VAAL UNIVERSITY OF TECHNOLOGY

*Inspiring thought. Shaping talent.*

1966-2026

# LEARNER GUIDE

| | |
|---|---|
| **Faculty** | Engineering |
| **Department** | Process Control |
| **Course** | Workplace Based Learning |
| **Title** | EIEXL2A |
| **Compiled By** | TV Maloka |
| **Year** | 2026 |

# REGISTRATION AND REPORT SUBMISSION INSTRUCTIONS

## Registration of Workplace- Based Learning (WBL)

Registration procedure:

- Registration for the following WBL modules EIEXL1A, EIEXL2A and EIPRJ4A must be done simultaneously.
- This second module EIEXL2A carries a credit value of 16 with a minimum time requirement of 480 hours (approx. 12 weeks).

## Workplace Based Learning (WBL) Reports

Preparation and submission procedure:

- The training schedule report (pages 2 to 3) must be completed and emailed to the VUT Process Control coordinator (Mr. TV Maloka) as soon as possible after this module of WBL commences.
- After completion of each topic, the topic must be assessed and signed (page 6).
- After completing this module of WBL the assessor must complete the assessor's declaration (page 7).
- The final report for this module must be submitted by use of email to the WBL Coordinator

# TRAINING SCHEDULE REPORT

# EIEXL2A (480 HOURS)

Procedure to complete and submit the training schedule:

- Within 14 days after WBL commences the training schedule report (pages 2 to 3) must be emailed to the relevant VUT WBL Process Control coordinator. (Mr. TV Maloka, email address: malokat@vut.ac.za).
- Complete pages 6 and 7.
- The report must be signed by the mentor and the student (page 7).
- Only the topics the company offers by their main business must be done. If there are other topics not mentioned in the document it should be added. Topic 4 on page 11 is blank and should be used for the additional topics.

## 1 GENERAL INFORMATION – TRAINING SCHEDULE REPORT WBL (EIEXL2A)

| | | |
|---|---|---|
| **STUDENT** NUMBER: | | **STUDENT'S** POSTAL ADDRESS: |
| INITIALS & SURNAME: | | |
| ID NUMBER: | | |
| E-MAIL: | | |
| TELEPHONE (WORK): | | CELL PHONE: |
| **COMPANY** NAME: | | NUMBER OF EMPLOYEES: |
| DIVISION: | | NUMBER OF STUDENTS IN TRAINING: |
| TRAINING SITE/STREET ADDRESS: | | NUMBER OF ECSA REGISTERED STAFF: |
| | | COMPANY'S SPECIALIZATION FIELD OR PRODUCTS |
| **ASSESSOR** INITIALS & SURNAME: | | ACCREDITED ASSESSOR: Y / N |
| E-MAIL: | | CELL OR TELEPHONE: |
| **WBL REPORT** START DATE: | | END DATE: |

**VUT OFFICE USE:** *ACCEPTED* □ *DECLINED* □

## 2 TOPICS SCHEDULED FOR WBL (EIEXL2A)

The following table shows the possible **applicable** topics that may be included by the company where workplace-based learning takes place. Show the total hours for each topic.

The scheduled topics are on pages 8 to 11. Extra topics that the company may wish to include should be added. The topics numbered 1 to 4 serve as a guide and may be modified by the company. Topics will however need to be approved by VUT.

| TOPIC NUMBER | CONTENT TOPICS | TIME HOURS |
|---|---|---|
| 1 | Programmable devices | |
| 2 | Industrial systems | |
| 3 | Plant Loop Training | |
| 4 | Other | |
| 5 | Other | |
| 6 | Other | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | TOTAL Hours | 480 |

| |
|---|
| **WBL Training Schedule Report compiled by:**<br><br>*Student's signature* *Date* |
| **WBL Training Schedule**<br>**report certified as correct:**<br><br>*Assessor's signature* *Date* |

# TOPIC ASSESSMENT REPORT

# EIEXL2A (480 Hours)

Procedure to compile and submit the assessment report:

- After completion of each topic, the topic must be assessed by the assessor and signed. (Pages 6 to 7)
- After completion of this module on WBL the assessor must complete the assessor's declaration (page 7).
- The final report for this module (pages 8 to 12) must be submitted by email to WBL coordinator

## 2 ASSESSOR DECLARATION – ASSESSMENT REPORT WBL 2 (EIEXL2A)

| | | |
|---|---|---|
| **STUDENT** | **INITIALS AND SURNAME:** | |
| | **VUT - STUDENT NUMBER:** | |
| | **ID NUMBER:** | |
| | **COMPANY:** | |
| **TRAINING PERIOD** | **WBL:** | **TO**<br>***START DATE:*** ***COMPLETION DATE:*** |
| **ASSESSOR** | **INITIALS AND SURNAME:** | |
| | **CELL OR TELEPHONE NUMBER:** | |
| | **E-MAIL:** | |
| **ASSESSMENT** | | |

**ASSESSOR DECLARATION**

I, the above-mentioned assessor, declare that the above-mentioned student has completed this workplace-based learning module (WBL) of the qualification in the mentioned period under my supervision.

