Digital T-Level Transition Booklet

"Failure is simply the opportunity to begin again, this time more intelligently" - *Henry Ford*

Welcome to T-Level @ SJBC.

What does the T-Level Cover?

The content is split into a core component and the occupational specialism, which is:

- Software Development

The core component provides a broad understanding of the digital industry and covers the following topics:

• Business Context
• Culture
• Data
• Digital Analysis
• Digital Environments
• Diversity and Inclusion
• Learning
• Legislation
• Security
• Testing
• Tools

The core component will be assessed by two exams and an employer set project. Your occupational specialism will allow you to develop the relevant skills in preparation for your career in the digital sector. The occupational specialism is assessed by a project that is created in conjunction with employers. The content covers the following topics:

Digital Production, Design and Development

• Analysing a problem to define requirements and acceptance criteria aligned to user needs

• Designing, implementing, and testing software

• Changing, maintaining and supporting software

• Creating solutions in a social and collaborative environment

• Discovering, evaluating, and applying reliable sources of knowledge

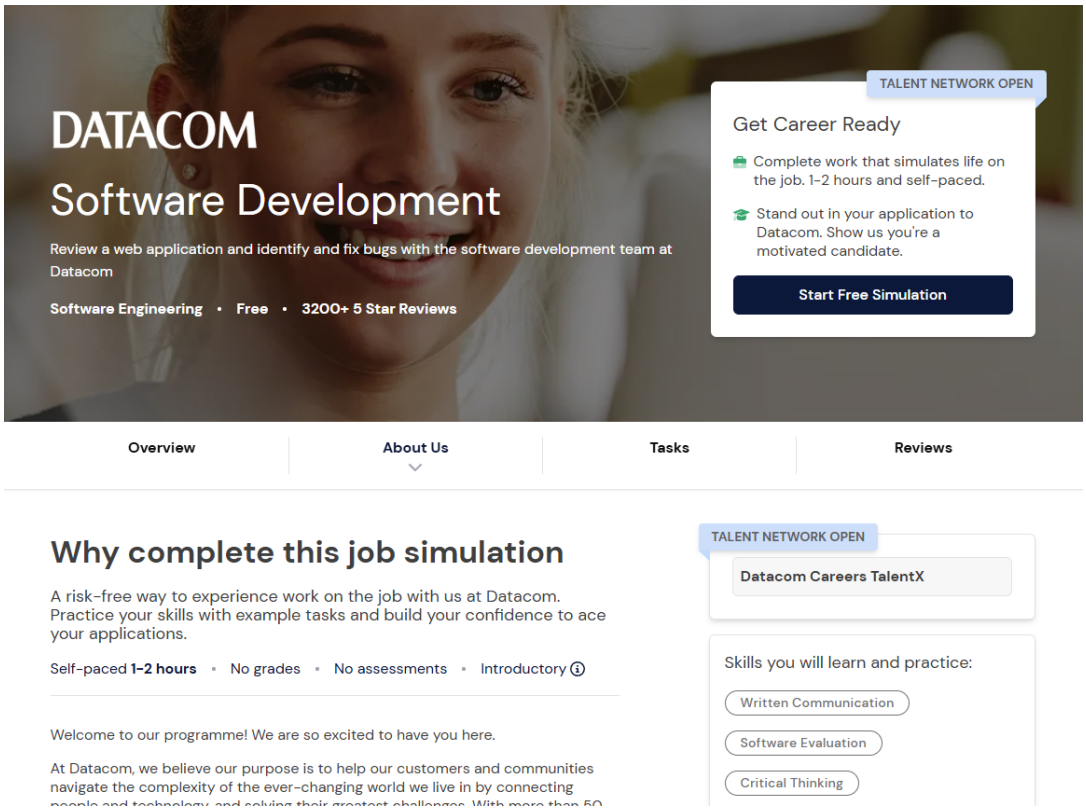
• Applying ethical principles and managing risks in line with legal and regulatory requirements when developing software

As part of this Technical Qualification, you will also enhance your broader skills in literacy and numeracy, which will be valuable in supporting progression in other areas. In addition, you will develop transferable technical and practical skills in communication (working with colleagues, customers, and clients), research and project work, providing you with an opportunity to demonstrate your reflective practice by suggesting alternative approaches to a problem.

How Can I Prepare?

To prepare for this course we would like you to undertake some virtual wrk experience. This is completely free and will help put what your learning into context.

- Go to: Datacom Software Development - Forage
- Select Software Engineering as the Career and choose the experience below or something similar if it isn't available.



