



Tosa Skills Framework

VBA 2019

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Introduction
to Tosa Skills Framework
For Tosa Assessment and Certification

Tosa[®] (Test on Software Applications)

The Tosa assessments and certifications will determine and validate a candidate's proficiency and skill level in software applications used in a professional environment. The Tosa assessments are designed to validate the professional VBA Excel software skills of individuals (students, trainees, employees, or jobseekers) in supporting their employment, professional or academic objectives.

Tosa assessments employ the Adaptive Testing methodology, which creates a personalized testing experience adapted to a candidate's skill level for a selected software application. The score is based on the Item Response Theory using a 3-parameter logistic model, similar to the GMAT scoring method. Adaptive-based testing selects questions that challenge candidates to the limit of their knowledge and abilities.

Tosa Skills Framework Objective

This Tosa framework provides an overview of the subject areas being assessed during the Tosa Assessment and Certification exams. Tosa assessments and certification exams validate candidate proficiency in the most popular professional VBA Excel software programs using a score on a scale from 1-1000 for the Certification Assessment, and a score divided into five levels, from "Beginner" to "Expert," for the Diagnostic Assessment.

The objective of this document is to present an overview of the technical skills associated with each of the four main VBA Excel domains within each proficiency level. This information will also support educators and trainers in tailoring their training programs to achieve desired proficiency levels.

Unique Tosa Scoring

The Tosa assessments and certifications are based on a unique score, divided into five levels.

- ranging from 1 to 1000 for the certification.
- divided into five levels, from Beginner to Expert, for assessment.

Tosa [®] levels	Corresponding Tosa [®] score	Certification status & documents issued
Expert	876 - 1000	Certification earned - diploma & Credly digital badge issued
Advanced	726 – 875	Certification earned - diploma & Credly digital badge issued
Productive	551 – 725	Certification earned - diploma & Credly digital badge issued
Basic	351 – 550	Certification failed - certificate of completion issued
Beginner	1 – 350	Certification failed - certificate of completion issued

VBA domains and subdomains

Environment and debugging	<ul style="list-style-type: none"> ■ Displaying the Developer tab ■ Recording macros ■ Using the Visual Basic Editor ■ Running macros from the Macro dialog box
Objects	<ul style="list-style-type: none"> ■ Knowing all types of variables, using conversion types ■ Combining variables of several types using static or dynamic tables ■ Creating the Enum instruction ■ Editing graphs
Procedures	<ul style="list-style-type: none"> ■ Creating procedures using arithmetic and major operators ■ Using VBA's functions and procedures ■ Managing and avoiding errors through codes and procedures ■ Writing customized functions
Dialog boxes, user forms and Active X Controls	<ul style="list-style-type: none"> ■ Using Userform ■ Knowing the events related to ActiveX et MS Forms ■ Building complex and dynamic shapes ■ Providing users with secured data sheets

About the VBA Excel Certification

The Tosa VBA Excel certification relies on a database of around 130 questions. It is composed of 25 questions and lasts one hour. The algorithm adapts to each answer of the candidates to adjust the difficulty level of the questions until they reach the exact definition of the candidates' level by calculating the limit of their skills.

Since the test is adaptive, the series of questions that each candidate gets is unique for each test. This uniqueness allows for a more accurate evaluation of the candidate's level. It also limits cheating and the memorization of questions on different passages.

Our platform allows individuals to take the certification in class, in an approved testing center, or remotely via our integrated asynchronous online proctoring solutions.

Our remote proctoring solutions provide added flexibility for both the administrator and the candidate, allowing the certification exam to be taken anywhere, at any time. The candidate only needs an internet connection and a computer equipped with a working webcam and microphone.

Candidates receive a numeric score out of 1000 points associated to a proficiency level on a five-level scale. Candidates who score between 1 and 550 points don't earn the certification. They will not receive a diploma but a certificate of completion. Candidates who score 551 points or above earn the certification. They will receive a diploma by email within five (5) business days and are eligible to a Credly digital badge.

