VAAL UNIVERSITY
OF TECHNOLOGY

Inspiring thought. Shaping talent.

STUDY GUIDE

Faculty	Engineering and Technology
Department	Electrical Engineering: Electronics
Course	Diploma in Engineering
Title	Experiential Learning I – EEEXL1A
Compiled By	RM Schoeman
Year	2021
NQF Level	5
Credits	14

Instructional offering: Experiential Learning I

Code: EEEXL1A

Instructional programme: Diploma: Engineering: Electrical

Assessment: Continues Workplace Based Learning

Document revision: 01/Nov/2021

Advisory committee approved: 23/Nov/2018

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1 Word of welcome

The Department of Electrical Engineering – Electronics welcomes you as a student to the Faculty of Engineering and Technology at the Vaal University of Technology.

The Vision of the Department is: To be a department that leads in innovative knowledge and quality technology education. The core values of this Department are:

Integrity, Honesty, Punctuality, Professionalism, High academic standards, Excellence and Trust

Compiled by	Mr R.M. Schoeman	
Contact details	Mr R.M. Schoeman Main campus – S310 016 950 9033 ruaan@vut.ac.za	Vaal University of Technology Private bag X021 Vanderbijlpark 1900
Revision dates	Document revision Advisory committee approved	01/Nov/2021 23/Nov/2018

2 General requirements

- It is the responsibility of the student to register for WBL before training commences.
  Registration may only occur once all modules required credits has been achieved.
- The student should simultaneously register for EEEXC1A, EEEXC2A and EEPRJ4A, which are the three components of the workplace based learning.
- The registration, completion and submission of reports must be done according to the guidelines.
- An accredited assessor, appointed by industry, will do the assessment of each relevant topic. This assessor must have a qualification that is equal to or higher than the qualification being assessed.
- The student must do the training under the supervision of a mentor, which could also be the assessor if the mentor has the necessary qualifications.
- A VUT accredited staff member will act as examiner.
- The assessor must complete and sign all required assessors reports before submission to VUT.
- If the mentor or assessor needs any assistance feel free to contact the coordinator at VUT (see top of page) .
- To fulfil the requirements of the Diploma: Electrical Engineering, the student must successfully complete all academic requirements, as well as the three Workplace Based Learning components.
- Topics that are not included in the list of topics in this document, but are required by the training company should be added using the Other Topics under unit 7 of the final reports evaluation rubric. Add as many topics as needed.
- Graduate attribute 12 (GA 12) must be covered in this module as part of the requirements of the Engineering Counsel of South Africa (ECSA).

3 Philosophy of Teaching and Learning the subject Experiential Learning I

The nature of the learning process for Experiential Learning I must include but is not limited to the following:

In the workplace the students gain knowledge and understanding in a professional and social setting.

It is expected of the student to interact with the management, mentors, technicians and peers.

The student must also interact with the broader workplace community through attentive reading of workplace policy and documentation. Each student starts from an initial base of knowledge and experience gained from the previous semester's subjects in the focusing on the broader field of electronic engineering.

All students work from this point to build a more meaningful understanding of the practical application of previous subject matter and to enhance their ability to ask questions and find answers.

The student must learn how to deal with new situations with tough problems and unknown answers.

The following steps may guide the student in the learning process:

Articulate initial knowledge

Add to what is already known to refine and enrich it with the student's own efforts

Articulate and correct misconceptions

Make connections between different concepts as applied to the workplace

Realize the limitations of their own ideas when measure against workplace solutions.

Create and test well defined problems and ideas

Be concerned with the mental processes as well as the "answer"

Reflect on the way their conceptions are changing

Ask questions (what if, why, how..?)

The ideal learning environment must include but is not limited to:

Initial activities are accessible to everyone and come from common experiences in the workplace

The environment is both accepting and critical

Students are made to feel free to propose their own ideas without premature judgment

Students learn to support their ideas while interacting with management, mentors, technicians and peers

Conversations take place in which all students feel they can contribute

Ideas are illustrated and student interest engaged through demonstrations and experiments

An environment is created that fosters self-motivation among the students within the workplace

A variety of types of learning activities are used to meet the wide range of student needs

Students must develop a sense of accomplishment and satisfaction within the workplace.

The responsibilities of management, mentors, and technicians must include but is not limited to:

Help students learn the language of the discipline

Explain goals and methods

Validate knowledge brought by each student

Create interest and generate curiosity

Encourage students to work hard

Communicate standards of judgment

Help students learn how to use language precisely

Act as a resource without directly answering every question

Provide time to puzzle, wonder, and struggle when permitted.