The student was found competent in the outcomes as specified in the assessment report.

*Signature* *Date*

| | |
|---|---|
| **VUT OFFICIAL** **FINAL MARK:** | |
| *SIGNATURE:* | ***DATE:*** |

## ASSESMENT REPORT AND TRAINING SCHEDULE WBL 2 (EIEXL2A)

### SYLLABUS: PROCESS CONTROL ENGINEERING

| TOPIC 1 | PROGRAMMABLE DEVICES |
|---|---|

After completion of this topic the student should be able to do the following:

- Programming, downloading and testing of programs for programmable devices

.

| Start Date: | End Date: | Total Hours: |
|---|---|---|
| | | |

| Topic Mark<br>(Mark with an X using attached rubric page 12)<br><br>**Assessor Signature**: | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | | | | | |

| Graduate attributes<br>Mark the GA's addressed in this unit with an X)<br>(See syllabus Appendix A) | GA 11 | | | |
|---|---|---|---|---|
| | | | | |

**Explain how this topic is addressed in the specific workplace.**
(Refer also to the GAs in the Syllabus Appendix A) Insert more lines if needed

| Student Signature | Assessor Signature |
|---|---|
| | |

| | |
|---|---|
| | |

| **TOPIC 2** | Industrial systems |
|---|---|

After completion of this topic the student should be able to do the following:

- Develop circuit diagrams and flow diagrams
- Demonstrate the interpretation of circuits and flow diagrams
- Ability to install and commission equipment on a system and do fault finding

| **Start Date:** | **End Date:** | **Total Hours:** |
|---|---|---|
| | | |

| **Topic Mark**<br>(Mark with an X using rubric attached page 12)<br><br>**Assessor Signature*:*** | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|

| **Graduate attributes**<br>Mark the GA's addressed in this unit with an X)<br>(See syllabus Appendix A) | GA 11 | | | |
|---|---|---|---|---|

**Explain how this topic is addressed in the specific workplace.**
(Refer also to the GAs in the Syllabus Appendix A) Insert more lines if needed

| **Student Signature** | **Assessor Signature** |
|---|---|
| | |

| | |
|---|---|

| TOPIC 3 | PLANT LOOP TRAINING |
|---|---|

After completion of this topic the student should be able to do the following:

- Understand and work on control systems
- Understanding and demonstrate occupational safety and other legislative requirements for the practise of a learner technician/student
- Understand and demonstrate different ISO standards and how this tie into industry requirements to comply to these standards
- Understand and apply the requirements and steps that need to be followed to do work in the workplace with the permit to work system.
- .

| Start Date: | End Date: | Total Hours: |
|---|---|---|
| | | |

| Topic Mark (Mark with an X using rubric attached page 12)<br><br>Assessor Signature: | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | | | | | |

| Graduate attributes<br>Mark the GA's addressed in this unit with an X)<br>(See syllabus Appendix A) | GA 11 | | | |
|---|---|---|---|---|
| | | | | |

**Explain how this topic is addressed in the specific workplace.**
(Refer also to the GAs in the Syllabus Appendix A) Insert more lines if needed

| Student Signature | Assessor Signature |
|---|---|
| | |

**OTHER TOPICS** (Make as many copies of this blank unit as necessary)

| **TOPIC 4** | |
|---|---|
| After completion of this topic the student should be able to do the following: | |

| **Start Date:** | **End Date:** | **Total Hours:** |
|---|---|---|
| | | |

| **Topic Mark**<br>(Mark with an X using attached rubric page 12)<br><br>**Assessor Signature*:*** | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|

| **Graduate attributes**<br>Mark the GA's addressed in this unit with an X)<br>(See syllabus Appendix A) | GA 11 | | | |
|---|---|---|---|---|

| **Explain how this topic is addressed in the specific workplace.**<br>(Refer also to the GAs in the Syllabus Appendix A) |
|---|
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

| **Student Signature** | **Assessor Signature** |
|---|---|
| | |

# WBL - EIEXL2A

## Evaluation guideline

This guideline can be used by the assessor to do student evaluation.

