NJIT New Jersey's Science & Technology University

NEWARK COLLEGE OF ENGINEERING

SDET 341- 101 Fall 2025: Visual Basic.NET for Engineering Technology

Visual Basic is an event-driven and object-oriented programming language developed by Microsoft that is derived from the BASIC programming language. It provides a graphical user interface (GUI) which allows programmers to modify code by dragging and dropping objects and defining their behavior and appearance. Visual Basic makes it fast and easy to create .NET apps.

This course will introduce the many features of Visual Basic and its application to Engineering Technology. Students will learn VB.NET syntax and programming practices, the Visual Studio Integrated Development Environment, and control objects for application user interface design. Additionally, students will further explore data analysis, Object Oriented Programming (OOP), cryptography, graphics, and database connectivity.

Prerequisites: Previous programming experience. Creation of windows with text, controls, menus and graphics, events detection, files and objects management, object-oriented techniques.

Instructor

Dr. William Tereshkovich, Ph.D., CISSP, CCSP, CISM, CSSLP
Email: wt42@njit.edu

Office Hours

By appointment

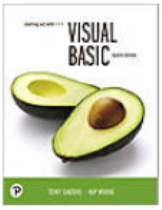
Office Hours Policy

Please come prepared with your fully documented attempted work. This will help maintain fairness in the class for other students as well as ensure an efficient use of everyone's time. Students who do not show prior attempt at their work during the office hours may be asked to attempt the problem before receiving consultation time.

Study Material

All study material will be posted in Canvas in addition to reading assignments from our required textbook:

"Starting Out with Visual Basic, Eighth Edition" by Tony Gaddis and Kip Irvine. Pearson Publications 2019 *ISBN: 9780135204658*



Starting Out with Visual Basic

Edition: 8th
ISBN: 9780135204658
Author: Gaddis
Publisher: Pearson Education
Copyright Year: 2019

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Course Structure

Students will work individually for the class. Learning material will be uploaded to Canvas along with assigned topics outlined in the required class textbook. Accompanying this material will be reading and coding/project lab assignments. Each lab assignment will have a deadline set in the Canvas learning management system.

Learning Objectives

By the end of the course, students will be able to:

- Demonstrate proficiency in the Visual Basic language by developing Windows Forms apps for data analysis, database connectivity, and analysis for Engineering Technology applications
- Develop Windows Forms apps that utilize Visual Basic classes and objects to solve business/technical problems

Topical Breakdown (tentative - subject to change)

Week #	Topic
1	• Introduction to Programming, Visual Basic, and the Visual Studio Integrated Development Environment • Visual Studio 2022 Community Download/Install Information • Starting and saving a Visual Basic Forms App in Visual Studio 2022 Community
2	• Visual Basic Common Coding Naming Conventions • Commenting • Operators and Conditional Statements • Exception/Error Handling • Windows Forms Controls (GroupBox, ToolTip, Radio Button, Button, Checkbox, Message Box, PictureBox)
3	• Conditional Statements (Select Case, If-Then, etc.) • Arrays (single and multi-dimensional) • Introduction to Looping (Do While, For Next) • Introduction to String Methods
4	• String Methods and Properties (SubString(), IndexOf(), Find(), Split(), Trim(), Length) • Windows Forms Controls (RichTextBox Control, MenuStrip Control)
5	• String Manipulation (Asc() Method, Chr() Method) • Modulus • ANSI Character Codes • Character Shifting • File I/O (Opening a File, StreamReader & ReadLine, StreamWriter &

