# Digital Solutions Value: 1.0

### Digital Solutions a Value 0.5

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## Unit Description

The focus of this unit is creating appropriate data-drivensolutions to authentic problems, and on developing students’ understanding, and application, of a design process.

Students develop the skills and knowledge required to analyse and examine existing solutions to known problems and produce their own solutions to existing problems.

They focus on understanding how to choose and apply a design process to create a relevant solution for a client’s needs.

## Specific Unit Goals

This unit should enable students to:

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| A Course | T Course | M Course |
| * creates design solutions for authentic problems | * creates innovative and high-quality design solutions for authentic problems | * creates design solutions |
| * analyse theories, concepts and principles related to the design and development of digital solutions to address existing problems | * synthesise theories, concepts and principles related to the design and development of digital solutions to address existing problems | * examine theories, concepts and principles related to the development of digital solutions to existing problems |
| * think critically and creatively, drawing on data to solve problems and create innovative design solutions | * think critically and creatively, drawing on data to solve complex problems create innovative and high quality design solutions | * apply computer science concepts in the development of digital solutions |

## Content Descriptions

All knowledge, understanding and skills below must be delivered:

| A Course | T Course | M Course |
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| Design process | | |
| * analyse and apply a design process, explaining opportunities and constraints that impact decision making when designing relevant solutions for user requirements | * critically analyse and apply a design process, evaluating opportunities and constraints, and explain the decision making when designing relevant solutions for user requirements | * describe and use a design process and procedures in developing solutions for user requirements |
| * analyse and apply the elements and principles of the design process to enable the deconstruction of a problem and the development of a solution, for example, a program or website developed to solve a specific problem, or a game designed for an identified target audience | * critically analyse and apply the elements and principles of the design process to enable the deconstruction of a problem and the development of a solution, for example, a program or website developed to solve a specific problem, or a game designed for an identified target audience | * describe practical techniques and materials to solve a problem and develop a solution |
| * understand and apply the design process to develop the architecture of a solution to an authentic problem, for example the development of a suite of cryptographic tools, or a website designed to manage student data or an educational game design to promote sustainability | * apply the design process to evaluate and develop the architecture of a solution to an authentic problem, for example the development of a suite of cryptographic tools, or a website designed to manage student data, or an educational game design to promote sustainability |  |
| **Strategies, methodologies and procedures** | | |
| * analyse strategies, tools, and processes required to produce digital solutions | * evaluate strategies, tools, and processes required to produce digital solutions | * describes appropriate selection of strategies and procedures to digital solutions |
| * research data-driven solutions and justify design decisions | * research and investigate data-driven solutions and justify design decisions | * plans and undertakes inquiries into data-driven solutions |
| * understand the selection and use of specific production tools which are appropriate for constructing digital solutions | * evaluate the selection and use of specific production tools which are appropriate for constructing digital solutions |  |
| * create a digital solution, for example, a program or website developed to solve a specific problem, or a game designed for an identified target audience | * create a digital solution, for example, a program or website developed to solve a specific problem, or a game designed for an identified target audience |  |

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| A Course | T Course | M Course |
| * design solutions using data-driven thinking | * design solutions using computational, algorithmic and/or data-driven thinking | * create design solutions using data-driven thinking |
| * apply strategies to work both independently and collaboratively to meet deadlines | * apply strategies to work both independently and collaboratively in time sensitive environments | * work both independently and collaboratively to meet deadlines |
| Theories, concepts and materials | | |
| * analyse the theories affecting the design and development of a digital solution, for example, algorithmic efficiency or user experience design for websites and games | * critically analyse the theories affecting the design and development of a digital solution, for example, algorithmic efficiency or user experience design for websites and games | * examine the design and development of a digital solution |
| * analyse and apply computer science concepts for problem solving in the development of digital solutions | * critically analyse and apply computer science concepts for problem solving in the development of digital solutions | * communicate ideas and use computer science concepts to solve problems in developing digital solutions |
| * analyse the factors affecting the development of a digital solution within the context of its design environment | * critically analyse the factors affecting the development of a digital solution within the context of its design environment |  |
| * understand legal, social and ethical responsibilities associated with the development of digital solutions | * critically analyse legal, social and ethical responsibilities associated with the development of digital solutions | * understand legal, social and ethical responsibilities associated with the development of digital solutions |
| Contexts | | |
| * analyse how design is influenced by context including social, historical and cultural, and how the design of a digital solutions may impact assets, systems, and projects | * critically analyse how design is influenced by context including social, historical and cultural, and how the design of a digital solutions may impact assets, systems, and projects |  |

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| A Course | T Course | M Course |
| * understand the human considerations and challenges involved in the design and development of digital solutions, for example the ethical, environmental and legal contexts, or the development of controversial technology | * critically analyse the human considerations and challenges involved in the design and development of digital solutions, for example the ethical, environmental and legal contexts, or the development of controversial technology | * understand human considerations and problems involved in the design and development of digital solutions |
| Communication | | |
| * communicate accurately with others using correct terms in an appropriate format, both orally and in writing | * communicate accurately with others using correct terms in an appropriate format, both orally and in writing | * communicate ideas to others using technical terms, both orally and in writing |
| * communicate ideas and insights in a range of appropriate mediums to a variety of audiences | * communicate ideas and insights in a range of appropriate mediums to a variety of audiences |  |
| * explain the process of solving design problems and justify the choices made during the development of digital solutions | * explain the process of solving design problems and justify the choices made during the development of digital solutions | * describe the process of solving design problems during the development of digital solutions |
| * justify ideas coherently using appropriate evidence and accurate referencing | * justify ideas coherently using appropriate evidence and accurate referencing | • communicate ideas and describe choices |
| **Reflection** | | |
| * reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning | * reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning | * reflect on how to manage deadlines and improve own learning |