

## Faculty of Technology – Course work Specification 2017/18

<b>Module name:</b>	<b>Object Oriented Design and Development with C++</b>		
<b>Module code:</b>	<b>IMAT2605</b>		
<b>Title of the Assignment:</b>	<b>Breakout</b>		
<b>This coursework item is:</b> (delete as appropriate)	Summative		
<b>This summative coursework will be marked anonymously</b>	No		
<b>The learning outcomes that are assessed by this coursework are:</b> <ol style="list-style-type: none"> <li>1. Be able to critically evaluate how and when different OO techniques and design patterns should be used in order to solve problems typically found in software development</li> <li>2. Be able to effectively communicate OO designs through UML static class diagrams and a set of documented C++ classes</li> <li>3. Be able to analyse the correctness and performance of C++ code using appropriate software tools</li> <li>4. Be able to synthesize a C++ OO software solution for a real-time simulation or game problem</li> </ol>			
<b>This coursework is:</b> (delete as appropriate)	Individual		
<b>This coursework constitutes 100% to the overall module mark.</b>			
<b>Date Set:</b>	<b>2<sup>nd</sup> July 2018</b>		
<b>Date &amp; Time Due:</b>	<b>17<sup>th</sup> of August 2018 4pm</b>		
<b>The ‘normal’ coursework return date for this work is:</b> 14 <sup>th</sup> of September 2018. <i>If for any reason this is not forthcoming by the due date your module leader will let you know why and when it can be expected. The Head of Studies (headofstudies-tec@dmu.ac.uk) should be informed of any issues relating to the return of marked coursework and feedback.</i>			
<b>When completed you are required to submit your coursework to:</b> <ol style="list-style-type: none"> <li>1. Documented software to be submitted via a submission link on blackboard. Instructions on how to do this are posted on blackboard.</li> </ol>			
<b>Late submission of coursework policy:</b> Late submissions will be processed in accordance with current University regulations which state: <i>“the time period during which a student may submit a piece of work late without authorisation and have the work capped at 40% if passed is <b>14 calendar days</b>. Work submitted unauthorised more than 14 calendar days after the original submission date will receive a mark of 0%. These regulations apply to a student’s first attempt at coursework. Work submitted late without authorisation which constitutes reassessment of a previously failed piece of coursework will always receive a mark of 0%.”</i>			
<b>Academic Offences and Bad Academic Practices:</b> These include plagiarism, cheating, collusion, copying work and reuse of your own work, poor referencing or the passing off of somebody else’s ideas as your own. If you are in any doubt about what constitutes an academic offence or bad academic practice you must check with your tutor. Further information is available at: <a href="http://www.dmu.ac.uk/dmu-students/the-student-gateway/academic-support-office/academic-offences.aspx">http://www.dmu.ac.uk/dmu-students/the-student-gateway/academic-support-office/academic-offences.aspx</a> and <a href="http://www.dmu.ac.uk/dmu-students/the-student-gateway/academic-support-office/bad-academic-practice.aspx">http://www.dmu.ac.uk/dmu-students/the-student-gateway/academic-support-office/bad-academic-practice.aspx</a>			

**Tasks to be undertaken:**

You are to design, build and test a clone of the classic arcade game breakout.

Specification of game mechanics:

- Static graphical background
    - A picture which forms background of the game
  - Dynamic ball
    - A ball which moves and collides with realistic physics (no gravity)
  - Static axis-aligned obstacles making up the top, left and right walls
  - Dynamic obstacles
    - At least five axis-aligned rectangular blocks which disappear when hit by the ball.
    - A paddle formed of an axis-align rectangle which moves left or right via key presses and cannot be moved outside of the screen.
- The game ends when the ball disappears from the bottom of the screen.

**Deliverables to be submitted for assessment:**

- A visual studio project containing the game source code and any unit tests.

