

# Idaho PTE Business Education Course w/Essential Learning Outcomes

Course Title

COMPUTER SCIENCE-DATABASE DESIGN AND PROGRAMMING

SDPTE Course ID

BE 0261

IBED

IBED 10157

This course is an authorized AP College Board course - teachers must be authorized to teach the course through the AP College Board. Upon completion of the course, students will be able to pass the AP College Board Exam for Computer Science A or Computer Science AB. For complete details regarding AP Board Approval of the Teacher and the curriculum go to: <http://apcentral.collegeboard.com>

Term

One Year

Preq

Notes:

## **Business Law** *BLaw\_7: Demonstrate Knowledge of Computer Law*

- BLaw\_7.1 Explain how the advances in computer technology impact upon such areas as property law, contract law, criminal law, and international law.

## **Information Systems** *IS\_12: Demonstrate Knowledge of Programming*

- IS\_12.1 Demonstrate knowledge of computer history.
- IS\_12.2 Demonstrate ability to create a simple computer program.
- IS\_12.3 Identify syntax and errors, and demonstrate the ability to debug.
- IS\_12.4 Demonstrate ability to use basic control statements.
- IS\_12.5 Demonstrate ability to use classes in Object Oriented Programming.
- IS\_12.6 Demonstrate ability to use Advanced Control Statements.
- IS\_12.7 Demonstrate ability to use User Interfaces.
- IS\_12.8 Demonstrate ability to use Applets.
- IS\_12.9 Demonstrate ability to use Basic Array Concepts.
- IS\_12.10 Demonstrate ability to use Advanced Object Oriented Class Concepts.
- IS\_12.11 Demonstrate ability to use Advanced Arrays Concepts.
- IS\_12.12 Demonstrate ability to use Recursion, Searching, and Sorting.
- IS\_12.13 Demonstrate ability to use Object-Oriented Analysis & Design.
- IS\_12.14 Demonstrate ability to use Lists.
- IS\_12.15 Demonstrate ability to use Stacks and Queues.
- IS\_12.16 Demonstrate ability to use Sets and Maps.
- IS\_12.17 Demonstrate ability to Implement Lists.
- IS\_12.18 Demonstrate ability to Implement Sets and Maps.
- IS\_12.19 Demonstrate ability to Implement Trees & Priority Queues.

## **Information Systems** *IS\_15: Demonstrate Knowledge of Database Design*

- IS\_15.1 Demonstrate knowledge and the use of Elements for Database Design.
- IS\_15.2 Demonstrate the ability to create an Entity Relationship Diagram (ERD).
- IS\_15.3 Demonstrate knowledge of Entity Relationship details.
- IS\_15.4 Demonstrate knowledge of business rule constraints.
- IS\_15.5 Demonstrate knowledge and apply modeling change in a database design.
- IS\_15.6 Describe the terminology mapping between a conceptual model and a relational database model.

## **Information Systems** *IS\_16: Demonstrate Knowledge of Database SQL Programming*

- IS\_16.1 Demonstrate knowledge and use of the Elements of basic SQL Select Statements.
- IS\_16.2 Demonstrate ability to restrict and sort data.

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IS_16.3	Demonstrate knowledge and use of Logical Comparisons & sorting.
IS_16.4	Demonstrate knowledge and use of SQL Functions.
IS_16.5	Demonstrate ability to display data from multiple tables.
IS_16.6	Demonstrate knowledge and use of Group Functions in SQL.
IS_16.7	Demonstrate ability to aggregating data using SQL Group Functions.
IS_16.8	Demonstrate knowledge of Subqueries, producing readable output and Manipulate Data with SQL.
IS_16.9	Demonstrate ability to Create and Manage Tables with SQL.
IS_16.10	Demonstrate ability to use Database Data Definition Language.
IS_16.11	Demonstrate ability to create and use Database Constraints.
IS_16.12	Demonstrate ability to create and maintaining Database Views.
IS_16.13	Demonstrate ability to use Database Objects.
IS_16.14	Explain Basic Database Systems and the need for Database Security.

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