There is no requirement to be eligible to take the exam, but our recommendations to be well prepared on exam day are:

- Take at least one Tosa VBA Excel adaptive assessment to estimate your level and get familiar with the test format
- Use free practice tests on our website for training
- Follow e-learning or training courses (average duration per level is between 10 and 15 hours per certification so around 150 hours total)

Tosa certification diplomas are valid for three years from the date of issue as skill levels evolve or decline over time, depending on the use of the software. New software and software versions are released every year, and skills must be updated. We cannot legitimately certify a digital skills level for more than three years. Limiting the certification validity reinforces the need for life-long learning and professional development.








Tosa certifications can be retaken when it is expired. Earners willing to improve their score and level can also retake the exam at any time.

Level 1 – Beginner User

Between 1 and 350 points

The Beginner Proficiency is set for a score from 1 to 350, which is the lowest Tosa score category. Achievement of Beginner score defines little or limited knowledge of the VBA application, including the application's basic functions and features, highlighting the inability to use the application in a professional environment.

Overview

Domain	Skills Assessed
Objects	<ul style="list-style-type: none">  Understand the concept of an object in terms of programming
Procedures	<ul style="list-style-type: none">  Understand some lines of code of a recorded macro
Dialogue Boxes / User Forms & ActiveX Controls	<ul style="list-style-type: none">  Recognize the interface: identify a dialog box, a form (Userform)
Environment / Debugging	<ul style="list-style-type: none">  Know how to display the Developer tab  Start recording for a small macro  Display the Visual Basic editor  Run a macro from the Macro dialog box

Level 2 – Basic User

Between 351 and 550 points

Prior to the acquisition of the skills of the Basic level, the candidate will have mastered the skills of the Beginner level.

Objects

Candidates are familiar with the concept of variables and recognize within the code, lines relating to the declarations of the variables. They know how to declare String and Variant-type variables.

Procedures

Candidates know what a procedure is, they know how to display all the procedures in a binder, which can be written in different modules.

They understand the concept of collections, and the names of objects. They can locate the names of objects in the code: name of the workbook, of the sheets, of the cells. They also understand activation and selection relative to all these objects, whether in absolute or relative mode.

Candidates have a basic knowledge of the structure of a macro and can write a simple procedure.

In a recorded macro, they know how to locate and delete certain unnecessary lines of code. In addition, they know how to add comments to macros.

Dialogue Boxes, User Forms & ActiveX Controls

Candidates recognize the interface: they can identify a message, a dialog box waiting for a response, and a form (Userform) with its various controls.

They are also able to insert an ActiveX control from the Developer tab.















Environment and Debugging

With good knowledge of VBA, candidates can understand the VBA language. They know how to display the Developer tab, and how to display the Macros dialog box, and can record/execute a simple macro from the Macros dialog box. They can also add an icon on the Quick Toolbar or on the ribbon to execute the macro.

They can display the VBA Editor and the recorded macro. They know what a module is and can insert a new module. They can identify the menu bar of the editor, and know the main windows, namely the project explorer and the Properties window.

They know how to record a workbook containing macros and understand the concept of security linked to macros.

Overview

Domain	Skills Assessed
Objects	<ul style="list-style-type: none">  Understand the concept of variables and recognize the declaration of variables in an existing code  Know how to declare String and Variant type variables
Procedures	<ul style="list-style-type: none">  Understand what a procedure is  Know how to write a simple procedure  Understand the names of objects in the code  Know the concept of activation and selection  Have basic knowledge of macro structure  Know how to spot unnecessary lines of code in a recorded macro  Know how to create a comment
Dialogue Boxes / User Forms & ActiveX Controls	<ul style="list-style-type: none">  Recognize the interface: identify a dialog box, a form with the different controls  Know how to insert an ActiveX control from the Developer tab
Environment / Debugging	<ul style="list-style-type: none">  Recognize the interface: identify the menu bar, know the main windows  Understand the concept of a module  Create a new icon on the ribbon to run a macro

Level 3 – Productive User

Between 551 and 725 points

Prior to the acquisition of the skills of the Productive level, the candidate will have mastered the skills of the Basic level.

