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| **COURSE NAME / CODE** | | | BTEC National Subsidiary / Diploma / Extended Diploma in IT |
| **UNIT(s) No / Name** | | | Unit 26 Mathematics for IT Practitioners |
| **LEVEL** | 3 | Assignment No & Title | Assignment 1: Matrices |

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| **LECTURER/ASSESSOR** | Sandra Taylor/Gargi Gupta/Michael Dzandu | | | | |
| **ISSUE DATE** | 19/01/17 | **DEADLINE DATE** | | 2/02/17 | |
| **SUBMISSION DATE** |  | |  | | |
| **RESUBMISSION AUTHORISATION**  BY LEAD INTERNAL VERIFIER\* |  | | **Authorisation Date (By iv)** | |  |
| **RESUBMISSION DATE\*\*** |  | |  | | |

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| **\***All resubmissions must be authorised by the **Lead Internal Verifier**. Only **one** resubmission is possible per assignment, providing:   * The learner has met the initial deadlines set in the assignment, or ha met an agreed deadline extension * The tutor considers that the learner will be able to provide improved evidence without further guidance * Evidence submitted for assessment has been authenticated and accompanied by a signed and dated declaration of authenticity by the learner   \*\*Any resubmission evidence **must** be submitted within 10 working days of receipt of assessment |

**Student declaration**

*I declare that this assignment is all my own work and the sources of information and material I have used (including the internet) have been fully identified and properly acknowledged as required.*

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| **STUDENT NAME** | **SIGNATURE** |
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**ASSESSMENT DETAILS & GRADING CRITERIA**

(NB: Columns 1 &2 of the table below will be completed once the assignment has been submitted) Please note that criteria & evidence should be aimed to give the learner the maximum grade available within their qualification (i.e. A, Pass, Distinction)

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| **Learning Aims Covered** | | |  | | |  | |  |
| LO1 | | Be able to apply Matrix Methods | | | | | | | | | |
| **GRADING CRITERIA FOR TASK** | | | **EVIDENCE** | **EVIDENCE SEEN** | | **Page No#** | **CRITERIA MET** | | | | |
| **Y** | **N** | **Y** | | **I** | **N** | **IV** |
| P1 | Demonstrate how matrices can be used to represent data | | Task 1: short report |  |  |  |  | |  |  |  |
| P2 | Perform add, subtract and scalar multiplication on a matrix | | Task 2: mathematical calculations |  |  |  |  | |  |  |  |
| P3 | Multiply two matrices | | Task 3 : mathematical calculations |  |  |  |  | |  |  |  |
| P4 | Find the inverse and transpose of a matrix | | Task 4: mathematical calculations |  |  |  |  | |  |  |  |
| P5 | Apply matrix techniques to solving simultaneous equations | | Task 5: mathematical calculations |  |  |  |  | |  |  |  |
| M1 | Explain the relationship between matrices and computer program variable arrays | | Task 6: short report |  |  |  |  | |  |  |  |
| M2 | Apply matrix techniques to vector transformation and rotation, maps and graphs | | Task 7: short report |  |  |  |  | |  |  |  |

**KEY: Y = Yes, I = Incomplete, N = No**

**BREAKDOWN OF HOW GRADES WILL BE AWARDED:**

(NB: Please tick as appropriate)

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| **TYPE OF QUALIFICATION** | **TICK** | **DESCRIPTION** |
| **BTECS / WORKSKILLS** | **√** | Pass / Merit / Distinction / Fail |
| **A LEVELS / A2** |  | A-U |

**Internal Verification of Assignment Brief**

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| **IV Full Name** |  | **Signed** |  | **Date:** |  |
| **LIV Full Name** |  | **Signed** |  | **Date:** |  |



**BTEC Sample Material**

**Learner Consent Declaration**

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| **Centre No & Name** | **51330 – UTC Reading** | |
| **Subject & Level** | **BTEC National Subsidiary / Diploma / Extended Diploma in IT** | **3** |
| **Unit No & Title** | **Unit 26: Mathematics for IT practitioners** | |
| **Learner No & Name** |  | |

I agree to the learner work identified above, after having been made anonymous, being used to support any of the following activities, which may involve the display of work online through the BTEC website or through publications:

* Professional Development and Training
* Centre Assessment Example Material
* Standardisation Support
* Publication Materials

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| **Assessor Signature** |  |
| **Name** (block capitals please) |  |
| **Job Title** |  |
| **Date**: |  |

|  |  |
| --- | --- |
| **Learner Signature** |  |
| **Name** (block capitals please) |  |
| **Parent/Guardian consent if under 16 years of age** |  |
| **Date**: |  |

Please ensure that this sheet is completed on submission of your assignment.

Please note that your assignment **MUST** have the following (unless otherwise stated):

1. Cover page
2. Table of Contents
3. Introduction
4. Conclusion
5. Bibliography & References

**Scenario**

You are applying for a job and at interview. To test your mathematical ability, the interviewer gives you these Mathematical questions for you to attempt.

You are given these matrices

**TASK 1 Add, Subtract and Scalar (P2)**

You are asked (if possible) to calculate

a, M + N

b, P + Q

c, M –N

d, 3P

e, 3P – 2Q

**TASK 2 Multiply (P3)**

You are asked (if possible) to calculate

a, M.N

b, P.Q

c, R.S

d, S.R

**TASK 3 Inverse and Transpose(P4)**

You are asked (if possible) to calculate

a, M-1

b, N-1

c, P-1

d, Q-1

e, MT

f, PT

g, RT

**TASK 4 Simultaneous equations(P5)**

Use Matrices to solve:

3x + 4y = 14

2x – 7y = 11

and

6x + 2y = 24

3x + 3y = 22

**TASK 5 Evidence you must produce for this task. (P1)**

As an assessment task at interview you are asked to produce a short report (or PowerPoint) to demonstrate one way in which a matrix can be used to represent ordered data and explain the relationship between matrices and computer program variable arrays.

**TASK 6 Evidence you must produce for this task. (M1)**

As an assessment task at interview you are asked to produce a short report (or PowerPoint) to demonstrate your understanding of the relationship between computer arrays and matrices. Please use examples

**TASK 7 Evidence you must produce for this task (M2)**

As an assessment task at interview you are asked to produce a short report (or PowerPoint) to demonstrate your understanding of how matrices can be used to apply vector translation and rotation and maps and graphs. Please use examples.

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| **SUMMATIVE ASSESSMENT RECORD SHEET** | | | | | | |
| **Programme** | BTEC National Subsidiary / Diploma / Extended Diploma in IT | | **Learner Name** |  | **Assessor Name** |  |
| **Unit No. & Title** | Unit 26 – Mathematics for IT Practitioners | | **Target Learning Aims** | **LO1** | **Issue Date** | 19 January 2017 |
| **Assignment No & Title** | Assignment 1: Matrices | | | | **Final Submission Date** |  |
| **Target criteria** | **Criteria Achieved** | **Final Assessment Comments** | | | | |
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| **Summative comments** | | | |
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| **Assessors declaration** | | | |
| I certify that the evidence submitted for this assignment is the student's own and the learner will be able to provide improved evidence without guidance. I understand that any false declaration is a form of malpractice. | | | |
| **Resubmission authorisation\*** |  | **Resubmission Date:** | Click here to enter a date. |
| \* All resubmissions must be authorised. Only 1 resubmission is possible per assignment. | | | |
| **Assessor Signature** |  | **Date:** |  |
| **Learner comments** |  | | |
| **Learner Signature** |  | **Date:** |  |