use of generative AI tools and/or without acknowledgement to complete topic requirements will adversely affect students' assessment of course learning objectives.

Coursework submitted by the student that is either found online, significantly similar to other submitted work, or violates any of the above conditions, is subject to one or more of the following:

- Grade of 0 for the assignment
- Failing grade for the course
- Formal report filed with the Associate Vice President for Student Affairs. The student(s) will have the opportunity to meet with the Associate Vice President and/or appear before a Judicial Review Board to contest this report. Suspension, expulsion, or a record of the event on the student's transcript may result.

Learn more about the **Code of Academic Conduct** at College of DuPage.

Course Commitment and Student Responsibilities

This course involves lecture, reading, online research, discussions, assignments, and quizzes. All courses require a **regular weekly** time commitment from the student to be successful. Recommendations estimate that **for each credit hour**, students should expect to spend an additional **2-3 hours** doing homework, readings, and discussions. For example, a **4-credit** hour class would require **5 hours** of class/lecture time, plus **8-12 hours** of study, resulting in **13-17 hours total weekly investment**.

Students having difficulty with course material have the following available options for extra assistance:

- request instructor assistance through email or an appointment during scheduled office hours. Every attempt will be made to answer e-mail on a 24-hour turnaround basis (during the Monday through Friday week; messages sent during weekend/holiday times will be responded to during the next scheduled office hour). When sending an e-mail please indicate **your name**, in which **course you are currently enrolled**, the problem you are having, and how best to contact you with a resolution.
- utilize assistance and tutoring resources available through the **Institution Page** upon Blackboard login and through the **Tutoring & Academic Support Center** menu link in Blackboard.

Generative AI

Students are **not** allowed to use advanced automated tools (*artificial intelligence or machine learning tools such as ChatGPT, Gemini, Claude, GitHub Copilot, Microsoft CoPilot, etc.*) on assignments/quizzes in this course **unless indicated on posting/assignment/quiz instructions**. Each student is expected to complete each assignment/quiz without substantive assistance from others, including automated tools. Failure to do so may adversely affect assessment of student topic objectives and final course grade.

Topic Requirements

Due dates/times for all topic requirements (i.e. discussion board postings, assignments, quizzes) are included in the Blackboard course. Be sure to complete all material and submit before the required due date/time. **Submission links for all topic requirements are removed from Blackboard after their due dates/times.** Submissions started *before* the due date/time but completed *after* the due date/time will be marked **LATE** and may incur a grading penalty. Allow a minimum of two-week turnaround for topic requirement grading and feedback.

Do not wait until the last minute to do your topic requirements. Technology can sometimes be unpredictable. Technology problems cannot be used as an excuse for late work. You are responsible for backing up your work. If your computer crashes, you are still required to turn in your work on-time.

If you have technical issues, you may request a laptop from the **COD Library** to use for the entire semester by contacting the library using this form on the Library website.

Discussion Posts:

Some course topics have discussions where students will further research course concepts and report results via graded discussion posts Topic **discussion posts** are due **before lab assignments** to encourage timely scheduled completion of topic requirements. **Late discussion board postings and email discussion board postings are not accepted for grading.**

Assignments:

All course topics have a lab assignment. Lab assignments will have **two attempts** should students turn in an incorrect file or need to make a modification. The **last submission** will be used for grading and **must include** all necessary file(s) in the **proper format** for grading **before the due date/time**.

Topic **Lab assignments** are due **before quizzes** to allow students any needed assistance before the weekend when these resources may not be available. **Late assignments and email assignments are not accepted for grading.**

Quizzes:

All course topics have a **timed** quiz. **Allow yourself enough time to complete the quiz in one sitting by the due date/time. All attempts in progress will be automatically submitted when the quiz time limit has elapsed, or the due date/time has passed.**

Topic **quizzes** are due **after lab assignments** to encourage timely scheduled completion of topic requirements. Topic quizzes require submission of a topic lab assignment before becoming available for completion. **Late quizzes are not accepted for grading.**

Incompletes

No Satisfactory/Fail/Incompletes will be given in this course.

The College policy on Satisfactory/Fail (S/F) Grade Option can be found in the College catalog under Academic Policies and Procedures, Earning College Credit:

https://catalog.cod.edu/academic-policies-procedures/

College Policies

Late Withdrawal Policy

The final day for a student to withdraw from any course will be equal to 75% of the time for the respective academic session (**access the Academic Calendar**) through **myACCESS** on the **COD Portal** or in person at the Office of Student Registration Services. More details on the withdrawal process, GPA, transcript, and financial implications can be found online at **Registration Information**.

Access and Accommodations

The College of DuPage is committed to the equitable access of educational opportunities for students with disabilities in accordance with The Americans with Disabilities Act, As Amended

and Section 504 of the Rehabilitation Act of 1973. Any student who feels they may need an accommodation on the basis of an illness, injury, medical condition, or disability should contact the Center for Access and Accommodations to determine eligibility for accommodations and to obtain an official Letter of Accommodation. Connecting with the Center for Access and Accommodations is an important way to make sure that any student who has a need based on a disability, illness, injury, or medical condition is provided with appropriate accommodations.

The **Center for Access and Accommodations** can be reached via email at *AccessAccommodations@cod.edu*. Students may also initiate a request for services by going to **Center for Access and Accommodations** and clicking on the green box labeled "**Request Accommodations**". If you are already registered with the Center for Access and Accommodations, please email me your Letter of Accommodation within two weeks (14 calendar days) of the start of the semester or within one week (7 calendar days) of receipt of an official Letter of Accommodation to ensure proper course accommodations are in place. Please include the course and section number with your email so the proper accommodations can be made for the indicated course. For your own privacy, please **DO NOT** send any private health documentation or Doctor's notes to me.

Student Rights and Responsibilities

Students at the College of DuPage are expected to review and understand their **rights and responsibilities** as outlined in the Code of Student Conduct, Code of Academic Conduct, and the Student Non-academic Complaint Process.

Class Cancellation and College Closure Policy

Students are responsible for checking their COD email account for notices of class cancellation.

COD Alerts, powered by the Everbridge App, is the College of DuPage's automated system for notifying you of school closings, emergency situations, and other important information. You are automatically enrolled when you register for a class and remain in the system until you have not enrolled in classes for three consecutive terms.

COD Alerts can send notifications via text message, email, and even voice messages to your phone. To ensure you receive alerts, download the Everbridge app from your phone's app store *(Apple App Store or Google Play)*.