




Nelson Mandela Metropolitan University

f o r t o m o r r o w


Faculty	Faculty of Engineering
Department	Department of Mechanical Engineering
Instructional Programme	National Diploma: Engineering: Mechanical
NATED Programme Code	3208082 / 3208110
Internal Programme Code	3716 / 3718

Syllabus Guide

Instructional Offering	Mechanical Engineering Practice I Mechanical Engineering Practice II
Subject Code and Document ID	MEP1 and MEP2
NATED Code	081914612 and 081914722
Date of Implementation	January 2005
Tuition Credits	None
Revision	2015, Semester 1
Examination	Continuous evaluation
Pre-requisite Subjects: MEP1 MEP2	Entrance requirement for ND. Minimum of 6 Level III subjects.

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GENERAL OVERVIEW OF THE ND: ENGINEERING MECHANICAL

The National Diploma (ND) is a 3 year engineering qualification intended for practitioners in Industry and is registered with the South African Qualifications Authority (SAQA) at a National Qualification Framework (NQF) level 6.


The ND utilises career orientated training in order to provide students with the knowledge and expertise necessary to function with competence in the work place. Persons achieving this qualification will be able to, independently as well as under supervision, integrate analytical and practical engineering techniques and engineering knowledge to solve well-defined and open-ended engineering problems. They will also be able to select criteria to judge processes and outcomes. These typical processes and outcomes may be listed as follows:

- Apply mechanical engineering principles to diagnose and solve engineering problems. (Problem solving, investigation, experimentation and data analysis).
- Demonstrate mechanical engineering knowledge and skills in one or more specialised areas. (application of fundamental and specialist knowledge with lifelong learning and team and multi-disciplinary working, ethics and practice).
- Engage in mechanical engineering design work individually and as part of a team. (Design and synthesis, methods, tools and IT including Team and multi-disciplinary working, ethics and practice).
- Communicate effectively in a technological environment. (Methods, tools and IT)
- Apply management principles in an engineering environment. (Ethics and practice).

On achieving the ND, the graduate with further professional development and practical experience may be registered with the Engineering Council of South Africa (ECSA) as a Professional Engineering Technician. Hence, to ensure that the training is in accordance with national and internationally recognized standards, quality assurance and regularly scheduled accreditation audits are conducted by ECSA (for further detailed info and registration, see web site <http://www.ecsa.co.za>) as well as the Higher Education Quality Committee (HEQC). In addition, specific modules may be registered and accredited by the applicable Sector Education and Training Authority (SETA) on complying with other Unit Standards controlled by a Unit Standards Body (USB) from Industry.

INTRODUCTION TO EXPERIENTIAL LEARNING

Experiential Learning (EL) or Co-operative Education is a program that formally integrates a student's academic studies with work experience in participating employer organisations. It is a compulsory component of the ND and constitutes essentially 1/3 of the qualification. It is a formal subject with outcomes and has to be controlled and managed accordingly.

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The experiential Learning consists of two distinct practical components of roughly 24 weeks each or a minimum of 800 notional hours per component. The components differ in that the first component (MEP1) focuses on developing hand skills by participating in physical work in an artisan work environment, while MEP2 requires a much higher level of synthesis, responsibility and accountability as would be expected of a engineering Technician. This again, would be done under super vision of a mentor, but facilitating some independent work by the student. Detailed guidelines for M EP1 and 2 are provided separately in this document.

The four parties involved in the experiential learning are:

- The student.
- The mentor (employer) who assesses and certifies the level of proficiency or competence attained by the student.
- The monitor (NMMU) who conducts site visits to provide support and advice to the other two parties.
- The NMMU assessor who evaluates the student's projects/work/report/s and approves the training on behalf of the Department. This person may also be a monitor.


It is necessary to register for each component and a fee is payable. The Head of Department or his/her designate will approve or reject the proposed registration.

The student submits all the evaluations and a detailed report, as part of the log book, to the NMMU. The content of this report is outlined in the guidelines. If deemed necessary by the Department's assessors, the student will need to present the work orally.

This booklet gives an outline of the experiential training required for Mechanical Engineering Technicians. It is intended to serve as a guide and as a log-book in which the trainee can note their progress.

THE DUTIES AND RESPONSIBILITIES OF THE STUDENT

- The student must register for experiential learning using the document in appendix A. It may be posted or faxed or e-mailed to the Department Co-coordinator and Faculty officer.
- The student must keep a log of the activities and work done in the enclosed log book, (the employer's log book in some cases may also be adequate), ensuring that the applicable evaluations and appraisals are signed off by the mentor or the delegated appropriate responsible person, (mentor, manager, supervisor or foreman). See appendix L or M for requirement list.
- The student submits all the evaluations and a detailed report, as part of the log book, to the NMMU Faculty Officer. See appendices L or M for detailed check sheet.