| Rating | Theoretical knowledge | Application of theory | Use of: advanced tools / measuring equipment | Skills integration / Competencies gained | Working speed | Accuracy | Interpersonal relations | Diligence motivation |
|---|---|---|---|---|---|---|---|---|
| **1**<br>**0-19%** | Has little knowledge | Cannot apply any theory | Cannot use advanced equipment | Has not integrated any skills | Very slow and do not successfully complete any tasks | Never accurate | Does not get along with any staff | Does nothing unless instructed |
| **2**<br>**20-39%** | Can recall some basic knowledge | Can apply some theory with assistance | Can use advanced equipment with assistance | Has integrated some documented skills | Never complete tasks successfully on time | Has to redo and then sometimes accurate | Can interact positively with most of the staff | Does just enough to keep out of trouble |
| **3**<br>**40-59%** | Knows the basic minimum | Can apply the basic minimum theory | Can use advanced equipment to do the basic minimum | Has integrated the basic minimum documented skills | Just complete tasks successfully on time | Just meets the minimum specifications | Interact positively with all the staff | Does the minimum expected |
| **4**<br>**60-79%** | Good knowledge | Can apply high level theory | Can select and use advanced equipment independently | Effectively integrate skills as needed in practical applications | Normally complete all tasks successfully before/on time | Work is always better than minimum expected | Is accepted by the staff as somebody with good personal skills | Normally looks for over and above work to do |
| **5**<br>**80-100%** | Excellent knowledge | Can analyze and synthesize | Optimally select and use advanced equipment | Innovatively integrate all theoretical and practical skills to solve problems | Always complete all tasks successfully before time | Work is always excellent. | Uses personality to positively influence other staff | Ambitious and eager to prove talents beyond requirements |

# SYLLABUS

| | |
|---|---|
| **Faculty** | Engineering |
| **Department** | Process Control |
| **Course** | Work-place-based Learning |
| **Title** | EIEXL2A |
| **Compiled By** | TV Maloka |
| **Year** | 2026 |
| **NQF Level** | 5 |
| **Credits** | 16 |

## 1. Syllabus Content

(a) Specific learning content is determined by the Employer. The following represents typical fields of learning content: programmable control devices, industrial control systems, control loops.

(b) As follow-up module these fields would typically include the development, building and configuration of systems which may include Programmable control devices, Industrial control systems, control loops. The installation and configuration of specific employer systems should be included.

(c) Another area where students may receive world-place-based exposure is in the configuration and implementation of IIOT systems.

## 2. Learning Outcomes

After completion of this course the student should be able to demonstrate at least one or more of the following:

- Programming and testing of programs for programmable devices
- Interpretation of process diagrams and flow diagrams
- Ability to install and commission equipment on a system and do fault finding
- Understand components of control systems in an industrial environment.
- Understanding and demonstrate hazardous area requirements.
- Understand and demonstrate different ISO, ISA and company standards compliance.
- Understand and apply the requirements and steps that need to be followed to do work in the workplace with the permit to work system.

### 3. References

-

## 4. Graduate Attributes

This module aids to assess the following ECSA defined graduate attributes as applicable to work-place-based learning:

### Graduate Attribute 12: Workplace practices

Demonstrate an understanding of workplace practices to solve engineering problems consistent with academic learning achieved.

**Note:** The purpose of work-integrated learning is to enable the learner to connect academic learning with workplace practice.

***Range Statement:*** Tasks to demonstrate this attribute may be performed in one or more of the following curriculum types:

1. Work-directed theoretical learning: in which theoretical forms of knowledge are introduced and sequences in ways that meet both academic criteria and are applicable and relevant to the career-specific components.
2. Problem-based learning: where students work in small self-directed groups to define, carry out and reflect on a task which is usually a real-life problem.
3. Project-based learning: that brings together intellectual enquiry, real world problems and student engagement in meaningful work.
4. Workplace learning: where students are placed in a professional practice or simulated environment within a training programme.

5. Simulated learning.

## 5. Graduate attributes assessment

| **Graduate Attribute 12: Workplace practices**<br>Demonstrate an understanding of workplace practices to solve engineering problems consistent with academic learning achieved. | |
|---|---|
| | |
| Where is outcome assessed? | In the workplace. |
| How is this outcome assessed? | Students are required to produce a report that is verified by mentor illustrating the ability to develop, build and configu process control systems, in which the work-place-based learning takes place. |
| What is satisfactory performance? | Appropriate and applicable control systems can be demonstrated and explained. |
| What is the consequence of unsatisfactory performance? | Work must be repeated until the appropriate application of theoretical knowledge can be demonstrated. |

## 6. Module Credits

**1 credit** = 30 hours work based learning

**16 credits** = 480 hours work based learning (12 Weeks**)**

## 7. Module Knowledge Profile

| **Mathematical Sciences** | **Natural Sciences** | **Engineering Sciences** | **Engineering Design** | **Computing and IT** | **Complementary Studies** | **Work Integrated learning** |
|---|---|---|---|---|---|---|
| | | | | | | 16 |