Provide fair criticism

Encourage collaboration

Teach the student to be an active listener and learner

Question students so they realize the process of seeking explanations is critically important

The responsibilities of students must include but is not limited to:

Make use of initial knowledge

Think freely guided by your workplace environment

Engage in an active social process of testing and clarifying their understanding

Develop the ability to work effectively and intensely

Avoid premature judgment of themselves or others

Ask questions
Carefully consider the ideas of others
Learn to think independently and take responsibility for their own actions
Value others as useful colleagues
Evaluate their own progress in an objective manner

4   Module

Name:	Experiential Learning I	EEEXL1A
Prerequisite:	300 credits	

On successful completion of this subject the student will have basic knowledge, experience and:

Be able qualify and quantify orientation structures and induction processes in the workplace environment

by having attend induction and orientation programs in the workplace environment.

Be able to demonstrate the understanding of the basics of test equipment.

Be able to setup electrical, electronic or computer test equipment used in the specific field.

Be able to operate electrical, electronic or computer test equipment used in the specific field.

This unit links the work covered in the previous modules in a practical manner, for analysis and use.

5   Assessment

Assessment takes place on a continuous basis by means of a variety of methods and should include the following:

Active participation in discussions
Log Book   (Annexure A)
Progress Report   (Annexure B)
Final Report   (Annexure C)

6   Learning Activities

When you active involved with Experiential I you should:

Understand what is expected of each training section you undertake in the workplace.

Ensure that you attain the outcome for each training section you undertake in the workplace since you must be declared competent in order to receive the credit for the subject.

Do all learning activities (exercises) as outlined by your mentor

Be well prepared for all work activities and report for work on time.

Successful completion of each activity stipulated by your mentor is compulsory.

Submit the final report fully completed and signed off by the mentor and/or manager, on time.

7 Time schedule / Semester planner

You must make sure that you adhere to all dates of all learning activities in the workplace environment
.

This is a scheduler for your use to ensure punctuality.

Week	Activity
1-20	Complete a logbook (Annexure A) of activities on a daily basis
10	Complete Progress Report and submit to Co-operative education at VUT Vanderbijlpark campus Submit partially completed logbook (Annexure A) to Co-operative education at VUT Vanderbijlpark campus
20	Complete Final Report and submit to Co-operative education at VUT Vanderbijlpark campus Completed logbook (Annexure A) and submit to Co-operative education at VUT Vanderbijlpark campus

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Vaal University of Technology

Faculty of Engineering and Technology

Department Electrical Engineering - Electronics
VUT
Annexure A

Log Book

Instructional offering: Experiential Learning I
Code: EEEXL1A
Instructional programme: Diploma: Engineering: Electrical
Assessment: Continues Workplace Based Learning

GENERAL INFORMATION - WPBL (EEEXL1A)

STUDENT NUMBER:		**STUDENT'S** POSTAL ADDRESS:
INITIALS & SURNAME:		
ID NUMBER:		
E-MAIL:		
TELEPHONE (WORK):		CELL PHONE:

COMPANY NAME:	
DIVISION:	
TRAINING SITE/STREET ADDRESS:	

MENTOR INITIALS & SURNAME:	
E-MAIL:	

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

ACTIVITIES COMPLETED

ACTIVITY NUMBER	NAME	DATES	
		STARTED	COMPLETED

ACTIVITIES SCHEDULED FOR THE REMAINDER OF THE TRAINING PERIOD

ACTIVITY NUMBER	NAME	ESTIMATED DATES	
		START	COMPLETION

PERSONAL GROWTH

The following is a summary of what I have learned during the past three months in the units that I have completed.

WPBL (EEEXL1A) activity log compiled by:

Students signature   *Initials & Surname*   *Date*

WPBL (EEEXL1A) activity log certified as correct:

Mentor's signature   *Initials and Surname*   *Date*

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Annexure B

Progress Report

Instructional offering: Experiential Learning I
Code: EEEXL1A
Instructional programme: Diploma: Engineering: Electrical
Assessment: Continues Workplace Based Learning

GENERAL INFORMATION - PROGRESS REPORT WPBL (EEEXL1A)

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	

MENTOR INITIALS & SURNAME:		ACCREDITED ASSESSOR:	Y / N
E-MAIL:		CELL OR TELEPHONE:	

WPBL PROGRESS REPORT START DATE:		END DATE :	

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

UNITS COMPLETED

The following table must show the units successfully completed during the past three months.

The units can be seen on page 17 to 19.

UNIT NUMBER	UNIT NAME	DATES	
		STARTED	COMPLETED

UNITS SCHEDULED FOR THE NEXT THREE MONTHS

The following table must show the units that are scheduled for the next three months of training.

The units can be seen on page 17 to 19.

UNIT NUMBER	UNIT NAME	ESTIMATED DATES	
		START	COMPLETION

PERSONAL GROWTH

The following is a summary of what I have learned during the past three months in the units that I have completed.

