BSc IT First-Year Syllabus

Course Title: BSc IT - First Year

Course Duration: 1 Year

Semester: 1

1. Introduction to Information Technology

Lesson Title: Introduction to IT
Subtitle: Overview of Information Technology
Content: Introduction to basic IT concepts, history, and development of IT, importance of IT in modern society.
Time/Days for Completion: 3 days
Technology/Web Development Standards: ISO/IEC 27001 for information security, basics of TCP/IP, web accessibility standards.
Objectives:
   - Understand the basics of IT and its significance.
   - Identify major milestones in the development of IT.
Areas of Curriculum Integration: History, social sciences, and general education.
Sequence of Lesson:
   - Hook: Discussion on how IT impacts daily life.
   - Input: Lecture and multimedia presentation on IT history and concepts.
   - Modeling: Instructor demonstration of basic IT systems.
   - Guided Practice: Group activity to identify IT applications.
   - Independent Practice: Research and presentation on IT's impact on a specific industry.
Adaptations/Accommodations: Visual aids for students with learning disabilities, recorded lectures for students with auditory processing issues.

2. Programming Fundamentals

Lesson Title: Introduction to Programming
Subtitle: Basics of Programming with Python
Content: Variables, data types, control structures, functions, and introduction to basic programming logic.
Time/Days for Completion: 5 days
Technology/Web Development Standards: PEP 8 for Python coding standards.
Objectives:
   - Understand and apply basic programming concepts.
   - Write simple Python programs.

Areas of Curriculum Integration: Math and logic.
Sequence of Lesson:
   - Hook: Discussion on how programming powers everyday applications.
   - Input: Explanation of variables and data types in Python.
   - Modeling: Code demonstration of a simple Python program.
   - Guided Practice: Hands-on activity to modify existing code.
   - Independent Practice: Assignment to create a small Python program.
Adaptations/Accommodations: Code with comments for visual learners, step-by-step coding tutorials for students with learning disabilities.

3. Web Development Basics

Lesson Title: Introduction to HTML & CSS
Subtitle: Creating a Simple Webpage
Content: Basics of HTML elements, CSS styling, and structure of a webpage.
Time/Days for Completion: 4 days
Technology/Web Development Standards: W3C standards for HTML and CSS.
Objectives:
   - Understand how to structure and style a webpage.
   - Create a simple static webpage.
Areas of Curriculum Integration: Design and communication.
Sequence of Lesson:
   - Hook: Exploring examples of effective webpage design.
   - Input: Introduction to HTML elements and CSS properties.
   - Modeling: Instructor demonstrates building a basic webpage.
   - Guided Practice: Students build a webpage with provided elements.
   - Independent Practice: Create a personal homepage using HTML and CSS.
Adaptations/Accommodations: Pre-built code templates for students with cognitive disabilities, larger text for students with visual impairments.

4. Database Management Systems

Lesson Title: Fundamentals of Databases
Subtitle: Introduction to SQL and Database Design
Content: Basics of relational databases, SQL queries, and designing database schemas.
Time/Days for Completion: 6 days
Technology/Web Development Standards: SQL ANSI standards.
Objectives:
   - Understand the concept of relational databases.
   - Create and manipulate databases using SQL.
Areas of Curriculum Integration: Business and data science.
Sequence of Lesson:

- Hook: Real-world examples of databases in action (e.g., bank systems).
- Input: Explanation of tables, relationships, and primary keys.
- Modeling: Demo of SQL query creation in a database management tool.
- Guided Practice: Create a database and run simple queries.
- Independent Practice: Design and implement a small database project.

Adaptations/Accommodations: Visual schemas for visual learners, step-by-step SQL tutorials for those who need additional support.

5. Introduction to Networking

Lesson Title: Basics of Computer Networks
Subtitle: Understanding Network Architecture
Content: Network topologies, protocols, OSI model, and basic networking concepts.
Time/Days for Completion: 5 days
Technology/Web Development Standards: IEEE 802 standards for networking.
Objectives:
   - Understand different network architectures.
   - Identify networking protocols and their purposes.
Areas of Curriculum Integration: Science and engineering.
Sequence of Lesson:
   - Hook: Discuss how the internet connects devices worldwide.
   - Input: Explanation of OSI model and network protocols.
   - Modeling: Network simulation tools demonstration.
   - Guided Practice: Students simulate basic network configurations.
   - Independent Practice: Network design exercise using network simulation software.
Adaptations/Accommodations: Simplified visuals of the OSI model, alternative texts for complex terminologies.