Access to H.E.
National Programme Unit

Unit Title:	Logarithms and Exponentials		
Graded Unit Code:	GA33MTH09	Ungraded Unit Code:	UA33MTH09
Pathway(s):	Science and Engineering Construction and the Built Environment		
Module(s):	Mathematics		
Level:	3	Credit Value:	3
Valid from:	1st August 2014	Valid to:	31st July 2024

The following QAA grade descriptors must be applied if you are delivering the graded version of this unit:

1	Understanding of the subject
3	Application of skills
7	Quality

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
1. Understand the use of logarithms	1.1 For straightforward examples using base 10 and base 2, illustrate the relationship between the logarithm of a real number and the base used
	1.2 State the laws of logarithms (for addition and subtraction, and for multiplication of a logarithm by a constant)
	1.3 Solve problems using the laws of logarithms
	1.4 Use a calculator to solve equations of the form $a^x = b$
2. Understand the functions of ex and ln x and their properties	2.1 Define the value of e
	2.2 Sketch the graphs of the functions $y = e^x$ and $y = \ln x$

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	2.3 Describe the properties of the functions $y = e^x$ and $y = \ln x$
	2.4 Identify situations that can be modelled by the exponential function
3. Change the base of a logarithm	3.1 Solve equations involving logarithms and exponentials e.g. $10^X = 0.4$, $e^2x + 2e^x + 1 = 0$, $\log_2 x + \log_4 x + 1 = 0$
4. Reduce equations to linear form	4.1 Reduce equations of the form $y = ax^b$ and $y = ab^x$ to linear form
	4.2 Plot graphs of transformed data and calculate constants to find a relationship for the given data
	4.3 Solve problems related to experimental data