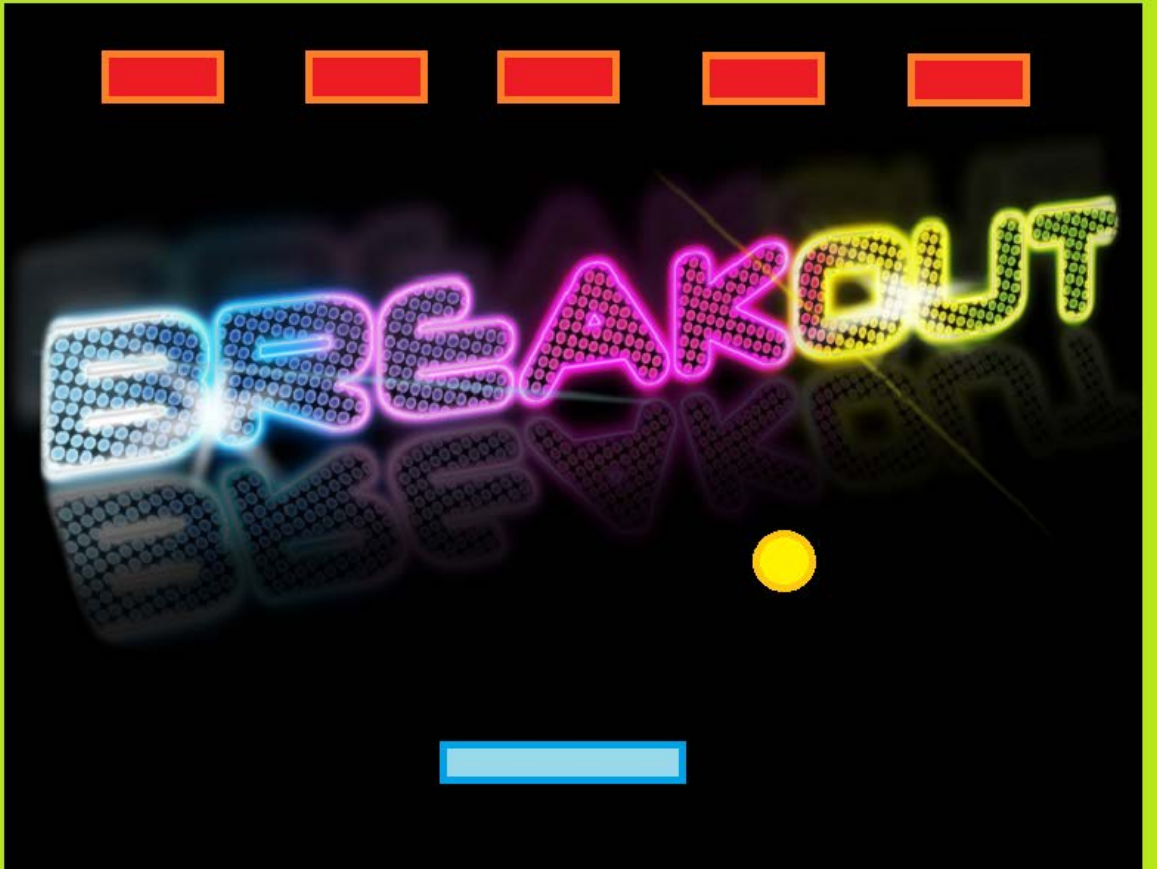
**How the work will be marked:**

As this is a resit you can only achieve a pass or fail, that 40% or below.

To achieve 40% you **MUST** achieve all the games mechanics stipulated in this document. To recap:

- A ball which moves and collides with realistic physics (no gravity).
- Left, top and right walls.
- A paddle which moves left and right on key presses and is constrained by the screen.
- At least five blocks which disappear when hit (are destroyed).
- The game end when the ball goes off the bottom of the screen or all block have been destroyed.

Use a colour scheme of your choice but, the game should look something like this:



The green lines are the walls.  
The blue rectangle is the paddle.  
The red rectangles are the blocks.  
The yellow circle is the ball.

Code should be written using OO principles.

<b>Module leader/tutor name:</b>	<b>Simon Coupland</b>
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