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IMPORTANT NOTE TO STUDENT:

1. You must register as soon as you start at your In-service training position
 - a. If registration is after the NMMU's last day for late registration for that semester, then the registration will be deferred to the following semester.
(it is too late to complete the required hours if you register for MEP1 or 2 after the last date for late registration)
2. The rules allow **ONLY** one academic subject to be registered in conjunction with each In-service training module (maximum of two per year)

THE DUTIES AND RESPONSIBILITIES OF THE MENTOR

The mentor is a technically competent person at the employing company, who takes general responsibility for the technical development of the student.

- The mentor would typically be someone with a formal technical qualification (e.g. ND or B Eng), or formal professional qualification (e.g. Reg. Eng. Technician, Pr Technician, Pr Tech.(Eng) or Pr Eng), or a training position in the company.
- The mentor ensures that the experiential training adequately covers the requirements provided in the guidelines and that sufficient time is spent on such work, to bring the student to a measurable competence.
- The mentor should guide the student concerning training, check the logbook at regular intervals for accuracy and completeness and perform the applicable evaluations. See relevant appendices C, D, E, G, H and J.

ACCREDITATION OF TRAINING PROGRAMMES

It is recommended that experiential training agencies, which have well-structured training programmes in place, have these programmes accredited by the NMMU. The NMMU and the agency will then agree on suitable monitoring and evaluation procedures.


CODE OF CONDUCT

Upon enrolment, every NMMU student becomes subject to the rules and regulations of the NMMU. As MEP1 and 2 is registered with the NMMU, it implies that students remain bound by NMMU rules and regulations, even during experiential learning. It also implies that they are mutatis mutandis subject to any rules and regulations laid down by the company where any training is done. Students are advised, in their own interest, to study such rules. Brochures on rules and regulations for NMMU students are obtainable from the Faculty Officer.

GUIDELINES FOR MECHANICAL ENGINEERING PRACTICE 1 (MEP1)

OBJECTIVES

The ultimate objective of the course is to develop the skills necessary to perform basic machining, fabrication, assembly and maintenance. As stated before, this component focuses on developing hand skills by participating in physical activities in an artisan work environment.

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Specific objectives are:

- use of hand tools in mechanical engineering.
- use of machines for material removal.
- use of welding equipment.
- maintenance of a variety of machines.
- understanding the engineering activities of a select company.

The intended applications of the skills in employment and further studies are:

- reconciling academic knowledge with practice.
- preparation for further engineering studies.
- preparation for further engineering responsibilities in future employment.

The following are essential aspects of this course:


- basic and safe competency in use of lathe, milling machine, drill press, thread cutting, fasteners and welding equipment.
- involvement in practical hands-on technical activities in the company

These aspects will be evaluated against the objectives given above and outcomes stated on page 1. It is recommended that the NMMU be consulted before planning the practical schedule, to verify that the proposed content is likely to be acceptable. As stated before, the minimum period is 800 hours on the job (lunch hours etc. are not counted), which is typically about 20 to 24 weeks.

CONTENT AND GUIDELINES TO THE SCOPE OF WORK

The following syllabus describes proposed scope of work that may be covered in this component of training, depending on available facilities:

Possible categories of activities	Tasks
Induction, orientation and safety.	Introduce learner to the Company, Industry, working environment and safety policies. (see note 1)
Hand and Machine tools	Basic practical training in the workshop environment. Acquiring skills and experience in machine application and utilization, fabrication, industry codes and standards and safety requirements per the OHS Act. (see note 2)
Maintenance, installations and modifications	Learner performs repairs, maintenance, installations and modifications on a variety of engineering equipment and environments. (see note 3)

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Process, machine control, and monitoring.	Learner operates and controls machines, production and other processes.
Mechanical testing of materials, equipment testing and process testing.	Learner prepares specimens and equipment for testing and evaluations to standards and codes of practice. General lab work. (see note 4)
Non-destructive testing.	Learner performs visual inspections, magnetic particle, dye penetrant, radiographic, ultrasonic, hydrostatic and leak testing to typically ASNT (or equivalent) level I competence.

Notes:


1. Induction and Safety

- 1.1. The learner must prepare a written report on the Company description, e.g.
 - Background and company history
 - Business and engineering activities of the company
 - Structure of the organisation
- 1.2. The learner must prepare a written report on Legal knowledge and Safety. Typically, this would contain a summary of the Labour Relations Act and OSH Act applicable to his /her work environment. A NOSA Safety certificate would be adequate in lieu of the safety report.

