

Computer Science

Grade: 9

COMP 300 Computer Science

1 credit
3 days per week; 1 year
Taught in English

This is a **required course for all 9th grade students** in both the Mexican and/or U.S. diploma program. In this class, during the first semester, students will be introduced to a programming language using Karel The Robot. Students will be able to program a "robot" by writing code using its basic instructions, will control a program's flow using decision-making and iteration statements, and will compile and execute the program to verify its correct execution while applying good programming style guidelines. In the second semester, students will be introduced to relational databases using Microsoft Access. Students will be able to create and work with relational databases using tables and forms, will apply filters and queries, and will create professional-looking reports.

Textbook: None
Prerequisite: COMP 200

Benchmark Code – Subject: Computer Science = CS

Strand 1= Operating the Computer

Strand 2= Keyboarding

Strand 3= Word Processing

Strand 4= Graphics

Strand 5= Internet/Networking

Strand 6= Multimedia

Strand 7= Spreadsheets

Strand 8= Databases

Strand 9= Authoring Software

Standards

- 1.- The student understands basic technology operations and concepts.
- 2.- The student uses technology responsibly and ethically.
- 3.- The student uses technology to communicate effectively and creatively.
- 4.- The student uses technology for thinking, learning, and producing real world situations.
- 5.- The student uses technology for research, problem-solving, and decision-making.

Code: Subject.Grade.strand#.standard#. Benchmark#

Example: CS.9.8.4.3 – Computer Science, ninth grade, strand 8, standard 4, benchmark 3

Strand 8: DATABASES

Standard 4: The student uses technology for thinking, learning, and producing real world situations.

Benchmark Code	Benchmark
CS.9.8.4.1	The student will describe what a field, a record, a table, and a relational database are.
CS.9.8.4.2	The student will accurately create a relational database.
CS.9.8.4.3	The student will correctly define fields to create a table.
CS.9.8.4.4	The student will create, format, and save tables in a database.
CS.9.8.4.5	The student will differentiate between design view and datasheet view.
CS.9.8.4.6	The student will correctly create and save forms for a table and use them to enter records without any spelling errors.
CS.9.8.4.7	The student will create and use filters to query a database table.
CS.9.8.4.8	The student will create, use and differentiate regular, range and select queries.

CS.9.8.4.9	The student will add, rename, and delete a field.
CS.9.8.4.10	The student will organize data by sorting records in ascending or descending order.
CS.9.8.4.11	The student will add, update, and delete a record.
CS.9.8.4.12	The student will create relationships between tables.
CS.9.8.4.13	The student will view/hide a table's subdatasheets.
CS.9.8.4.14	The student will create, use, modify, and delete select queries.
CS.9.8.4.15	The student will sort query results in ascending or descending order.
CS.9.8.4.16	The student will create select queries that display a range of values.
CS.9.8.4.17	The student will use OR and AND in select query criteria.
CS.9.8.4.18	The student will utilize wildcards in queries' criteria.
CS.9.8.4.19	The student will describe what a report is, and will correctly create one using the report wizard.
CS.9.8.4.20	The student will group data in a report to eliminate duplicate entries.
CS.9.8.4.21	The student will summarize values in a report by using the sum, average, max or min options.
CS.9.8.4.22	The student will create and format a calculated field in a query.

Strand 9: AUTHORING SOFTWARE

Standard 5: The student uses technology for research, problem-solving, and decision-making.

Benchmark Code	Benchmark
CS.9.9.5.1	The student will identify key elements in Karel's world, and will describe the robot's capabilities and limitations.
CS.9.9.5.2	The student will recognize and use the robot's primitive commands to: change position (<i>move</i>), turn in place (<i>turnleft</i>), handle beepers (<i>pickbeeper/putbeeper</i>), and finish a task (<i>turnoff</i>).
CS.9.9.5.3	The student will differentiate between tasks and situations.
CS.9.9.5.4	The student will identify syntax, logical and run-time errors, and will be able to correct them.
CS.9.9.5.5	The student will write, compile, and execute a complete program.
CS.9.9.5.6	The student will broaden the robot's language by teaching it new words using <i>define</i> or <i>void</i> statements.
CS.9.9.5.7	The student will apply the <i>iterate</i> statement to repeat a set of instructions a specific number of times.
CS.9.9.5.8	The student will correctly incorporate parameters with the <i>iterate</i> statement to improve a program's code.
CS.9.9.5.9	The student will memorize, identify, and use Karel's conditions in combination with other statements.
CS.9.9.5.10	The student will apply one-way and two-way conditional statements using <i>if</i> and <i>if-else</i> statements.
CS.9.9.5.11	The student will apply the <i>while</i> statement to repeat a set of instructions an unknown number of times.