Objects

Candidates know how to force the declaration of variables, understand the usefulness of doing so, and understand the advantage of declaring variables. Candidates can use the main types of variables, as well as the limitations of variable naming.

They are familiar with the concept of object collections, properties, and methods.

They have a good understanding of references and of the Range object.

They know the main arithmetic operators.

Business application: For example, for a statistical researcher, these skills allow them to declare variables to structure his code, to recognize the different VBA objects but also to know how to identify them in the code.

Procedures

Candidates are aware of the limitations regarding the names given to the procedures.

They know how to create a procedure, they are familiar with concepts such as keyword, instruction, and list of arguments. They have a good knowledge of syntax and know how to correctly use the attributes of objects (properties and methods).

They can create small macros to automate repetitive tasks.

They are familiar with the main arithmetic operators and how to use them.

In a procedure, candidates know how to use With... and End With blocks. They also know how to create conditions with the IF instruction.

They understand loops and can use them in simple cases.

They know several functions and how to use them without necessarily using help.

Candidates may use the On-Error Resume Next instruction which allows programming without stopping on error.

They can call a macro from another macro. They also know how to use branch instructions to subroutines.

Business application: For example, for a statistical researcher, these skills allow them to exploit and process their data in order to write study reports.

Dialogue Boxes, User Forms & ActiveX Controls

Candidates can display messages and basic dialog boxes (MsgBox and InputBox). They can create variables to retrieve answers.

They are also able to create a simple Userform with the main controls. They know how to format the controls in the Userform.

They can insert ActiveX controls from the Developer tab and know how to consult their properties. They understand them and can use the Creation mode.

They are also able to insert ActiveX command buttons on a sheet to cause a macro to be executed. They know how to assign a macro to any object inserted in a sheet of the workbook.

Business application: For example, for a statistical researcher, these skills allow them to process the data received, analyze it and then synthesize it.

Environment and Debugging

Candidates understand all the notions of modules: code module for the workbook (ThisWorkbook), for each of the sheets of the workbook, standard modules, and class modules.

They can differentiate between all these modules and in which cases to use one over the other.

In general, they are comfortable with the VBA environment: they know the different menus, they know how to display the main windows and know what they correspond to.

They understand the concept of the Object Explorer, knowing how to display and use it wisely.

Candidates can run a macro in different ways, they also know how to stop a running macro, or know how to execute a macro in step-by-step mode.

Candidates can plan the automatic launch of macros when opening and closing the workbook.

Candidates know how to secure the code with a password.

Business application: For example, for a statistical researcher, these skills allow them to record, secure and launch a series of repetitive actions in order to reproduce them as quickly as possible.

Overview

Domain	Skills assessed
Objects	<ul style="list-style-type: none"> ✎ Know how to force the declaration of variables ✎ Understand the advantage of declaring a variable ✎ Know and use the main types of variables ✎ Understand the concept of a collection of objects, properties, and methods ✎ Know the concept of references (Range) ✎ Know the main arithmetic operators
Procedures	<ul style="list-style-type: none"> ✎ Know how to create a procedure ✎ Have notions such as keyword, instruction, list of arguments ✎ Know the syntax ✎ Know the main arithmetic operators ✎ Use the With... and End With blocks ✎ Create conditions with the IF statement ✎ Understand loops ✎ Know the possibility of programming without stopping on error ✎ Call a macro within another macro ✎ Know how to automate recurring tasks
Dialogue Boxes / User Forms & ActiveX Controls	<ul style="list-style-type: none"> ✎ Know how to create a simple Userform ✎ Know how to display messages and basic dialog boxes, and retrieve responses ✎ Insert ActiveX command buttons on a sheet to cause the macro to run
Environment / Debugging	<ul style="list-style-type: none"> ✎ Understand the concept of modules: module for the workbook and for each of the sheets in the workbook, standard modules ✎ Be comfortable with the VBA environment ✎ Know how to stop a running macro ✎ Know the execution in step-by-step mode ✎ Secure the code with a password ✎ Automatic launch of macros when opening and closing the dialogue

Level 4 - Advanced User

Between 726 and 875 points

Prior to the acquisition of the skills of the Advanced level, the candidate will have mastered the skills of the Productive level.

