Access to H.E.
National Programme Unit

Unit Title:	DNA Technology		
Graded Unit Code:	GA33BIO05	Ungraded Unit Code:	UA33BIO05
Pathway(s):	Science and Engineering		
Module(s):	Biology		
Level:	3	Credit Value:	3
Valid from:	31st July 2021	Valid to:	31st July 2026

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

1	Understanding of the subject
2	Application of knowledge
3	Application of skills
5	Communication and presentation
7	Quality

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
1. Understand the principle of genetic engineering of bacterial cells	1.1 Explain the principle of genetically engineered bacteria (why is it possible and what are the possible applications?)
	1.2 Describe the roles of restriction enzymes, plasmids and DNA ligase in the genetic engineering of bacteria
	1.3 Outline and evaluate some of the arguments for and against genetic engineering

2. Understand the principle and applications of the polymerase chain reaction.	2.1 Explain the stages in the polymerase chain reaction and the roles of DNA primers, triphosphate nucleotides and DNA polymerase (e.g. Taq)
	2.2 Describe some applications of the polymerase chain reaction
	2.3 Use data to calculate the amplification of DNA by PRC thermo cycling
3. Understand the principles and applications of 'genetic fingerprinting'	3.1 Explain how and why restriction enzymes produce DNA fragments of different lengths from a sample of DNA
	3.2 Explain the principles of separation of DNA fragments by electrophoresis
	3.3 Analyse the results of electrophoresis (using actual plates, photographs or diagrams) and draw conclusions
4. Understand the principles and applications of gene therapy	4.1 Explain the principle of gene therapy, including the use of a vector
	4.2 Evaluate the difference between germ-line therapy and somatic cell therapy
	4.3 Outline some of the problems that might arise from the use of gene therapy, including practical and ethical issues