STARTING INFORMATION

Brighton Metropolitan College

Digital Industries

Access to Higher Education Diploma in Computing | Level 3

Course details

Course code: MITU001F

Campus: Brighton – Central

Attendance: Full Time

Duration: 35 Weeks

Qualification: Access to Higher Education | Diploma in Computing | Level 3

Congratulations on achieving a place on the Access to Higher Education | Diploma in Computing | Level 3 course. We are very much looking forward to you joining us in September and being part of Brighton MET College.

During the first week of college, you will be given important information about the course, the Department and the College, which will include your timetable and course handbook. Your tutor will give presentations about the course, the assessment structure, enrichment activities you may be involved in as well as our expectations of you as a student at Brighton MET College.

Enclosed in this document is information about the following:

→ First Day Checklist
→ Course Kit List
→ Summer Project
→ Digital Handbook
→ Staff Contact Details

FIRST DAY CHECKLIST

- ✓ A pen and/or pencil and a notebook
- ✓ Water bottle
- ✓ Work from Summer Project

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COURSE KIT LIST

Recommended Calculator

Casio FX-350ES Plus Scientific Calculator

Computer Access

We recommend access to a Windows based PC. Prior to the course you might like to download and install the programming environment we are using

https://thonny.org/

SUMMER PROJECT

A project for you to complete over the summer. This will introduce you to some of the processes and skill you will be learning about during your time of this course.

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DIGITAL HANDBOOK

A site that contains a lot of the information that you will need to know what being a student a MET. This will also be useful for parents and carers to read.

*Please note that some images may be missing from this site and will be updated when possible.

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FINANCIAL SUPPORT

Information can be found on our main website: brightonmet.ac.uk

Go to 'help and support' then 'financial support'

SCAN ME

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Link to LSG (Learner Support Grant) application

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OTHER INFO

You will be taking part in enrichment trips and activities during the academic year. One of these trips is a visit to Bletchley Park. All students are expected to contribute a one-off payment of £50 towards these trips. You will be invoiced nearer the time of the trip.

STAFF CONTACT DETAILS

Support office
Games.computing@gbmc.ac.uk

Wanraya Ninsamrit
Waraya.ninsamrit@gbmc.ac.uk
Course Lead/Personal Tutor

Karena Morrison (Teaching & Learning Manager)
Karena.morrison@gbmc.ac.uk
Teaching & Learning Manager: Computing, Games & Immersive Technologies
Brighton MET College

Access to Computing Summer Project

Name

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What do I do?

- Print out this document
- Answer all questions on the printout
- Answer in the spaces provided.
- **There are 17 questions**
- Bring your answers to your first “Access to Computing” lesson
- **Show your working in detail**
- **Do not use a calculator**

Why this task?

Mathematics forms the basis of Computing. For example,

- Programming and building databases depend on logical thinking like that in mathematics
- All the data – from text to video - inside a digital device are represented as binary numbers
- The digital network designer needs to work in the hexadecimal number system
- Programmers in working in games need to understand the 3-dimensional co-ordinates (x, y, z), and the vectors (value plus direction) that describe the game physics
- “Big Data” uses statistical methods to analyse vast datasets and make predictions
- Neural Nets that recognise faces using matrix calculations
- Large Language Models (e.g. Chat GPT) are based on probability calculations

However, the task requires nothing more than the arithmetic you learnt in school. This forms the basis for the Maths we will do in the course to prepare you for University Level Computer Science. If your arithmetic is a bit “rusty” there are lots of resources on the world wide web, some of which are given in this document. Please email nick.sutton@gbmc.ac.uk if you have any questions about this activity.