Objects

Candidates are familiar with the scope of the variables (Private, Public, Dim, Static), as well as their lifespan.

They know how to use most of the existing variable types (Variant, Byte, Integer, Long, Single, Double, String).

They understand the concept of arrays and know how to use them.

They also know how to assign an object to a variable (Instruction Set).

They are familiar with constants and know how to use them.

Candidates know how to refer to cell ranges with the Range object. They know all the advanced methods for referencing cells, such as Intersect and Union.

They know how to manipulate graphs.

Business application: For example, on a developer profile, these skills allow them to create tables and manipulate graphics.

Procedures

Candidates know how to create a procedure and how to add arguments to it.

They can use all arithmetic operators, comparison operators, concatenation operators, and main logical operators (And, Or, Not).

They can write a custom function and know how to use it in the spreadsheet.

Candidates are comfortable with With... and End With blocks and know how to nest them.

They are comfortable using conditions with the IF instruction in all its forms, as well as the Select Case instruction.

They understand loops and know how to use them, especially with For... and Next instructions.

They use a maximum of VBA specific functions of all kinds (conversion functions, information functions, mathematics, string functions, file manipulation).

They can handle certain errors, using labels.

They manage the main events that can be assigned to a workbook, sheet, or cell.

Business application: For example, on a developer profile, these skills allow them to write programs, modify them or make them evolve if necessary.

Dialogue Boxes, User Forms & ActiveX Controls

Candidates know how to create User forms with the main controls and can create advanced VBA tools. They are also able to assign all kinds of events related to MSForms controls as well as ActiveX controls.

In a Userform, they can define the tab order and modify all the properties of the controls.

They can manage multiple selections and cascading lists.

Business application: For example, on a developer profile, these skills allow them to automate the formatting of documents, to set up quality indicators, to create business functions, to manage migrations and to watch over data accounting.

Environment and Debugging

Candidates know how to handle all types of modules perfectly.

They also have good knowledge of classroom modules.

They understand error messages and can solve the most common problems.

Candidates have knowledge of the VBA environment and are comfortable using it. They are proficient in the use of the Object Explorer.

They are familiar with step-by-step execution, understand and use breakpoints, use debugging tools such as spies, and the Immediate window.

Candidates have a good knowledge of the general principles of automation and know how to deal with it in simple cases.

Business application: For example, on a developer profile, these skills allow them to identify code errors and correct them using debugging tools.

Overview

Domain	Skills assessed
<p>Objects</p>	<ul style="list-style-type: none"> ✎ Know the scope of the variables as well as their life span ✎ Know how to use most types of existing variables ✎ Know the concept of tables and how to use them ✎ Know how to assign an object to a variable (Instruction Set) ✎ Use constants with a good knowledge of the Range object and know advanced methods of referring to cells ✎ Know how to manipulate graphics
<p>Procedures</p>	<ul style="list-style-type: none"> ✎ Know how to create a procedure and add arguments to it ✎ Know and use all arithmetic operators, comparison operators, concatenation operators, and main logical operators ✎ Know how to write a custom function and how to use it in the spreadsheet ✎ Use With... and End With blocks and nest them together ✎ Use conditions with the IF statement in any form, as well as the Select Case statement ✎ Understand loops perfectly and know how to use them ✎ Use a maximum of specific VBA functions of all kinds ✎ Be able to handle a few mistakes ✎ Use labels ✎ Be able to manage major events
<p>Dialogue Boxes / User Forms & ActiveX Controls</p>	<ul style="list-style-type: none"> ✎ Know how to create User forms with the main controls, and create advanced tools ✎ Know how to assign all kinds of events related to MSForms controls as well as ActiveX controls ✎ Define the order of tabs in a Userform ✎ Modify control properties ✎ Manage multiple selections and cascading lists

Environment / Debugging	<ul style="list-style-type: none">🔧 Know how to handle the modules perfectly🔧 Understand error messages🔧 Know how to fix the most common problems🔧 Possess knowledge of the VBA environment🔧 Use the Object Explorer🔧 Know the execution in step-by-step mode🔧 Understand and use breakpoints🔧 Use debugging tools such as spies, and the Immediate window🔧 Know the general principles of automation
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Level 5 – Expert User

Between 876 and 1000 points

Prior to the acquisition of the skills of the Expert level, the candidate will have mastered the skills of the Advanced level.

