Unit Title: Maths for Higher Education
Level: Three
Credit Value: 12
GLH:
NOCN Unit Code: RB0/3/TE/015
QCA Unit Reference
Grading Descriptors: 1, 3, 7

This unit has 6 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Use Matrices and Determinates to solve simultaneous equations Â	1.1. Apply Determinates to solve: Two equations with two unknowns, Three equations with three unknowns 1.2. Apply Matrices to solve: Two equations with two unknowns, Three equations with three unknowns 1.3. Manipulate matrix equations: Addition and subtraction, Multiplication, Finding the inverse with the aid of a calculator
2. Use differential calculus to solve problems	2.1. Demonstrate the fundamental approach to differentiation from 1st principles and rates of change. Differentiate functions using: Product rule, Quotient rule, Function of a function rule, Given table of standard differentials 2.2. Find the gradient of a graph of a known function. Apply differentiation to: Solve problems involving linear velocity, linear acceleration, angular velocity, angular acceleration and displacement, Solve problems involving maximum and minimum value of functions

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LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
3. Use integral calculus to solve problems	3.1. Integrate functions using: Given table of standard integrals, Substitution, Method of integration by parts, Partial fractions 3.2. Use integration to: Solve problems involving linear velocity, linear acceleration, angular velocity, angular acceleration and displacement, Area between a function and the x-axis or between two functions, Volume of revolution produced by revolving a function about the x or y axis, To obtain the mean or the root mean square volume of a periodic function
4. Solve differential equations	4.1. Understand the techniques of Partial Differentiation. Solve differential equations of the form: $dy/dx = f(x)$ with a given boundary condition, First order of the form $dQ/dt = KQ$ with a given boundary condition, $dy/dx = f(x).g(y)$ by separation of the variable and with a given boundary condition 4.2. Solve practical differential equations relating to: Electrical systems, Mechanical systems
5. Use vectors to model and solve problems	5.1. Manipulate vectors by: Addition, subtraction, multiplication, division 5.2. Express any vector in the form $xi + yj + zk$ 5.3. Use vectors to solve Mechanical and Electrical problems

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LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
6. Use Boolean algebra to solve problems	6.1. Manipulate Boolean algebraic expressions and equations: Know the rule as applied to Boolean algebra, Simplify expressions using Karnaugh Maps, Simplify expressions using algebraic rules 6.2. Use Boolean algebra to represent a logic system: Electrical, Mechanical

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ASSESSMENT INFORMATION

Guidance:
This grid gives details of the assessment activities to be used with the unit attached. Please refer to the NOCN Handbook for definitions of each activity and the expectations for assessment practice and evidence for moderation.

The assessment activities for this unit are indicated in the table below:
Key: P = Prescribed – this assessment method *must* be used to assess the unit.
O = Optional – this assessment method *could* be used to assess the unit.

Case study		**Project**	
Written question & answer/test/exam		**Role play/simulation**	
Essay		**Practical demonstration**	
Report		**Group discussion**	
Oral question and answer		**Performance/exhibition**	
Written description		**Production of artefact**	
Reflective log / diary		**Practice file**	

Signposting Key Skills

This unit offers clear opportunities for learners to provide evidence of achievement in Key Skills achievement in the following skill area/s:

Key Skill		**Wider Key Skill**	
Communication		Working with others	
Information Technology		Problem solving	
Application of Number		Improving Own Learning and Performance	

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Accredited Start date:
Accredited End date:
Unit Sector/Subject area:
Grading descriptors:
Availability for Use:

Purpose and Aim of the Unit	**Free Text**
Restrictions on the Availability	**Free Text or N/A**
Additional Assessment Requirements	**Free Text or N/A**
Details of relationship between the Unit and the NOS	**Free Text or N/A**
Details of relationship between the Unit and Standards (not NOS)	**Free Text or N/A**
Endorsement of the Unit by	**Free Text or N/A**