2. Hand and Machine Tools

Acquire skills and experience in as many of the following operations as possible:

- 2.1. General Hand tools.
- 2.2. Measuring tools and metrology.
- 2.3 Machine operations:
 - Lathes (e.g. General and precision turning, thread cutting –inner/outer, boring, knurling)
 - Milling (e.g. Blocking-off, pocket, slot, boring)
 - Drilling and tapping.
 - Grinding (Surface, precision)
 - Shaping
 - Boring
 - Broaching
- 2.4. Joining technologies:
 - Fasteners
 - Welding
 - Brazing
 - Soldering
 - Adhesives

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2.5. Electrical technologies:

- Basic electrical wiring and circuits
- Types of AC and DC motor
- Types of motor starters and controls
- Instrumentation and process control

2.6. CNC Applications

2.7. Spray painting

3. Maintenance, installations and modifications


Some of the following areas (but not limited to) may be available, depending on the company of employment:

- Steam plant
- Refrigeration
- Air-conditioning
- Ventilating systems
- Internal combustion engines
- Pumps
- Piping systems
- Turbines
- Compressors
- Conveyer systems
- Lifts and hoists
- Lubricating systems
- Filters
- Pneumatics and hydraulics
- Mechanical and fluid couplings
- Gearboxes and power transmission units

4. Material, equipment and process testing.

- Mechanical testing such as tensile, torsion, bend, impact, fatigue and hardness surveys.
- Photo micro and macrographs.
- Chemistries.
- Emission testing.
- Sound and noise testing.
- Strain gauging and stress measurements.
- System and process testing and evaluations as would be found in note 3.

The important aspect of this part of the training is to gain practical and hands on experience of a variety of mechanical systems. Administrative activities within the company (including sales, stores, orders and other office based functions) may be performed to a maximum of 0.15 of the total time.

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GUIDELINES FOR MECHANICAL ENGINEERING PRACTICE 2 (MEP2)

OBJECTIVES

The ultimate objective of this component is to develop the skills necessary to function as a Technician in an engineering team. Such skills include creative thinking, project definition, independent and accountable work, technical experience and team work.

Specific objectives are:

- Reconciling academic knowledge with practice.
- Development of responsibility and accountability.
- Development of technical knowledge.
- Development of critical cross field skills.

The intended applications of the skills in employment and further studies are:


- Employment as a Technician.
- Foundation for advanced engineering studies.

These aspects will be evaluated against the objectives given above and outcomes stated on page 1. It is recommended that the NMMU be consulted before planning the practical schedule, to verify that the proposed content is likely to be acceptable. As stated before, the minimum period is 800 hours on the job (lunch hours etc. are not counted), which is typically about 20 to 24 weeks.

CONTENT AND GUIDELINES TO THE SCOPE OF WORK

As mentioned earlier, MEP2 requires a much higher level of synthesis, responsibility and accountability than MEP1. The student needs to be given responsible tasks to perform. The following proposed syllabus describes scope of work that would be deemed suitable for this component of training, depending on available facilities:

Possible categories of activities	Tasks
Induction, orientation and safety.	Introduce learner to the Company, Industry, working environment and safety policies. <u>If there is a change in employer or training provider.</u> (see note 1 in MEP1 guideline)
Design or development.	Learner must formulate, select and design components and systems.
Draughting and detailing.	Learner must develop working drawings to applicable International standards using CAD.
Production.	Learner must plan, manage and control production activities and resources.

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Process control.	Learner must develop control strategies and management systems.
Quality assurance/Quality control.	Learner must design and develop appropriate quality systems and procedures to ISO 9000 or other applicable Code of Practice.
Installation and commissioning.	Learner must plan, organise, monitor and trouble shoot projects to set specifications.
Maintenance and modifications.	Learner manages repairs, maintenance, installations and modifications on a variety of engineering equipment and environments.
Technical investigation/s.	Learner identifies, sources related information, analysis and formulates solutions to engineering problems for e.g., the failure of a component, system or process.
Testing and evaluation.	Learner selects and evaluates to standards and codes of practice results and makes recommendations.
Non-destructive testing.	Learner selects, performs and evaluates visual inspections, magnetic particle, dye penetrant, radiographic, ultrasonic, hydrostatic and leak testing to typically ASNT level II (or equivalent) competence.


Notes:

1. The learner works as an individual or in a team environment.
2. The learner must acquire the outcomes stated on page 1.

EVALUATION AND STUDENT REPORTS

Firstly, the learner is required to compile a company description as outlined in the content and guidelines to the scope of work for MEP1 note 1.1 and MEP2 if a change of employer occurs.

