

| Module Details |                                            |
|----------------|--------------------------------------------|
| Module Title   | Computer Architecture and Systems Software |
| Module Code    | COS4001-B                                  |
| Academic Year  | 2021/2                                     |
| Credits        | 20                                         |
| School         | Department of Computer Science             |
| FHEQ Level     | FHEQ Level 4                               |

| Contact Hours                  |       |
|--------------------------------|-------|
| Type                           | Hours |
| Lectures                       | 12    |
| Laboratories                   | 12    |
| Directed Study                 | 164   |
| Online Tutorials (Synchronous) | 12    |

| Availability |                                     |
|--------------|-------------------------------------|
| Occurrence   | Location / Period                   |
| BDA          | University of Bradford / Semester 2 |

| Module Aims                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To gain a knowledge and understanding of the fundamental aspects of computer architecture and systems software with a focus on digital logic design, computer hardware systems and systems software. |

| Outline Syllabus                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A simple overview of typical computer system hardware. Representation and coding of information in a computer. Computer arithmetic. Introduction to digital logic. Truth tables, Boolean algebra and the design of simple logic circuits. Sequential logic. Structure of a simple computer CPU and its connection to memory and input/output devices. The computer memory hierarchy. The construction and operation of common I/O devices. Introduction to instruction sets and addressing modes. Introduction to assembly code and simple assembly language exercises. Definition of an operating system via its nature and functions. The process model of computer operation. Appreciation of the hardware interface between a computer and a network. |

| Learning Outcomes |                                                                                                                                                    |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Outcome Number    | Description                                                                                                                                        |
| 01                | Represent and process information in binary form and logic circuits;describe the working principle of computer components and an operating system. |
| 02                | Design and build simple logic circuits;explain communications between computer components and systems software.                                    |
| 03                | Apply logical approaches to software system design and apply number systems.                                                                       |

| Learning, Teaching and Assessment Strategy                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Lectures will concentrate on concepts, principles and theories of the digital logic design, computer hardware systems and systems software. These will be supported by practical exercises undertaken during labs and direct study.</p> <p>Oral feedback will be given during the labs.</p> <p>Practical understanding, skills and learning outcomes (1, 2, 3) will be tested through two courseworks.</p> |

| Mode of Assessment |                           |                                   |           |
|--------------------|---------------------------|-----------------------------------|-----------|
| Type               | Method                    | Description                       | Weighting |
| Summative          | Coursework                | Coursework                        | 30%       |
| Summative          | Examination - Closed Book | Examination - closed book (2 Hrs) | 70%       |

| Reading List                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| To access the reading list for this module, please visit <a href="https://bradford.rl.talis.com/index.html">https://bradford.rl.talis.com/index.html</a> |

*Please note:*

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*

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