	WriteLine, EndOfStream, Peek, Close()) • Windows Forms Controls (OpenFileDialog, SaveFileDialog,
6	• Classes and Objects / Object-Oriented Programming ○ Classes ○ Creating Classes, Functions, and Properties ○ Member Variables ○ Passing Objects by Value and by Reference ○ Creating an Instance of a Class (Objects) ○ Constructor ○ Destructor
7	• Classes and Inheritance ○ Introduction to Inheritance ○ Base Class and Derived (Child) Classes • Windows Forms Controls ○ Timer Control • Multiple Windows Forms • Visual Studio Project Properties
8	• Graphics Device Interface (GDI+) Classes ○ Graphics ○ Pen ○ Brush ○ Font ○ Color
9	• Graphics Device Interface (GDI+) ○ Antialiasing support (Graphics quality/smoothing) ○ Hatch brushes ○ Gradient brushes ○ Curves ○ Transformation and Matrices ○ Scaling
10	• Database connectivity ○ Introduction to ADO.NET / Data providers ○ RDBMS ○ ADO.NET Architecture ○ Working with Databases in VB.NET
11	• Database connectivity (continued) ○ DataGridView Control ○ SQL (continued) ○ Data Tables and Data Adapter

12	• Introduction to non-Windows Forms app development • Project Package Management • VB Modules
13 - 15	• NuGet Packages • Non-Windows Forms app development • Course review & feedback

Numerical Grade Breakdown

Item	Breakdown
Lab Assignments	50
Midterm Exam	20
Final Exam	20
Attendance	10
Total	**100**

Policies

1. No late submissions/presentations will be accepted, except for valid medical reasons or prior arrangement with Dr. Tereshkovich.

2. Plagiarism will result in zero (0) points. Additionally, all academic policies set forth by NJIT University will be followed. NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. Please visit the Dean of Students website at http://www.njit.edu/doss for a list of student policies relating to academic integrity and student conduct.

3. All NJIT policies regarding adding, dropping, and withdrawing from courses will be followed. To ensure consistency and fairness in application of the NJIT policy on withdrawals, student requests for withdrawals after the deadline (end of the 9th week of classes) will not be permitted unless extenuating circumstances are documented. The course instructor and the Dean of Students are the principal points of contact for students considering withdrawing from a course.

4. When a student invokes extenuating circumstances for any reason (late withdrawal from a course, request for a make-up exam, request for an Incomplete grade) the student will be referred to the Dean of Students Office. The Dean of Students will be making the determination of whether extenuating circumstances exist or not and will be notifying the instructor accordingly. Instructors will never request or accept medical or other documents from students; such documents need to be submitted by the student to the Dean of Students.

5. Student with disabilities requesting accommodations and services at NJIT need to present a current Letter of Accommodation Eligibility from the Disability Support Services office authorizing student accommodations to faculty before accommodations can be made. For additional information, contact The Disability Support Services office (http://www.njit.edu/studentsuccess/disability-support-services-0/)

6. Final letter grades will depend on the final numerical grades and will follow letter grade cutoffs provided below. The final numerical grades will be ascertained based on the statistical analysis performed at the end of the term.

Letter	Numeric Grade
A	90 and Above
B+	85 to 89.9
B	80 to 84.9
C+	75 to 79.9
C	70 to 74.9
D	60 to 69.9
F	Below 60

7. E-mail Etiquette and Policy: In general, it is preferred that class-related questions be asked during class, so that everyone can benefit from the discussion. If your answer requires a longer time to answer, please ask in person outside or after class. You may ask also questions over email if the instructor is unavailable.

It is recommended that students email the professor well in advance of an upcoming deadline. Emails received 24-36 hours prior to a deadline may not be answered prior to the deadline.

Business etiquette for electronic communications must be adhered to when asking course related questions. This includes a formal greeting, a subject line, formal language, and a formal signature line (including your full name and Student ID). Emails that do not follow proper etiquette might not be answered. Please make sure your NJIT e-mail account is active and checked daily for class communication and updates.

Accommodation for Disability

If you have a documented physical and/or learning disability, please feel free to inform me or the NJIT Counseling Center (http://www.njit.edu/counseling/services/disabilities.php) regarding what kind of accommodation you need to help you succeed in this class. While you are not required to disclose your disability to me, you must provide appropriate documentation to receive official university assistance. All such requests will be held confidential to the fullest extent possible.

Modification to Course

The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course Outline.