

# 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) and 156-107 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 or 156-119 (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 or 156-119 (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 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 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: 156-113 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: 156-113 with a minimum grade of C and 156-114 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: 156-112 with a minimum grade of C and 156-102 with a minimum grade of C and 156-113 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>)

**156-118. AI Capstone. (4 Credits)**

Demonstrate mastery of program knowledge by working with a team to create a proof-of-concept AI solution for a business problem. Learn to complete a project as a virtual team using industry-standard tools.

Prerequisites: 156-115 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=118>)

**156-119. Data Concepts. (2 Credits)**

Gain an introduction to foundational concepts in data, information and data presentation/reporting. Learn basic spreadsheet concepts in Excel, including table creation, formulas, functions and cell formatting. Explore the basics of relational databases and queries in Microsoft Access. Learn the basics of data presentation through Excel pivot tables, charts and Access reports.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=119>)

**156-401. AI and the 21st Century Worker. (0.6 Credits)**

Gain a foundational understanding of AI and how to integrate it into business operations. Explore fundamental concepts, practical applications, future trends and personal upward mobility strategies. Break down the mechanics and structures of AI technologies to help envision the role AI plays in the field. Leave inspired with practical ideas of how to integrate AI at work.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=401>)

**156-402. Everyday AI. (0.4 Credits)**

Gain a foundational understanding of AI and its impact on daily life. Discover real-world applications in our everyday experiences and engage with AI through hands-on activities and demonstrations.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=402>)

**156-403. AI for Productivity. (0.4 Credits)**

Explore practical applications of artificial intelligence to help you leverage AI for workplace productivity. Gain foundational knowledge, learn to apply AI tools (such as CoPilot, ChatGPT and Gemini) to everyday work scenarios, and develop skills to integrate AI into your regular workflows seamlessly.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=403>)

**156-404. Lean AI. (0.4 Credits)**

Designed for AI practitioners, project managers and business professionals interested in lean methodologies, this workshop explores the intersection of lean principles and artificial intelligence. Learn to identify waste, streamline workflows and foster continuous improvement in AI projects through practical sessions and discussions.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=404>)

**156-405. Developing an AI Strategy. (0.4 Credits)**

Designed specifically for owners and executives of small-to medium-sized businesses. Leverage AI for a competitive edge, evaluate your business's readiness for AI, and craft a strategic plan to integrate AI into your operations. Transform your business with actionable strategies and a clear path forward.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=405>)

**156-406. AI Strategy Development. (0.7 Credits)**

Leverage AI for a competitive edge, evaluate your business's readiness for AI, and craft a strategic plan to integrate AI into your operations. Transform your business with actionable strategies and a clear path forward.

See sections of this course (<http://www.wctc.edu/academics/programs-courses/course-search/course-search-listing.php?code=156&num=406>)