Objects

Candidates know all types of variables and know how to use them flawlessly. They know how to use type conversions, including the CCur function, as well as date functions (CDate and IsDate).

Candidates can use arrays, both static and dynamic.

They can combine variables of several types (User type via the Type Instruction).

They know how to create enumerations (Enum Instruction).

They know all the possibilities related to the Range object (areas, offset, resize, special cells, etc.).

They have a perfect knowledge concerning the handling of graphics.

Business application: For example, on a programmer profile, these skills allow them to build specific language that VBA uses to work with an application.

At this level, the candidate can train on the software.

Procedures

Candidates know how to create a procedure with arguments and know all existing keywords (ByRef, ByVal, Optional, ParamArray).

They can use all arithmetic operators, comparison operators, concatenation operators, and all main logical operators (And, Or, Eqv, XOr, Imp, Not). They know perfectly how to combine all these operators and their priorities.

They use iterative processing in all its forms (For... Next, Do..., Loop, etc.).

They know and use all the specific VBA functions (conversion functions, information functions, mathematics, string functions, file manipulation), even the unknown ones. They know how to find the useful function with the help and the object explorer.

They can foresee and manage, via the code, all kinds of possible errors.

They know how to handle event-driven procedures.

Candidates know how to write custom functions and know how to use them in the spreadsheet and in VBA procedures.

Business application: For example, on a programmer profile, these skills allow them to develop specific applications or write new projects, whether they are office resources, graphic programs, file sorting programs or any other type of Windows-based software.

At this level, the candidate can train on the software.

Dialogue Boxes, User Forms & ActiveX Controls

Candidates use all the controls of a Userform, they know the properties of them, including Tab Controls and Multipage Controls. They know all the events applicable to ActiveX controls and MSForms controls, and how to manage them to build complex and dynamic forms.

They also know how to manage them by making access to workbook sheets inaccessible by direct access, and by imposing entries via User forms.

Business application: For example, on a programmer profile, these skills allow them to define which parts of code are directly executable by the user and which are not. They are able to make private all functions that should not be accessible from the outside via the macro or button window.

At this level, the candidate can train on the software.

Environment and Debugging

Candidates have a perfect knowledge of the entire VBA environment: they know all the possibilities of the menus; they understand the usefulness of all the windows, and they know how to use them properly.

Candidates have a perfect knowledge of error handling, understand error messages, and know how to solve them. They are familiar with the Immediate window and the Local Variables window. They know how to add spies and how to use the Spy window.

Candidates are familiar with all good practices for creating and using class modules.

They know how to manage add-ins, develop complete custom applications, customize the Ribbon, and create new interfaces.

They are also able to drive other Office applications via OLE Automation.

They know how to access data with ADO and CAD.

They can use Windows API functions.

Business application: For example, on a programmer profile, these skills allow them to repeatedly run VBA applications to decipher how the code works during execution. They can use debugging or extensive testing to learn more about how a specific piece of software works. They know how to adapt the various VBA tools to the user's business in order to better manage the company's data volume.

At this level, the candidate can train on the software.

