



Unit Assessment Record (UAR) Programmable Controllers (D3R7 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: | |
| | | |
| | | |
| 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: |
|--------------------|------------------------|

| | |
|-----------------------------------------------|--------------------------|
| AUTHENTICATION OF EVIDENCE – INTERVIEW | DATE: |
| PORTFOLIO OF EVIDENCE AVAILABLE | <input type="checkbox"/> |
| EVIDENCE AUTHENTICATED | <input type="checkbox"/> |
| ALL OUTCOMES SATISFIED | <input type="checkbox"/> |
| Please initial as appropriate | |
| NOTES: | |
| | |
| | |
| | |
| | |

| | | | |
|-------------------------------|--------------------------|--------------------------|--------------------------|
| GRADE | | | |
| | 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 the general features of a programmable controller system

TMA Evidence

Supplementary Evidence & Location

| |
|-------------------------------------------------------------------------------------------------------------------------|
| (a) The relative advantages of processor controlled logic systems over relay logic are stated correctly. |
| (b) A block diagram of a programmable controller system is drawn to show the essential features correctly interrelated. |
| (c) The functions of the essential features of a programmable controller system are described correctly. |

2) Analyse the interface requirements of programmable controller systems

| |
|-----------------------------------------------------------------------------------------------------------------|
| (a) Descriptions of the interface requirements of a programmable controller are accurate and complete. |
| (b) Calculations involving the operation of opto-coupler input and relay output interface circuits are correct. |
| (c) Calculations involving the resolution of an analogue-to-digital converter are correct. |
| (d) Circuit analysis of a R/2R digital-to-analogue circuit is correct. |
| (e) The salient features of the man-machine interface are described correctly. |

3) Write and execute programs to drive a programmable controller in industrial related tasks

| |
|-------------------------------------------------------------------------------------------------------------------|
| (a) The relationship between source code (ladder diagram) and its object code is clearly demonstrated. |
| (b) Ladder logic programs, employing a variety of control elements, are valid solutions to give control problems. |
| (c) Program documentation is clear and accurate. |
| (d) Program execution fulfils all the requirements of a given specification. |

4) Fault diagnose in a programmable controller environment

| |
|-----------------------------------------------------------------------------------------------|
| (a) The symptoms of a fault are reported accurately. |
| (b) Discrimination between cause and effect is performed in a systematic and logical fashion. |
| (c) Remedial action recommended for the correction of a fault is appropriate. |

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.

Programmable Controllers

| OUTCOMES/PERFORMANCE CRITERIA | | Qu | 1a | 1b | 1c | 2a | 2b | 2c | 2d | 2e | 3a | 3b | 3c | 3d | 4a | 4b | 4c | Merit | |
|-------------------------------------|------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|---|
| EVIDENCE | TMA - 1, 2 (v2) | 1 | X | | | | | | | | | | | | | | | | |
| | | 2 | | | X | X | | | | | | | | | | | | | |
| | | 3 | X | | | | | | | | | | | | | | | | |
| | | 4 | | | | X | X | | | | | | | | | | | | |
| | | 5 | | | | X | X | | | | | | | | | | | | |
| | | 6 | | | X | X | | | | | | | | | | | | | |
| | TMA - 3, 4 (v2) | 1 | | | | | | | | | | X | | | | | | | |
| | | 2 | | | | | | | | | | X | | | | | | | |
| | | 3 | | X | X | | | | | | | | | | | | | | |
| | | 4 | | | | | | | | | | X | | | | | | | |
| | | 5 | | | | | | | | X | | | | | | | | | |
| | TMA - 5, 6 (v2) | 1 | | | | | | | | | | X | | | | | | | |
| | | 2 | | | | | | | | | | X | | | | | | | |
| | | 3 | | | | | | | | | | X | | | | | | | |
| | | 4 | | | | X | | X | | | | | | | | | | | |
| | | 5 | | | | X | | X | | | | | | | | | | | |
| | | 6 | | | | X | | | | | | | | | | | | | |
| | | 7 | | | | | | | X | | | | | | | | | | |
| | PRACTICAL 4 (v2) | | | | | | | | | | | X | X | X | X | X | X | X | X |
| | PRACTICAL 5 (v2) | | | | | | | | | | | X | X | X | X | X | X | X | X |
| | PRACTICAL 6 (v2) | | | | | | | | | | | X | X | X | X | X | X | X | X |
| MINIMUM EVIDENCE REQUIREMENT | | | 2 | 1 | 3 | 7 | 2 | 2 | 1 | 1 | 3 | 9 | 3 | 3 | 3 | 3 | 3 | 3 | |

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 in the following ways:

- (a) showing a critical awareness of current trends in the use of programmable controllers in an industrial environment
- (b) writing programs that are efficient, well structured and easily maintainable
- (c) making effective use of a programmable controller's diagnostic aids
- (d) successfully diagnose two or more simultaneously applied faults
- (e) evidence of further reading outside the given course material.