Also, the work done by the student has to be recorded by the student and assessed by the mentor regularly (the frequency being appropriate with the time frame of the tasks). The documents required for this is provided for both MEP1 and MEP2 (appendix D and E, respectively), or the employer's documentation may be used (if suitable and agreed to by the Department). At the end of each 800hour component of training, the student must submit a complete logbook with applicable reports and assessments to the NMMU. A cover page for the logbook is attached (appendix B). The reports and assessments must be signed by both student and mentor.

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The contents of the MEP2 reports must include the following for each and every project, work, activity undertaken (see appendix E for typical format):

1. Title of project, activity or task and duration in accumulated time.
2. Your specific job function or title.
3. A specific detailed technical description of the project, work, activity or task.
4. Your personal responsibility and degree of independent work in the above.
5. Examples of engineering skills developed and application of theory. In what ways have you reconciled theoretical knowledge and practice? How have your engineering abilities developed? How have you developed personally?
6. Completed table of evaluations and appraisals.
7. Copies of motivating documents, actual reports, drawings, photo's, certificates etc.

To "pass" this subject requires:

- A total of 800 notional hours to be completed for each component.
- Training in at least 6 (3 per MEP component) of the categories listed in the guidelines to the scope of work for MEP1 and 2.
- The learner must show at least an overall average competency rating of 65% for each MEP component. This would be determined as follows:


$$\frac{\text{adding the number of "competent" and "superior" evaluations}}{\text{Total number of evaluations}} \times 100$$

This would be based on all the evaluations recorded in the appendices D and E documents submitted, respectively. In the event that the learner does not meet this competency criteria, additional time would be granted to improve his/hers competencies. This would be done as per the procedure for the completion of experiential training on page 12.

In some cases, MEP1 and MEP2 training may be completed simultaneously which would be acceptable, so long as the 800 notional hours per component is met.

Students who have a formal mechanical trade qualification with sufficient experience, may document this and apply for Recognition for Prior Learning (RPL) and on assessment be credited for MEP1.

If in doubt, ask! Contact Mr H.Theunissen or at details indicated.

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CONTACT PERSONS FOR EXPERIENTIAL LEARNING

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Dept of Mechanical Engineering


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Port Elizabeth, 6031
South Africa

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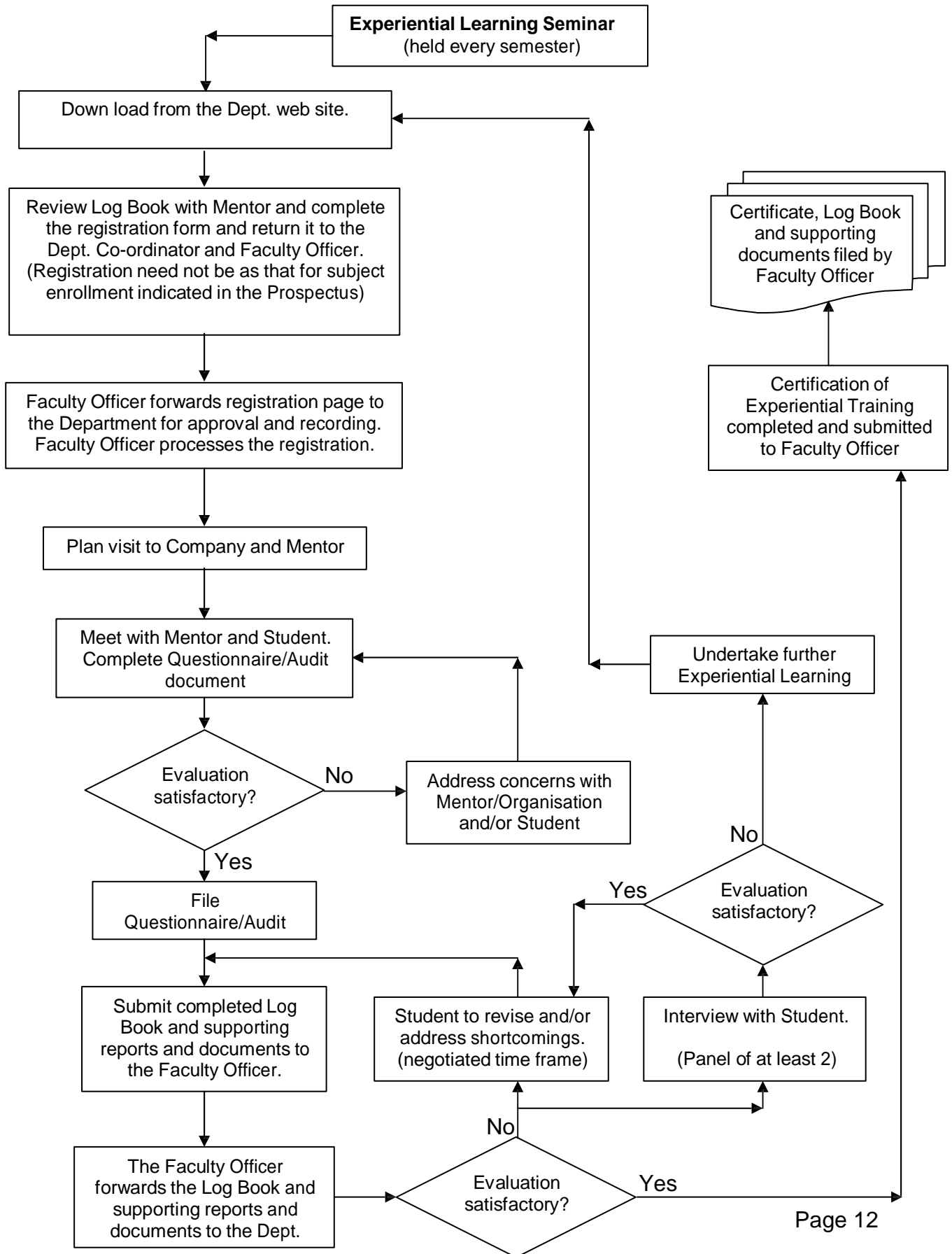
Position (Dept.)	Name	Telephone Dial code: +27 (0) 41-	e-mail
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Monitor	Mr Gideon Gouws	504 3287	Gideon.Gouws@nmmu.ac.za
Monitor	Mr Karl DuPreez	504 3644	Karl.dupreez@nmmu.ac.za

