Fundamentals of Computer Systems

This **12-week foundation training course** is designed to align with the **Unit 2: Fundamentals of Computer Systems**, for the **BTEC Level 3 National Diploma/Extended Diploma in Information Technology**.

Week	Topics	Key Concepts & Activities	Assessment Tasks
1	**Overview of Computer Systems**	- What is a computer system?- Input, process, output, storage (IPOS)- Open vs closed systems	- Diagram: IPOS system model- Short quiz
2	**Hardware Components**	- CPU, RAM, ROM, buses- I/O devices and secondary storage- Embedded systems	- Label CPU diagram- Compare desktop vs embedded
3	**Software Types**	- System software (OS, utilities)- Application software (word processor, browser)- Open source vs proprietary	- Case study comparison- Quiz: system vs application
4	**Roles of the Operating System**	- Memory, processor, file, device, user management- Interfaces: CLI, GUI	- OS features worksheet- Group demo: task manager use
5	**Data Representation – Numbers**	- Binary & denary conversions- Binary addition- Hexadecimal	- Practice exercises- Mini test
6	**Data Representation – Text, Images & Sound**	- ASCII & Unicode- Image resolution & colour depth- Sound sample rate, bit depth	- File size calculations- Homework: ASCII name encoding
7	**Boolean Logic**	- AND, OR, NOT gates- Truth tables- Logic diagrams	- Create and test logic circuits- Apply logic to a real scenario
8	**Networks and Communication**	- LAN, WAN, protocols (TCP/IP, HTTP)- Network hardware- Topologies	- Draw network topologies- Protocol matching activity
9	**Legislation and Ethics**	- Data Protection Act- Computer Misuse Act- Environmental & social impacts	- Group task: ethical scenario role-play- Short written reflection

Fundamentals of Computer Systems

Week	Topics	Key Concepts & Activities	Assessment Tasks
10	**Exam Techniques – Short Questions**	- Interpreting command verbs (describe, explain, evaluate)- Short-answer strategies	- Practice: 2–4 mark questions- Peer marking
11	**Exam Techniques – Extended Response**	- Structuring 6–8 mark questions- Developing evaluation skills	- Practice extended response- Feedback and improvements
12	**Mock Exam & Final Review**	- Full mock exam (under timed conditions)- Review key gaps- Revision planning	- Mock paper- Individual progress plan

---

🧠 **Mapped to BTEC Unit 2 Learning Aims**

Learning Aim	Topic Area
A	Understand the components of computer systems
B	Understand how data is represented
C	Understand the uses of computer systems
D	Understand the implications of computer systems

🧰 **Supplementary Materials (Available Upon Request)**

1. **Editable Weekly Lesson Plans**
    - Objectives, activities, resources, differentiation, homework
2. **Student Workbook**
    - Fill-in activities, definitions, practice questions per topic

3. **Topic-Based Quizzes**
    - Multiple-choice, true/false, short-answer
4. **Mock Exam Paper with Mark Scheme**
    - Follows BTEC-style question structure
5. **Exam Skills Revision Pack**
    - Breakdown of common command words, example answers, peer-assessment checklists

---

Would you like:

- All materials bundled in editable Word/PDF?
- A week-by-week workbook for students?
- Mock exam with sample answers included?

Let me know how you'd like it delivered (e.g., ZIP folder, Google Drive structure, or in this chat)!