



# Unit Assessment Record (UAR)

## Separation Processes I (D3R9 04)

Credit Value: 1

**NB: After entering your personal details please pass this document to your tutor for completion and eventual return to COLU. You may wish to retain a copy for your own use.**

TITLE: .....	SURNAME: .....	UNIT TUTOR: .....	
FORENAME(s): .....	CENTRE: .....		
HOME ADDRESS: .....	ADDRESS: .....		
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POST CODE: .....	POST CODE: .....		
HOME TEL: .....	TEL NO: .....		
WORK TEL: .....	FAX NO: .....		
FAX NO: .....	E-MAIL: .....		
E-MAIL: .....	CENTRE CONTACT: .....		
SQA REG. NO: .....		UNIT START DATE: .....	
<b><u>AUTHENTICATION OF EVIDENCE – INTERVIEW</u></b>		<b>DATE:</b> .....	
PORTFOLIO OF EVIDENCE AVAILABLE	<input type="checkbox"/>		
EVIDENCE AUTHENTICATED	<input type="checkbox"/>		
ALL OUTCOMES SATISFIED	<input type="checkbox"/>		
Please initial as appropriate			
NOTES: .....			
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<b><u>GRADE</u></b>			
	REFER	PASS	MERIT
FINAL GRADE:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Please initial as appropriate			
ASSESSOR: .....		DATE: .....	

### FOR COLU USE ONLY

VERIFIER: ..... DATE: .....

**Evidence Log** – For each of the performance criteria please clearly identify the evidence within the portfolio that satisfies the criterion.

**1) Describe and compare the design, operation and performance of plate and packed columns used in distillation, gas cleaning and extraction processes**

**TMA Evidence**

**Supplementary Evidence & Location**

(a) Identification and description of plate and packed columns are correct in terms of their respective construction and operating principles.
(b) Comparisons between the performance of different types of plate and packing are accurate in terms of efficiency and costs.
(c) Evaluation of the relative performance of packed and plate columns is accurate in terms of their use in distillation, gas absorption, scrubbing and extraction.

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**2) Solve problems related to the design and operation of distillation equipment**

(a) Construction of a McCabe-Thiele diagram, from given data, is correct according to acceptable conventions.
(b) Determination of the number of theoretical plates using the McCabe-Thiele method and associated HETP is correct for a given set of conditions.
(c) Descriptions of the different techniques of industrial distillation processes are correct.
(d) Selection of a suitable distillation technique is correct for a given set of conditions and accepted industrial practice.
(e) Specification of a control system's requirements is accurate for a given set of operating conditions.

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**3) Apply physical and chemical principles to the design of gas absorption systems**

(a) Analysis of gas absorption systems is correct in terms of film and overall transfer coefficients.
(b) Distinction between physical and chemical absorption is correct in terms of their applications and resultant products.
(c) Specification of control systems for a given set of operating conditions is correct
(d) Specification of the equipment used in gas treatment is correct according to its name, construction, method of operation and use.

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**Assessment Matrix** – The matrix indicates which instruments of assessment, within the primary assessment package, are required to satisfy individual performance criteria.

The column titled **Merit** identifies where particular opportunities exist for candidates to develop their work with a view to satisfying the requirements for the award of merit.

The row titled **Minimum Evidence Requirement** indicates the minimum number of examples required (or times a task must be performed) to satisfy a particular performance criterion.

**Separation Processes I**

OUTCOMES/PERFORMANCE CRITERIA		Qu	1a	1b	1c	2a	2b	2c	2d	2e	3a	3b	3c	3d	4a	4b	4c	4d	Merit
EVIDENCE	TMA - 2 (v2)	1							F	O	R	M	A	T	I	V	E		
		2				X	X												
		3						X	X										
		4								X									
	TMA - 3 (1-3) (v2)	1							F	O	R	M	A	T	I	V	E		
		2										X							
		3										X							
		4											X						
		5												X					
		6										X							
		7												X					
	TMA - 3 (4) (v2)	1	X																
		2	X																
		3		X															
		4			X														
	TMA - 4 (v2)	1														X			
		2															X		
		3								F	O	R	M	A	T	I	V	E	
		4																X	X
		5																X	X
MERIT ASSIGNMENT (v2)	1	X																	X
	2						X												X
	3																X		X
<b>MINIMUM EVIDENCE REQUIREMENT</b>			2	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2

**Merit Statement**

To gain a pass in this unit, a candidate must meet the standards set out in the outcomes, performance criteria, range statements and evidence requirements.

To achieve a merit in this unit, a candidate must demonstrate a superior or more sophisticated level of performance. In this unit this might be shown by a systematic approach to the solution of problems of a more complex nature involving, for example, the extraction and interpretation of information from standard reference sources.