Department of Co-operative Education: Fax : +27 (0) 41 504 3461

Position (Dept.)	Name	Telephone Dial code: +27 (0) 41-	e-mail
HOD	Prof. George de Lange	504 3541	George.deLange@nmmu.ac.za
Assistant	Ms Tracey Dissel	504 3540	Tracey.Dissel@nmmu.ac.za

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THE PROCEDURE FOR THE COMPLETION OF EXPERIENTIAL LEARNING



REGISTRATION FOR EXPERIENTIAL LEARNING – MECHANICAL ENGINEERING

INSTRUCTIONS: COMPLETE IN BLACK INK AND USE BLOCK LETTERS ONLY

FAX Application to: +27 (0)41 5049446

PERSONAL INFORMATION											
Student Number				ID Number							
Title		Initials		First Names							
Surname											
Postal Address during Training						Account Address during Training					
Postal Code				Postal Code							
Residential Address during Training						Telephone Number/Cell					
						Postal Code					
						Telephone Number/Cell					
EMPLOYER INFORMATION						CODE					
Training start date				Training completed							
NAME OF COMPANY											
Company Postal Address				Company Street Address							
Telephone number				Fax Number							
E-mail address											
Mentor at Company											
Mentor Tel/Cell No											
MENTOR ECSA Regis No				MENTOR ECSA Category No							
PARTICULARS OF IN-SERVICE TRAINING YOU ARE ENROLLING FOR											
Calendar Year				Final Year (Yes / No)							
Name of Course				ND:ENGINEERING:MECHANICAL							
Registration is for		Full year		Jan-June Semester 1		Jul-Dec Semester 2					
Part of In-service Training you enrol for						P1		P2			
Signature of Student				Date							
FOR OFFICE USE											
Faculty Name		FACULTY OF ENGINEERING				Faculty Code		1700			
Qualification		ND:ENG: MECHANICAL				Qualification Code		3716			
Block Code		Offering Type		Study Period		Final Year					
Exam Venue		N/A				Venue Code		N/A			
Subject (Tick subject to be Regis)		Subject Code				Offering Type				Block Code	
Mech Eng Prac I		MEP121 MEP101									
Mech. Eng. Prac II		MEP232 MEP201									
Verified and Approved				Date							

(Cover page)

REPORT ON PRACTICAL TRAINING

MODULE 1 or 2

Student name:

Postal Address:

Student no: Cell No: _____
Home No _____

Start date: End date:

Company name and address

Mentor:

Tel (mentor):

I declare that I have performed the work presented in this report.

Signature: Student: **Date:**

<i>(Official Use Only)</i>	
The attached report for MEP1 / MEP2 has been PASSED/FAILED	
NMMU Monitor _____	Date _____ ECSA (yes/No)
HOD(Mechanical) _____	Date _____ ECSA (yes/No)

DEPARTMENT OF MECHANICAL ENGINEERING**BLANKET MENTOR'S FOR MEP1**

(To be completed and submitted at the end of MEP1 training)

Mentor's name				
Company name				
Company Address				
Position				
Telephone (work)	Code		Number	
Fax	Code		Number	
Cell phone				
e-mail address				Private or Company?
Qualification				
Professional bodies associated to, e.g. ECSA, SAIMEchE, IPET, SAIRAC etc.				
Professional registration (If any)	Pr Eng		number	
	Pr Tech		number	
	Reg. Eng. Tech		number	
	GCC		number	
	Other		number	

I believe that the student has **sufficient/insufficient** skills to perform basic machining, fabrication, assembly and maintenance, safely and adequately.