WPBL (EEEXL1A) Progress report compiled by:

Students signature	*Initials & Surname*	*Date*

WPBL (EEEXL1A) Progress report WPBL certified as correct:

Mentor's signature	*Initials & Surname*	*Date*

Vaal University of Technology

Faculty of Engineering and Technology

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Annexure C

Final Report

Instructional offering: Experiential Learning I
Code: EEEXL1A
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Assessment: Continues Workplace Based Learning

MENTOR'S DECLARATION - FINAL REPORT   WPBL (EEEXL1A)

STUDENT	**INITIALS AND SURNAME :**	
	VUT - STUDENT NUMBER :	
	ID NUMBER :	
	COMPANY :	
TRAINING PERIOD	**WPBL :**	**TO** *START DATE:* *COMPLETION DATE:*
MENTOR	**INITIALS AND SURNAME :**	
	CELL OR TELEPHONE NUMBER :	
	E-MAIL:	
ASSESSMENT	**MARK :**	**%**

MENTOR
DECLARATION

I, the above-mentioned mentor, declare that the above-mentioned student has completed the workplace based learning component (WPBL) of the qualification in the mentioned period under my supervision.

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

The mark indicated above may be awarded to the student as the final result for work integrated learning WPBL.

Mentor Signature	*Mentor Initials & Surname*	*Date*
VUT OFFICIAL	**VUT OFFICIAL FINAL MARK:**	**%**

ASSESSMENT: FINAL REPORT WPBL EEEXL1A

SYLLABUS: ELECTRONIC ENGINEERING

UNIT GUIDE

> **F= Fundamental** *(Compulsory)*
> **C= Core** *(Compulsory for specialization field)*
> **E= Elective** *(Choice)*

					ASSESSOR'S USE	
Unit 1	**ORIENTATION / INDUCTION**			START DATE	END DATE	MARK	SIGNATURE
	General introduction to your specific environment.	**F**				
	After completion of this unit the student should be able to demonstrate ability of the following: Understand the policy and mission of the company as laid down in the orientation program.						

					ASSESSOR'S USE	
Unit 2	**TEST EQUIPMENT**			START DATE	END DATE	MARK	SIGNATURE
	Basics of test equipment	**F**				
	Application of test equipment	**F**				
	After completion of this unit the student should be able to demonstrate ability of the following: • Demonstrate the understanding of the basics of test equipment. • Setup electrical, electronic or computer test equipment used in the specific field. • Operate electrical, electronic or computer test equipment used in the specific field.						

					ASSESSOR'S USE	
Unit 3	**COMPONENTS / DEVICES**			START DATE	END DATE	MARK	SIGNATURE
	Use	**F**				
	Characteristics	**F**				
	Identification	**F**				
	Testing/ calibration	**F**				
	After completion of this unit the student should be able to demonstrate ability of the following: Demonstrate the identification, calibration, testing or use of components/devices.						

					ASSESSOR'S USE	
	FAULT FINDING AND MAINTENANCE			START DATE	END DATE	MARK	SIGNATURE
Unit 4	Components	F					
	Circuits	F					
	Systems	F					
	Equipment	F					

After completion of this unit the student should be able to do the following:
- Interpretation of applicable diagrams.
- Demonstrate the ability to do fault finding and rectification.
- Test / Calibrate instruments, systems or equipment.

					ASSESSOR'S USE	
	CIRCUITS AND FLOW DIAGRAM DESIGN			START DATE	END DATE	MARK	SIGNATURE
Unit 5	Basic design	F					
	Computer design software	F					
	Simulation / Emulation	F					

After completion of this unit the student should be able to demonstrate ability of the following:
- Develop circuit diagrams / flow diagrams.
- Demonstrate the interpretation of circuits / flow diagrams.
- Demonstrate knowledge of simulation / emulation.

					ASSESSOR'S USE	
	PROGRAMMABLE DEVICES			START DATE	END DATE	MARK	SIGNATURE
Unit 6	Programmable devices	F					

After completion of this unit the student should be able to demonstrate ability of the following:
Basic Programming, downloading and testing of programs for different programmable devices.

		START DATE	END DATE	MARK	SIGNATURE
				ASSESSOR'S USE	
OTHER TOPICS		START DATE	END DATE	MARK	SIGNATURE
Any other specialization field specific topics may be added by the mentor. The mentor must give realistic credit values to the topics.					

(Left vertical label: **Unit 7**)

				MARK	SIGNATURE
				ASSESSOR'S USE	
GRADUATE ATTRIBUTES				MARK	SIGNATURE
Have the student achieved all the outcomes mentioned in the marks summary page and thus achieved graduate attribute 12 of the ECSA stipulations	F			YES ----- NO	