School of Computing, Engineering and Mathematics

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| **Assessment Brief Form** |

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| Module Title: | Embedded Architecture & Programming |
| Module Code: | CI116 |
| Author(s)/Marker(s) of Assignment | Saeed Malekshahi |

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| Assignment No: | 3 |
| Assignment Title: | Number Sorting |
| Assignment weighting: | 30% |
| Module Learning Outcome/s Covered: (Refer to module syllabus) | LO3, LO5, LO6, LO7 |

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| **Assignment Brief and Assessment Criteria:** |
| **Assessment Criteria**   |  |  | | --- | --- | | Flowchart of the algorithm | 10marks | | The code and listing with appropriate comments in the code | 30 marks | | Use of function in the code | 10 marks | | Display of highest and lowest numbers on the LED | 10marks | | Use of serial print function to display the numbers | 10 marks | | Quality of the report | 30 marks |   You must submit the report electronically using student central. The work will be e-marked and e-feedback will be provided to you.  You are also required to attend a viva session following hand-in where you will be asked questions which relate to this assignment and provided with verbal feedback.  Attendance at the viva contributes to your viva assessment mark (see viva assessment specification). |

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| Date of issue: | 12 March 2018 |
| Deadline for submission: | 20 April 2018 11:55 PM |
| Method of submission: | E-Submission |
| Date feedback will be provided: | 14 May 2018 |

1. A copy of your coursework submission may be made as part of the University of Brighton’s and School of Computing, Engineering & Mathematics procedures which aim to monitor and improve the quality of teaching. If a copy is made, it will be kept only for this purpose and will be destroyed once this purpose has been fulfilled. You should refer to your student handbook for details.
2. All work submitted must be your own (or your team’s for an assignment which has been specified as a group submission) and all sources which do not fall into that category must be correctly attributed. The markers may submit the whole set of submissions to the JISC Plagiarism Detection Service.

Number Sorting

In this lab activity, you are required to sort an array of fifty random numbers in to ascending order.

The task required:

* Obtain an Arduino Uno Board and connect it to the PC.
* From the computing programmes select Arduino program.
* Draw a flowchart of an algorithm which sorts the array in ascending order. The numbers are in the range of 0 to 255.
* The highest and the lowest numbers in the array should be displayed on eight L.E.Ds.
* The sorted array should be displayed on the serial monitor using a pointer.
* The sorting function should be triggered by keyboard input from the serial monitor.
* The numbers should be randomly generated.
* Write the programme in “C” and test its functionality.

You need to submit your report electronically through StudentCentral.

The report must contain:

* + Your final complete flowchart
  + An explanation of how your code works
  + An in-depth reflection about what you have learned
  + A description of any issues you faced in developing the code and its implementation.