I declare that the student has performed the work presented in this report.

General comments on the technical abilities of the student:

Signature:

Date:

DEPARTMENT OF MECHANICAL ENGINEERING**BLANKET MENTOR'S FOR MEP2**

(To be completed and submitted at the end of MEP2 training)

Mentor's name				
Company name				
Company Address				
Position				
Telephone (work)	Code		Number	
Fax	Code		Number	
Cell phone				
e-mail address				Private or Company?
Qualification				
Professional bodies associated to, e.g. ECSA, SAIMEchE, IPET, SAIRAC etc.				
Professional registration (If any)	Pr Eng		number	
	Pr Tech		number	
	Reg. Eng. Tech		number	
	GCC		number	
	Other		number	

I believe that the student has **sufficient/insufficient** skills to work as a Technician in an engineering team.

I declare that the student has performed the work presented in this report.

General comments on the technical abilities of the student:

Signature:

Date:

Record of Skills and Assessment report for MEP1

(Typical layout of skills report for MEP1)

Student name: _____
Student number: _____

Key for evaluation: 1 not yet competent, 2 competent, 3 superior

Dates		Accum. Time Days / Weeks	Description of skill	Equipment used	Assessment (by coach)	Name of coach	Signature of coach	Supporting docs, drwgs, photo's, cert. etc
From	To							

Sum of hours for page: _____
Total Hours for MEP 1: _____

DEPARTMENT OF MECHANICAL ENGINEERING
APPRAISAL OF CRITICAL OUTCOMES AND WORK PERFORMANCE FOR MEP1
Scope:

This document serves as an appraisal and record of Student behaviour, performance, development and essential aspects for Experiential Learning in the first phase of training required of a Trainee Technician.

Key for evaluation: 1 needs improvement 2 competent 3 superior

Section 1 – Effectiveness / Responsibilities

		1	2	3
1	Finishes tasks on time			
2	Familiar with systems and procedure of work			
3	Does not repeat mistakes			
4	Works steadily and accurately			
5	Communicates information satisfactorily			

Section 2 – Initiative

		1	2	3
1	Identifies and solves problems in good time			
2	Takes the initiative to make recommendations			
3	Requests additional work when own work is up to date			
4	Keen to get involved			

Section 3 – Reliability

		1	2	3
1	Responsible in the performance of his/her tasks			
2	Can work with little supervision			
3	Reports regularly on progress made			
4	Punctual			
5	Attendance			

Section 4 – Interpersonal skills

		1	2	3
1	Shares knowledge and experience with others			
2	Handles situations rationally and tactfully			
3	Accepts constructive criticism and guidance			
4	Works efficiently in a team environment			

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Section 5 – Job Knowledge

		1	2	3
1	Has a broad knowledge of Mechanical Eng principles			
2	Applies subject knowledge in the place of work			
3	Development and application of new skills			

The following appraisal of the mentor is to be completed by the Student.

Key for evaluation: 1 poor, 2 fair, 3 good, 4 excellent

		1	2	3	4
1	Clear indication of the programme of training to be followed				
2	Defining the scope of work or tasks to be undertaken				
3	Clarifying responsibility and accountability for the work				
4	Guidance provided and availability for consultation				
5	The extent of assessment				
6	The extent to which the training meets the intent of the guidelines set out in the Log Book.				

I acknowledge the above findings and comments:

Mentor : _____

Date : _____

Student : _____

Date : _____

NMMU Dept. rep. : _____

Date : _____

DEPARTMENT OF MECHANICAL ENGINEERING**TYPICAL LAYOUT OF ACTIVITY, PROJECT OR TASK REPORT FOR MEP2**

(This one page summary to be completed for each activity,
project or task, TYPED)

Title of work, activity, project: Accumulated Time days/weeks

Job function or title:

Specific technical description of work, activity or project undertaken.

Personal responsibility and degree of independent work in the above.

Examples of engineering skills developed and application of theory. (In what ways have you reconciled theoretical knowledge and practice?)

Summary of motivating documents,
drawings, photo's, certificates etc.

Total Hours for MEP 2

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DEPARTMENT OF MECHANICAL ENGINEERING**Assessment report for MEP2**(To accompany each of the above reports)**Scope:**

This document provides a mechanism for the appraisal and record of Student performance, development and essential aspects for Experiential Learning required of a Trainee Technician. The objective of this phase is to develop the skills needed to function as a Technician in an engineering team.