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Question 1

Help for Question 1 https://www.mathsisfun.com/positive-negative-integers.html https://www.mathsisfun.com/multiplying-negatives.html https://www.bbc.co.uk/bitesize/articles/z8x44xs#z88ccmn

Perform these calculations that involve both positive and negative numbers

	Question	Answer
1.1	-8 × 3	
1.2	-45 ÷ -3	
1.3	-3 × -4	
1.4	$\frac{130}{-10}$	
1.5	-7 + -2	
1.6	-4 – -9	
1.7	11 × -2 × 3	
1.8	$\frac{-6 \times 20}{-12}$	

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Question 2

Help for question 2
https://www.bbc.co.uk/bitesize/guides/zqb28hv/revision/1

Calculate 675 + 844 by hand. **You must show your working**

Question 3

Help for question 3
https://www.wikihow.com/Do-Long-Multiplication

Calculate 84 × 297 by hand. **You must show your working**

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Question 4

Help for question 4
https://www.youtube.com/watch?v=wciSBym57fo
https://www.youtube.com/watch?v=APnTxYbPrNs

Calculate 2378 – 1289 by hand. **You must show your working**

Question 5

Help for question 5
https://www.wikihow.com/Do-Long-Division

Calculate 2618 ÷ 14 by hand. You must show your working

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Question 6

Help for question 6 and 7
https://www.mathsisfun.com/operation-order-bodmas.html

https://www.bbc.co.uk/bitesize/guides/zf7bkqt/revision/1#:~:text=Order%20of%20operationsOrder%20of,Multiplication%20then%20Addition%20and%20Subtraction).

Evaluate these expressions according to the rules of operator precedence. Show all stages

$10 + ((8 - 2) \times 5)^2$

$\frac{61+10\times5}{2^2+3^2}$

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Question 8

Boris evaluates $5 \times (9 - 7) + 2 + 3^2$ His working is shown below. Explain his mistakes

$5 \times (9 - 7) + 5^2$

$5 \times (9 - 7) + 25$

5×27

135

Question 9

https://www.mathsisfun.com/fractions.html

https://www.bbc.co.uk/bitesize/articles/zyxsf82#znncg7h

Below is a fraction:

$\frac{2}{3}$

Which integer represents the numerator and which the denominator?

Question 10

Three types of fractions are

- Proper
- Improper
- Mixed

Give the correct name to each of the fractions below

Fraction	Name
$\frac{8}{7}$	
$17\frac{2}{9}$	
$\frac{1}{20}$	

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Question 11

https://www.bbc.co.uk/bitesize/guides/zmxwqp3/revision/2

https://www.georgebrown.ca/sites/default/files/uploadedfiles/tlc/_documents/Adding_and_Subtracting_Mixed_Numbers_and_Improper_Fractions.pdf

Perform these calculations involving fractions, **please show all stages of your working**. Give your answers in their simplest form, and if necessary, as a mixed fraction

	Calculation	**Working** and answer
11.1	$\frac{7}{5} - \frac{3}{5}$	
11.2	$\frac{9}{8} + \frac{7}{8}$	
11.3	$\frac{18}{11} \times \frac{2}{9}$	
11.4	$\frac{1}{2} - \frac{3}{4}$	
11.5	$\frac{1}{2} - \frac{3}{4}$	

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	Calculation	**Working** and answer
11.6	$\frac{1}{9}+\frac{5}{6}$	
11.7	$\frac{13}{15}\times-\frac{5}{39}$	
11.8	$\frac{1}{8}\div\frac{3}{16}$	
11.9	$1\frac{1}{4}-3\frac{5}{8}$	
11.10	$2\frac{1}{5}+1\frac{2}{3}$	

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	Calculation	**Working** and answer
11.11	$1\frac{2}{3} \times 6\frac{3}{4}$	
11.12	$1\frac{5}{9} \div 10\frac{1}{2}$	

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Question 12

Help for questions 12 and 13
https://documents.uow.edu.au/content/groups/public/@web/@cedir/@ld/documents/doc/uow147641.pdf

Calculate 0.2 × 50. **Show how you could work is out, without a calculator**

Question 13

Calculate 0.001 × 0.71. **Show how you could work is out, without a calculator**

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Help for question 14 to 17
https://thirdspacelearning.com/gcse-maths/number/decimal-places/

https://thirdspacelearning.com/gcse-maths/number/significant-figures/

Question 14 Write 6.32157 to **three** decimal places. Explain your method

Question 15

Write 5.007649 to **four** decimal places. Explain your method

Question 16

Write 95,612 to two significant figures. Explain your method

Question 17

Write 0.00191545 to four significant figures. Explain your method