



Course: **BTEC Level 3 Specialist Award in Robotic Operation**

Guided Learning Hours: **60 hours**

Pre-requisite: **At least a Level 3 qualification in an engineering or IT related field. Must possess good computer literacy skills.**

Abstract

Robotic automation is at the forefront of the latest industry developments across a range of engineering sectors. Industrial robots are used within heavy production environments such as motor car assembly, as well as in light industry such as printed circuit board (pcb) assembly. Robots are also being introduced into ancillary operations such as product picking, packing, testing and inspection.

The **Pearson BTEC International Level 3 Specialist Award in Robotic Operations** is designed to provide a focused and specialist vocational course in industrial automation with a clear work-related emphasis. The qualifications provide the knowledge, understanding and skills required to use robotic automation across a range of sectors.

This qualification develops a learner's abilities in robot programming and engineering, allowing the learner to understand the specific terms and techniques associated with working on a robotic system.

The Pearson BTEC International Level 3 Specialist Award in Robotic Operations will provide support to learners intending to pursue work in a robotics and/or automation environment or just seeking to expand their use of current digital technologies.

Target Audience

This course is ideally suited for learners seeking training in robotics and automation engineering. Technicians and engineers already employed in the manufacturing industry, as well as persons with an educational background in Engineering or IT will find this course useful in enhancing their skills and understanding of robotics and automation engineering.

Learning outcomes

On completion of this course, learners will be able to:

1. Understand robotics systems and basic procedures.
2. Understand fieldbus and reference systems.
3. Understand and practice motion programming.
4. Understand and practice further robot programming.

Assessment Criteria

In order to achieve Learning Outcome...	The Learner must...
1 Understand robotics systems and basic procedures	1.1 Explain how and why the main components of the ARM function correctly. 1.2 Explain how and why the main components of the control unit function correctly. 1.3 Explain the main teach pendant commands and functions. 1.4 Correctly use the graphical user interface to safely move the ARM to a given specification. 1.5 Discuss the need for degrees of protection in a robotic system in relation to given IP ratings. 1.6 Correctly and safely use the control unit to meet given objectives.
2 Understand fieldbus and reference systems	2.1 Explain possible integrations of the robotised system. 2.2 Describe types of inputs and outputs and the differences between these in a fieldbus network. 2.3 Coordinate reference systems by identifying 3D reference systems. 2.4 Distinguish between the characteristics of local and remote systems. 2.5 Perform tool calculations using different procedures and methods. 2.6 Explain the importance of declaring the

	<p>correct Payload.</p> <p>2.7 Describe the calibration position check procedure.</p> <p>2.8 Use and check calculations using appropriate software.</p>
3 Understand and practice motion programming	<p>1.1 Describe creation and activation of movement programming.</p> <p>1.2 Analyse differences between JOINT and LINEAR trajectories.</p> <p>1.3 Create robot movement programming for a given scenario.</p> <p>1.4 Modify an existing robot program to allow continuous movement.</p> <p>1.5 Create movement programming containing a circular trajectory.</p> <p>1.6 Create an automatically executing MAIN program with subprograms.</p> <p>1.7 Evaluate the use of ROUTINES and COLLISION DETECTION in a movement program.</p>
4 Understand and practice further robot programming	<p>4.1 Explain the system memory layout.</p> <p>4.2 Backup and restore a program.</p> <p>4.3 Compare the use of the WinC5G software with manual programming when creating robot programs.</p> <p>4.4 Use the WinC5G software to perform a non-routine procedure.</p> <p>4.5 Use techniques to create efficiency in given programs.</p> <p>4.6 Evaluate a robot program in terms of improving efficiency.</p> <p>4.7 Plan automation for a given process.</p> <p>4.8 Develop robot programming to automate a given process.</p>

Mode of Study

Classes for this programme will be Part-time, face to face at our **SBCS GLI Champs Fleurs campus**.

Assessments

All units in these qualifications are internally assessed. This means that centers set and mark the assessments, which are then subject to external standards verification by a Pearson standards verifier. To achieve a pass for these qualifications, the learner must achieve all learning outcomes identified in each unit.

Fee Schedule

Fees for this programme are as follows:

FEE	AMOUNT	NOTE
SBCS Registration Fee	TT\$150	Payable upon registration
Pearson BTEC Registration Fee	£50 (one-time payment)	Payable upon registration
Pearson BTEC Resource Fee inclusive of assessments	<ul style="list-style-type: none">£125 (one-time payment) Note: For SBCS HND Graduates, this fee will be discounted fee to £50	Payable upon registration
Tuition Fee	Cash: TT\$5,500	Payment Plans available

NOTE:

All SBCS Fees in Sterling Pounds must be paid via bank draft payable to "SBCS Global Learning Institute". Please include your name on the bank draft in the B/O (by order of) section

Contact Information

Further information can be found on the SBCS website:

<http://www.sbcs.edu.tt/academic-centre/centre-for-information-technology-and-engineering/>

Course administrators can also be contacted directly:

Campus	Telephone: 663-SBCS (7227)	Email
Champs Fleurs	Extensions: 1093, 1095, 1253	CITE-Eng@sbcs.edu.tt