Mentor's name				
Company name				
Position				
Telephone (work)	Code		Number	
Fax	Code		Number	
Cell phone				
e-mail address				Private or Company?
Qualification				
Professional bodies associated to, e.g. ECSA, SAIMEchE, IPET, SAIRAC etc.				
Professional registration (If any)	Pr Eng		number	
	Pr Tech		number	
	Reg. Eng. Tech		number	
	GCC		number	
	Other		number	

DEPARTMENT OF MECHANICAL ENGINEERING**APPRAISAL OF CRITICAL OUTCOMES AND WORK PERFORMANCE FOR MEP2**

Key for evaluation: 1 needs improvement 2 competent 3 superior

Solving practical engineering problems and/or design work

Section 1 – Problem Investigation

		1	2	3
1	Problem identification			
2	Sourcing and selecting relevant information			
3	Evaluating, investigating and testing			
4	Analysis of influencing factors			

Section 2 – Problem Solution

		1	2	3
1	Familiar with systems and procedure of work			
2	Thorough and comprehensive			
3	Correct use of engineering principles			
4	Clarity of specifications			
5	Appraisal of reports and or drawings			

Section 3 – Execution/Implementation

		1	2	3
1	Finishes task/s on time			
2	Works steadily and accurately			
3	Does not repeat mistakes			
4	Efficient and effective utilisation of resources			
5	Works well under pressure			
6	The extent to which cognitive ability was demonstrated			
7	Extent to which a systems solution was executed			
8	Communicates information satisfactorily			
9	Application of management principles			

Demonstration of mechanical engineering knowledge and skills

		1	2	3
1	Understands the role and responsibility of the Department in relation to the others in the Organisation.			
2	Has a broad knowledge of Mechanical Eng principles			
3	Responsible in the performance of his/her tasks			
4	Applies subject knowledge in the place of work			
5	Development and application of new skills			
6	Can work with little supervision			

Behavioral and critical cross-field skills

Section 1 – Reliability

		1	2	3
1	Punctuality			
2	Attendance			
3	Reports regularly on progress made			
4	Requests additional work when own work is up to date			

Section 2 – Interpersonal skills and team work

		1	2	3
1	Participates in team sessions with colleagues on work related problems			
2	Takes the initiative to make recommendations			
3	Shares knowledge and experience with others			
4	Handles situations rationally and tactfully			
5	Accepts constructive criticism and guidance			
6	Works effectively in a team environment			

The following appraisal of the mentor is to be completed by the Student.

Key for evaluation: 1 poor, 2 fair, 3 good, 4 excellent

		1	2	3	4
1	Clear indication of the programme of training to be followed				
2	Defining the scope of work or tasks to be undertaken				
3	Clarifying responsibility and accountability for the work				
4	Guidance provided and availability for consultation				
5	The extent of assessment				
6	The extent to which the training meets the intent of the guidelines set out in the Log Book.				

I acknowledge the above findings and comments:

Mentor : _____

Date : _____

Student : _____

Date : _____

NMMU Dept. rep. : _____

Date : _____

DEPARTMENT OF MECHANICAL ENGINEERING**EMPLOYER'S****ASSESSMENT OF THE EXPERIENTIAL LEARNING PROGRAM**

(To be completed and submitted at the end of training)

Key for evaluation:

1 strongly agree 2 agree 3 partially agree 4 disagree 5 not accept

		1	2	3	4	5
1	The content of the experiential learning program is applicable to the work place.					
2	The experiential learning program helps the student to develop oral and other communication skills.					
3	The experiential learning program prepares the student to function as a team member.					
4	The experiential learning program helps the student to develop organizational and planning skills.					
5	The experiential learning program helps the student to develop a sense of responsibility and work ethics.					
6	The experiential learning program is a means to recruit permanent staff.					
7	The overall quality of the experiential learning program is satisfactory.					
8	Experiential learning should be an essential component of any engineering qualification.					

Other comments:

Signature:**Date:**

STUDENT'S

ASSESSMENT OF THE EXPERIENTIAL LEARNING PROGRAM

(To be completed and submitted at the end of training)

Name of student

Student number

Name of company

Key for evaluation:

1 strongly agree 2 agree 3 partially agree 4 disagree 5 not accept

		1	2	3	4	5
1	The content of the experiential learning program is relevant to the work place.					
2	The experiential learning program helped to develop oral and other communication skills.					
3	The experiential learning program prepared me to function as a team member.					
4	The experiential learning program provided me the opportunity to develop critical thinking skills.					
5	The experiential learning program helped me to develop time management and organizational skills.					
6	The experiential learning program has helped me make better career path choices.					
7	The overall quality of the experiential learning program is satisfactory.					
8	Experiential learning should be an essential component of any engineering qualification.					
9	The support provided by the Co-operative Education Department for placement was satisfactory.					