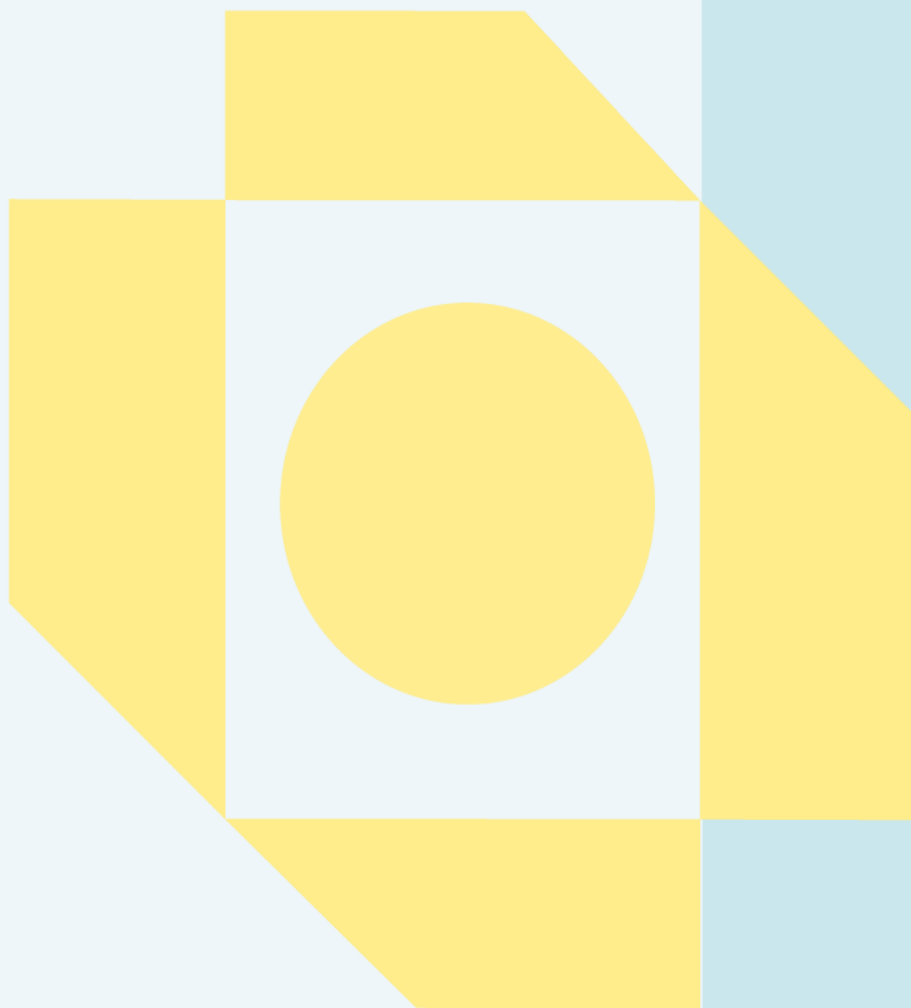
Overview

Domain	Skills assessed
Objects	<ul style="list-style-type: none"> ✎ Know all types of variables ✎ Know how to use type conversions ✎ Understand and know how to use tables, static or dynamic ✎ Know how to combine variables of several types (type Users via the Type Instruction) ✎ Know how to create enumerations (Enum Instruction) ✎ Know all the possibilities relating to the object Range ✎ Have a perfect knowledge of graph manipulation
Procedures	<ul style="list-style-type: none"> ✎ Know how to create a procedure with arguments and knowing all the existing keywords ✎ Know and use all arithmetic operators, comparison operators, concatenation operators, and all main logical operators (And, Or, Eqv, XOr, Imp, Not) ✎ Combine all these operators ✎ Use iterative treatments in all its forms ✎ Know and use all the VBA specific functions (conversion, information, mathematical, string, file manipulation functions) ✎ Anticipate and manage, via the code, all kinds of possible errors ✎ Know how to handle event procedures perfectly ✎ Know how to write custom functions ✎ Know how to use custom functions in spreadsheet and VBA procedures
Dialogue Boxes / User Forms & ActiveX Controls	<ul style="list-style-type: none"> ✎ Use all the controls of a Userform ✎ Know all events applicable to ActiveX and MSForms controls ✎ Build complex and dynamic forms ✎ Make secure data sheets available to users
Environment / Debugging	<ul style="list-style-type: none"> ✎ Know all the possibilities of the menus ✎ Know all the windows and how to use them properly ✎ Know how to handle errors perfectly ✎ Use the Immediate window and the Local Variables window ✎ Add spies

	<ul style="list-style-type: none">🔧 Know all the good practices for creating and using class modules🔧 Manage add-ons, Develop complete custom applications🔧 Control other Office applications via OLE Automation🔧 Access data with ADO and DAO🔧 Use Windows API functions
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Your skills. Your advantage.



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