

# The Ministry of Education of the Azerbaijan Republic The State Oil Company of the Azerbaijan Republic Baku Higher Oil School

“Approved by” Rector of Baku Higher Oil School

# \_Elmar Gasimov

“ ” 2022

# Process Automation Engineering Department Programming and Computer Applications – 1 Course Syllabus

**Fall, 2021**

Instructor : **Nazrin Dolkhanova**

Course code: **PAE 201** Course credit : **6**

Office : **420, Campus Aypara** Office hours : **M-F 09.00-17.00** Prerequisites: Language of instruction: **English** Mode of Instruction: **Offline**

Schedule :

Lecture – Thursday 10:00-12.50 (PAM 21.1/21.2)

Laboratory – Thursday 13:00-13:50 (PAM 21.1),

Thursday 14:00-14:50 (PAM 21.2)

Laboratory – Tuesday 10:00-11:50 (PAM 21.1),

Tuesday 13:00-14:50 (PAM 21.2)

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# Description about course

The course presents C programming including: Introduction to C Programming, Control Statements, Functions, Arrays, Recursion, Pointers, Strings, Structures, File Processing, etc.

# Course objective

The course introduces programming concepts using the C language.

The practical part of this course is covered in the lab through exercises, practical assignments, and tutorials.

# Learning outcomes

Upon completion of this course, students should be able to:

* Understand the fundamental principles, concepts and methods of computer programming.
* Develop and implement efficient programs using the C language.
* Use the C programming language to developing solutions in engineering.
* Write program using more advanced C programming features.

# Assessment methods

The exams are done using computers. All questions must be answered.

# Grading

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| --- | --- | --- | --- |
| **Exam** | **Weight** | **Date** | **Exam minutes** |
| Final exam | 35 % | TBA (to be announced) | 120 min. |
| Midterm exam | 25 % | 7th week of the semester | 100 min. |
| Laboratory | 30 % | one lab per week | deadline |
| Quiz | 10% | 11th week of the semester | 80 min. |

**RESIT grading (**in case of fail Final exam**):**

Weight: **60%** Date: TBA (to be announced) Exam duration: 100 minutes Total score: Resit Exam score (60%)+laboratory and quiz scores (40%)

## Area grading scale

A 91-100

B 81-90

C 71-80

D 61-70

F ≤ 60

# Rules

## Exams

In order to be excused from the exam, the student must contact the dean and the instructor before the exam. Excuse will not be granted for social activities such as trips, cruises and sporting events (unless you are participating). The exams will all be cumulative. Most of the questions on each exam will be taken from the chapters covered since the last exam.

But some will come from the earlier chapters. In general, the coverage will reflect the amount of the time spend in class on the different chapters.

## Withdrawal (pass / fail)

This course strictly follows grading policy of the Process Automation Engineering Department. Thus, a student is normally expected to achieve a total mark (preexam score + exam score) of at least 61 to pass. In this case of failure, he/she will be referred or required to repeat the course the following term or year.

# Late policy

Late assignment submissions won’t be accepted for grading. The grade for this assignment will be zero.

# Teaching resources

## Textbooks:

* 1. The\_C\_Programming\_Language\_(2nd\_Edition\_Ritchie\_Kernighan)
  2. Learn to Program with C\_ Learn to Program using the Popular C Programming Language (Noel Kalicharan)
  3. C How to Program, 8th edition, Paul Deitel and Harvey Deitel, Pearson, 2016.

## Additional Reading (Textbooks)

* + C Programming Language, 2nd edition by Brian W. Kernighan, Dennis M. Ritchie, Prentice Hall, 1988, 288 pages.
  + C Programming Tutorial, Simply Easy Learning by tutorialspoint.com.

For class presentations and discussions, the student should utilize journal and internet materials. Moreover, the course does not limit the use of learning materials available at BHOS library.

This course uses the Moodle learning management system (www.lms.bhos.edu.az). All lecture notes, presentations, assignments, programs, and announcements will be made available on this site.

# Attendance

The students are required to attend all classes as a part of their studies and those having legitimate reasons for absence (illness, family bereavement, etc.) are required to inform the instructor.

# Professionalism and Participation

1. Attend class regularly, arrive on time, leave only when dismissed
2. Attend class with all materials required, be prepared to listen and work
3. Be well prepared for class, read all required materials, and complete all necessary preparation
4. Be attentive in class, take notes, contribute to discussion and ask intelligent questions
5. Demonstrate professional and respectful interpersonal relationships with peers and instructor: ATTITUDE COUNTS, AND whining is unacceptable
6. Take responsibility for your actions, and your results

# Plagiarism

Honesty requires that any ideas or material taken from another source for written, visual, or oral use must be fully acknowledged. Offering the work of someone else as one’s own is plagiarism. The language or ideas thus taken from another may range from isolated formulas, images, sentences or paragraphs to entire articles copied from books, periodicals, speeches, or the writings and creations of other students. The offering of materials assembled or collected by others in the form of projects or collections without acknowledgment also is considered plagiarism. Any student who fails to give credit for ideas or materials taken from another course is guilty of plagiarism.

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| --- | --- | --- | --- | --- |
| **Week** | **Topics** | **Book 1** | **Book 2** | **Book 3** |
| 1 | **Introduction to C Programming**   * Programming development cycle * Variable names, data types and sizes * Constants, declarations * Arithmetic in C * Relational and logical operators * Type conversions * Increment and Decrement Operators | Ch.2 | Ch.1, Ch.2, Ch.3 | Ch.2, |
| 2 | **Control Flow**   * Statements and blocks * **If - else** * **Else - if** * **Switch** * Loops – **While** and **For** * Loops – **Do - while** * **Break** and **Continue** * **Goto** and labels | Ch.3 | Ch.4, Ch.5 | Ch.3 Ch.4 |
| 3 | **Functions**   * Basics of Functions * Functions Returning non-integers * Random Number Generation * Recursion | Ch.4 | Ch.7 | Ch.5 |
| 4,5,6 | **Pointers and Arrays**   * Pointers and addresses * Pointers and Function Arguments * Pointers and Arrays * Address Arithmetic * Character Pointers and Functions * Multidimensional Arrays * Dynamic Memory Allocation | Ch.5 | Ch.8 | Ch.6, Ch.7 |
| 7 | **Midterm Exam** |  |  |  |
| 8 | **Structures**   * Basics of Structures * Structures and Functions * Pointers to Structures | Ch.6 | Ch.10 | Ch.10 |
| 9,10 | **Characters and Strings**   * Input and Output * Formatted Output * Formatted Input * Character-Handling Library * String-conversion Functions * Standard input/output Library Functions * String-Manipulation Functions of the String-Handling Library * Comparison Functions of String-Handling Library * Search Functions of String-Handling Library * Memory Functions of the String Handling Library * Other Functions of the String-Handling Library | Ch.7 | Ch.6 | Ch.8 |
| 11,12 | **File Processing**   * Files and Streams * Creating a File * Reading Data from the File * Writing Data to the File | Ch.7 | Ch.6 | Ch.11 |
|  | **Final Exam** |  |  |  |
|  |  |  |  |  |
|  | **Instructor of the course** | \_\_\_\_\_\_\_\_\_\_ |  |  |
|  | **Head of the department** | \_\_\_\_\_\_\_\_\_\_ |  |  |