Other comments:

Signature:

Date:

MEP 1 – Log Book Check Sheet (to be included as pg 2 of your logbook)

Item	Appendix/Item	Tick for yes	Date Signed	Page No
1	Appendix B: Cover Page – Report on Practical Training Module 1			
	• Signed by Student			
	• Signed by NMMU Monitor (NMMU on submission on logbook)			
	• Signed by NMMU Dept Rep (NMMU on submission on logbook)			
2	Appendix L: Check Sheet			
	• Checked and Signed			
3	Appendix C: Mentor's Report 1			
	• Signed by Mentor			
	• Sufficient/Insufficient circled			
4	Appendix D: Record of Skills and Assessment report for MEP 1 (May be a company generated form, but needs to be signed by mentor/instructor for every task) Appendix D is supporting documentation for you detailed report, it is not classified as a detailed report.			
	• Confirm all tasks signed by Mentor/Instructor			
5	Appendix E: Appraisal of Critical Outcomes and Work Performed for MEP 1 (May be submitted for skill/each area appraised)			
▶	• No. of Appendix E in Report _____			
	• Each Signed by Mentor			
	• Each Signed by Student			
	• Each Signed by Dept Rep (NMMU on submission on logbook)			
6	Appendix J: Employer's assessment of WIL programme.			
	• Signed by Mentor			
7	Appendix J: Student's assessment of WIL programme.			
	• Signed by Student			
8	Company History (one to two pages maximum)			
9	Summary – Occupational Health and Safety Act (OHS) (min 3 pages to a max of 5 pages)			
10	Summary – Labour relations Act with reference to your company employed (min 3 pages to a max of 5 pages)			
11	Detailed Report: Including but not restricted to introduction, conclusion, details of work/tasks done and experiences gained during the work period. Together with supporting drawing/photo's where available - MAX 10 pages for report (including photo's/drawings) and 5 pages for supporting documentation			
	Report Bound - (DO NOT Submitted in a file)			

Closing date for submission to graduate is 20 January of that year (Pending the approval of the logbook)

MEP 2 – Log Book Check Sheet (to be included as pg 2 of your logbook)

Item	Appendix/Item	Tick for yes	Date Signed	Page No
1	Appendix B: Cover Page – Report on Practical Training Module 2			
	<ul style="list-style-type: none"> Signed by Student 			
	<ul style="list-style-type: none"> Signed by NMMU Monitor (NMMU on submission on logbook)			
	<ul style="list-style-type: none"> Signed by NMMU Dept Rep (NMMU on submission on logbook)			
2	Appendix L: Check Sheet			
	<ul style="list-style-type: none"> Checked and Signed 			
3	Appendix C: Mentor's Report 2			
	<ul style="list-style-type: none"> Signed by Mentor 			
	<ul style="list-style-type: none"> Sufficient/Insufficient circled 			
4	Appendix F: Task Report for MEP 2 (One for each activity) Please note: This is to be submitted together with your detailed report as supporting documentation, it is not your detailed report. TYPED ONLY			
	<ul style="list-style-type: none"> No. of Appendix F in report _____ 			
	<ul style="list-style-type: none"> Confirm all tasks signed by Mentor/Instructor 			
	Appendix G: Assessment Report for each Appendix F report (If different to your mentor)			
5	Appendix H: Appraisal of Critical Outcomes and Work Performed for MEP 2 (May be submitted for each area appraised)			
▶	<ul style="list-style-type: none"> No. of Appendix H in Report _____ 			
	<ul style="list-style-type: none"> Each Signed by Mentor 			
	<ul style="list-style-type: none"> Each Signed by Student 			
	<ul style="list-style-type: none"> Each Signed by Dept Rep (NMMU on submission on logbook)			
6	Appendix J: Employer's assessment of WIL programme.			
	<ul style="list-style-type: none"> Signed by Mentor 			
7	Appendix J: Student's assessment of WIL programme.			
	<ul style="list-style-type: none"> Signed by Student 			
8	Company History (if different to MEP 1) (2 to 3 pg's maximum)			
9	Summary – Occupational Health and Safety Act (OHS) (min 3 maximum 5 pages)			
10	Summary – Labour relations Act with reference to your company employed (min 3 maximum 5 pages)			
11	Detailed Report: -Including but not restricted to introduction, conclusion, details of work/tasks done and experiences gained during the work period. Together with supporting drawing/photo's where available. -This can be included after Appendix F for each section as part of the detailed report. (Max 10 pg's for report & 5 pg's for supporting documentation)			
12	Report Bound - (DO NOT Submit in a file)			

Closing date for submission to graduate is 20 January of that year (Pending the approval of the logbook)