Welcome to Computer Science

This course is meticulously designed to align with state standards and targeted learning objectives, ensuring comprehensive coverage of essential knowledge and skills required for student success.

Course Description:
Embark on an exciting journey into the foundational concepts and principles of computer science. This self-paced course explores the vast field of computer science, going far beyond just programming.

Discover how digital information is represented and manipulated, from text and numbers to images, audio, and video. Learn how large datasets are collected, visualized, and analyzed, and uncover the mechanics of internet communication, including data routing, compression, and encryption. Whether you're aiming for a career in technology or simply want to understand the digital world, this course equips you with essential knowledge and skills to navigate the modern technological landscape.

Syllabus

Unit 1: Introduction to Computer Science
- Overview of computer science fields and applications.
- History and impact of computing on society.
- Ethical considerations in computer science.

Unit 2: Representation of Digital Information
- How computers encode text, numbers, and symbols.
- Digital representation of images, colors, audio, and video.
- Binary systems and data structures.

Unit 3: Data Collection and Visualization
- Methods for collecting and organizing large datasets.
- Creating and interpreting data visualizations.
- Applications of big data in problem-solving.

Unit 4: Internet and Communication
- Fundamentals of how the internet works.
- Data transmission, routing, and protocols.
- Data compression, decompression, and encryption techniques.

Unit 5: Capstone Project – Understanding the Digital World
- Apply learned concepts to analyze and solve a real-world problem.
- Design and present a data visualization project or a simulated internet communication system.

Learning Outcomes
By completing this course, students will:
1. Understand the foundational principles and scope of computer science.
2. Learn how digital data is represented, stored, and manipulated.
3. Develop skills in data collection, visualization, and interpretation.
4. Gain insights into internet communication, including data transmission and security.
5. Apply theoretical knowledge to practical, real-world challenges.

Conclusion
Computer Science, Semester 1 offers a comprehensive introduction to the dynamic world of computing. With a self-paced structure, this course empowers students to learn at their own pace while exploring the fundamentals of digital information, data analysis, and internet communication. Whether you're just starting your journey into computer science or building a foundation for advanced studies, this course provides the tools and understanding needed to thrive in a digital-first world.