

# DATABASE SPECIALIST (156)

## 156-101. .Net Database Programming. (3 Credits)

Learn basic C# methodologies, including classes, objects, types and the difference between value and reference. Apply object-oriented methodologies and utilize constructors, and inheritance and class hierarchies. Also become familiar with Common Language Runtime (CLR) techniques for using .Net code natively in MS SQL Server.

Prerequisites: (152-107 with a minimum grade of C or 152-134 with a minimum grade of C or 152-112 with a minimum grade of C or 152-138 with a minimum grade of C) and (152-115 with a minimum grade of C or 156-109 with a minimum grade of C)

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=101>)

## 156-102. Advanced SQL. (3 Credits)

Learn various advanced SQL topics for SQL Server, including temporary tables, triggers, advanced stored procedures and user-defined functions. Develop skills in optimization, indexing and other performance-tuning tools and techniques. Explore advanced database design, implement windowing functions, perform data integration using triggers and merge statements, and create and parse JSON and XML.

Prerequisites: 156-109 with a minimum grade of C or 152-115 with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=102>)

## 156-103. Database Administration. (3 Credits)

Learn to install, configure and secure Microsoft SQL Server. Discuss recurring maintenance needs and perform common maintenance tasks. Plan server configurations for various database environments and implement high availability/disaster recovery configurations. Explore methods for monitoring server performance and identify and resolve common security and performance issues.

Prerequisites: 150-136 with a minimum grade of C or 150-137 (may be taken concurrently) with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=103>)

## 156-104. Data Analysis and Reporting. (3 Credits)

Learn to create and manage reports in a variety of reporting tools, explore the uses of data visualizations, implement self-service BI solutions, and query a variety of data sources, including data cubes. Draw business insights from data analysis, and evaluate data for accuracy and objectivity.

Prerequisites: (152-115 with a minimum grade of C and 804-189 with a minimum grade of C)

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=104>)

## 156-105. Advanced Topics in Database. (3 Credits)

Research current database trends in the industry. Topics covered may include big data, cloud solutions such as Azure or AWS, in-memory databases, mobile databases, or other emerging database technologies.

Prerequisites: (156-103 with a minimum grade of C and 152-115 with a minimum grade of C and 107-119 with a minimum grade of C)

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=105>)

## 156-106. Data Warehouse Development. (4 Credits)

Discuss data cleansing; ETL and data synchronization strategies; data warehouse design/implementation, including star and snowflake schemas; and the creation of business intelligence (BI) solutions. Work collaboratively to implement a functional data warehouse from start to finish, including design implementation, ETL and a self-service BI solution.

Prerequisites: (156-102 with a minimum grade of C and 156-110 with a minimum grade of C)

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=106>)

## 156-107. Data Modeling. (2 Credits)

Discover concepts of relational databases through data modeling. Learn about entities, attributes, relationships and the different types of keys in a database, and create conceptual, logical and physical data models for a variety of data types. Get an in-depth explanation of relational and dimensional models, and use Microsoft Access to query data.

Prerequisites: 156-108 (may be taken concurrently) with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=107>)

## 156-108. Intro to Databases & Reporting. (1 Credit)

Gain an introduction to relational databases, queries and reports. Use Microsoft Access to build queries and reports. Gain an understanding of SELECT queries, joins, reporting and the basics of relational database design.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=108>)

## 156-109. Intro to SQL. (2 Credits)

Gain an introduction to Structured Query Language (SQL) through real-world scenarios. Learn SQL, including joins, aggregate functions, subqueries and the basics of security and permissions. Revisit database design and use table creation/data management commands.

Prerequisites: 156-108 (may be taken concurrently) with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=109>)

## 156-110. Data Visualization & Reporting. (2 Credits)

Learn to create and manage reports in a variety of reporting tools, and explore the uses of data visualizations. Learn to implement self-service BI solutions and query a variety of data sources. Tools used include SQL Server Reporting Services, Power BI and Excel.

Prerequisites: 156-109 (may be taken concurrently) with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=110>)

## 156-111. Intro to Data Analytics. (2 Credits)

Learn to draw business insights from data. Explore descriptive and diagnostic data analytics. Identify trends and patterns within data using Power BI. Perform statistical analysis with Excel to determine causes and correlations.

Prerequisites: 804-189 (may be taken concurrently) with a minimum grade of C and 156-110 with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=111>)

**156-112. Predictive Analytics. (2 Credits)**

Gain an introduction to predictive analytics. Learn how to use standard Python libraries to prepare and load data for predictive models, create basic visualizations, and run machine learning algorithms to predict outcomes.

Prerequisites: 156-111 (may be taken concurrently) with a minimum grade of C and 152-101 (may be taken concurrently) with a minimum grade of C and 804-133 (may be taken concurrently) with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=112>)

**156-113. Python Data Manipulation. (2 Credits)**

Learn techniques to manipulate a variety of sources of data using standard Python libraries, including Pandas. Parse text and CSV files, extract data from a database, and clean and manipulate the data. Data will be output to either files or a database.

Prerequisites: 152-101 (may be taken concurrently) with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=113>)

**156-114. Business Applications of AI. (3 Credits)**

Learn about the field of artificial intelligence through the lens of various industry verticals. This course explores the various types of AI, how different industries leverage AI solutions, ethical uses of AI, and the benefits and risks of using AI to solve business problems.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=114>)

**156-115. Computer Vision. (2 Credits)**

Explore various use cases of computer vision. Use common, pre-built machine learning algorithms to perform basic image processing and classification.

Prerequisites: 156-112 with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=115>)

**156-116. Natural Language Processing. (2 Credits)**

Explore the applications of natural language processing. Utilize machine learning models to perform sentiment analysis.

Prerequisites: 156-112 with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=116>)

**156-117. Big Data Engineering. (3 Credits)**

Explore big data architecture and systems. Build data pipelines with industry standard languages to ingest structured and unstructured data. Utilize the big data system to perform data mining and machine learning.

Prerequisites: 156-106 with a minimum grade of C and 156-112 with a minimum grade of C

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=117>)