

# Software Design and Development

This **12-week foundation training course** is designed to align with the **Unit 4: Software Design and Development**, for the **BTEC Level 3 National Diploma/Extended Diploma in Information Technology**.

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<b>Week Topics</b>	<b>Key Topics &amp; Activities</b>	<b>Assessment Tasks</b>
<b>1</b> Introduction & Overview of SDLC ( <i>Learning Aim A</i> )	- Stages: requirements → maintenance- Methodologies: Waterfall, Agile, RAD- Team roles	- Timeline activity- Compare methodologies
<b>2</b> Requirements Analysis ( <i>Learning Aim A</i> )	- Functional vs non-functional- Stakeholder analysis- Feasibility study	- Stakeholder profile- Requirement-gathering form
<b>3</b> Software Design Techniques ( <i>Learning Aim B</i> )	- Pseudocode & flowcharts- UML diagrams (class & activity)- Data structures	- Design a simple system (login, calculator, etc.)
<b>4</b> User Interface & UX Design ( <i>Learning Aim B</i> )	- GUI principles- Wireframing tools (e.g., Figma, pen-and-paper)- Accessibility & usability	- Design a user interface for a client need
<b>5</b> Programming Fundamentals Review ( <i>Learning Aim C</i> )	- Variables, data types, input/output- Control structures, functions	- Build prototype modules (menus, forms)
<b>6</b> Advanced Programming & Validation ( <i>Learning Aim C</i> )	- Modularisation- Input validation & exception handling	- Implement user input with error checking
<b>7</b> Data Storage ( <i>Learning Aim C</i> )	- Text/CSV or simple database (SQLite)- Saving and loading data- CRUD operations	- Implement saving user input to file
<b>8</b> Integrating Components ( <i>Learning Aim C</i> )	- Link modules- Navigation between screens- Preparing for testing	- Mini-milestone: full working prototype
<b>9</b> Software Testing ( <i>Learning Aim D</i> )	- Types: unit, integration, system- Black box vs white box testing- Test plans and logs	- Create & complete test plan

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<b>10</b> Evaluation & Client Feedback ( <i>Learning Aim D</i> )	- Gathering feedback- Evaluation criteria: usability, efficiency, reliability	- Write evaluation with screenshots- Client feedback form
<b>11</b> Final Improvements & Documentation	- Implement fixes from feedback- Complete user documentation & developer notes	- Submit improved version- Documentation checklist
<b>12</b> Showcase & Final Submission	- Present software solution- Reflective review- Final submission	- Peer assessment- Submission of all coursework (A–D)

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