Learn Python:

We would also like you to have a basic level knowledge of Python Programming at least. This can be developed by following these Cisco tutorials you will have the opportunity to add to this course and achieve a Linked in certification badge by fully completing all modules:

https://www.netacad.com/courses/python-essentials-1?courseLang=en-US&instance_id=7ad73e3f-1084-42c8-a343-6ac615fe1882

Learn AI:

Follow this short course and earn your certificate of completion: Claude 101

Buy the Course Textbook: https://amzn.eu/d/iMsB14R

Buy the Essential Revision Guide: https://amzn.eu/d/7oFH12s

Below are from the Exam Board Specification

Mrs M Perrineau-Daley

General Competency Frameworks for T Levels

The General Competency Framework for T Levels articulates English, maths and digital competencies that students are required to develop over the course of the qualification. The tables below list the competencies from the framework that are relevant to the T Level Technical Qualification in Digital Software Development.

Competencies that can be developed in relation to a specification element of content are referenced in the column next to this content element in the Occupational Specialism. These competencies should be delivered through the content of this qualification and teachers should seek opportunities to allow students to develop the relevant skills to enable them to reach threshold competence in the specialism.

The English, maths and digital competencies are embedded in both the Core Component and the Occupational Specialism Component of the T Level Technical Qualification in Digital Software Development. This is so that students can demonstrate their knowledge and understanding of these skills over the course of the qualification.

General English competencies

Students should be supported to develop the English knowledge and skills needed in order to:

E1	Convey technical information to different audiences
E2	Present information and ideas
E3	Create texts for different purposes and audiences
E4	Summarise information/ideas
E5	Synthesise information
E6	Take part in/leading discussions

General maths competencies

Students should be supported to develop the maths knowledge and skills needed in order to:

M1	Measure with precision
M2	Estimate, calculate and spot errors
M3	Work with proportion
M4	Use rules and formulae
M5	Process data
M6	Understand data and risk
M7	Interpret and represent with mathematical diagrams
M8	Communicate using mathematics
M9	Cost a project
M10	Optimise work processes

General digital competencies

Students should be supported to develop the digital knowledge and skills needed in order to:

D1	Use digital technology and media effectively
D2	Design, create and edit documents and digital media
D3	Communicate and collaborate
D4	Process and analyse numerical data
D5	Be safe and responsible online
D6	Code and program

Based on the above, the below skills are expected to be developed fully, we have made a small idea of what learning looks like in Year 1 of T-level as below

Risk Analysis Keywords

Keyword	Short Description	Example
Dependency	One task relies on another	Testing depends on development
Bottleneck	Something slowing progress	Database engineer on holiday
Contingency	Backup plan	Extra budget for faults
Overrun	Going over time/cost	More bugs than expected
Affordability	Can the business pay?	Choosing cloud server
Scalability	Ability to grow	Cloud expands easier
Efficiency	Less waste/time	Automated stock system
Feasibility	Is it realistic?	18-week deadline

Maths Skills

Percentages

Keywords:

- Percentage (%) → A proportion out of 100
- Increase → Adding value
- Decrease → Reducing value
- Growth rate → The rate something increases over time

Formula:

$$\text{Percentage Change} = \frac{\text{New Value - Original Value}}{\text{Original Value}} \times 100$$

Example:

RetailX income = £1,830,000
Increase after Year 1 = 7.5%

Calculation:
7.5% of £1,830,000

$$1830000 \times \frac{7.5}{100}$$ = £137,250

New income:
£1,830,000 + £137,250 = £1,967,250

Fixed Costs

Definition:

Costs that stay the same regardless of output.

Examples:

- Base fee = £60,000
- Equipment = £18,585
- Physical server = £25,600

Variable Costs

Definition:

Costs that change over time.

Examples:

- Cloud hosting monthly
- Staff wages
- Maintenance

Formula:

$$\text{Variable Cost} = \text{Cost per Unit} \times \text{Number of Units}$$

Profit and Loss

Formula:

$$\text{Profit} = \text{Revenue} - \text{Costs}$$

Formula:

$$\text{Loss} = \text{Costs} - \text{Revenue}$$

Revenue

Definition:

Money earned by the business.

Formula:

$$\text{Revenue} = \text{Price} \times \text{Quantity Sold}$$

Break Even Analysis

Definition:

Point where income equals costs.

Formula:

$$\text{Break-even} = \frac{\text{Fixed Costs}}{\text{Selling Price - Variable Cost}}$$

Why important?

Shows when the investment becomes profitable.

Scenario:

RetailX wants to know how long until system costs are recovered.

Keywords:

- Return on investment (ROI)
- Recovery period
- Sustainability

Return on Investment

Definition:

Measures profitability of investment.

Formula:

$$ROI = \frac{\text{Net Profit}}{\text{Investment Cost}} \times 100$$

Example:

Profit = £150,000
Investment = £80,000

ROI = 187.5%

Practice Question:

“If the cloud server costs £1,125/month and backup costs £675/month, what is the yearly cost?”

Try:

(1125 × 12) + (675 × 12)

Answer:
= £21,600

This is directly useful for comparing server options in your project plan.