Special Topics in IT

COURSE INTRODUCTION

Consultation Time:

10:00A – 12:00N MWF (Lab)

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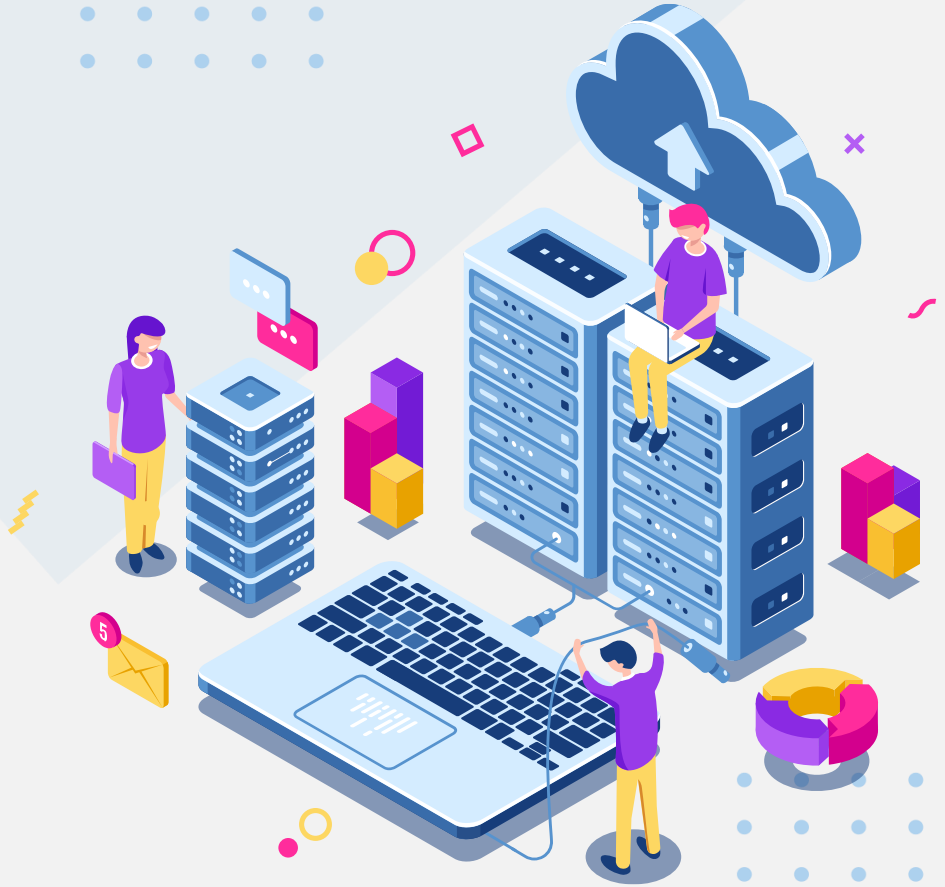


WHAT IS SPECIAL TOPICS?

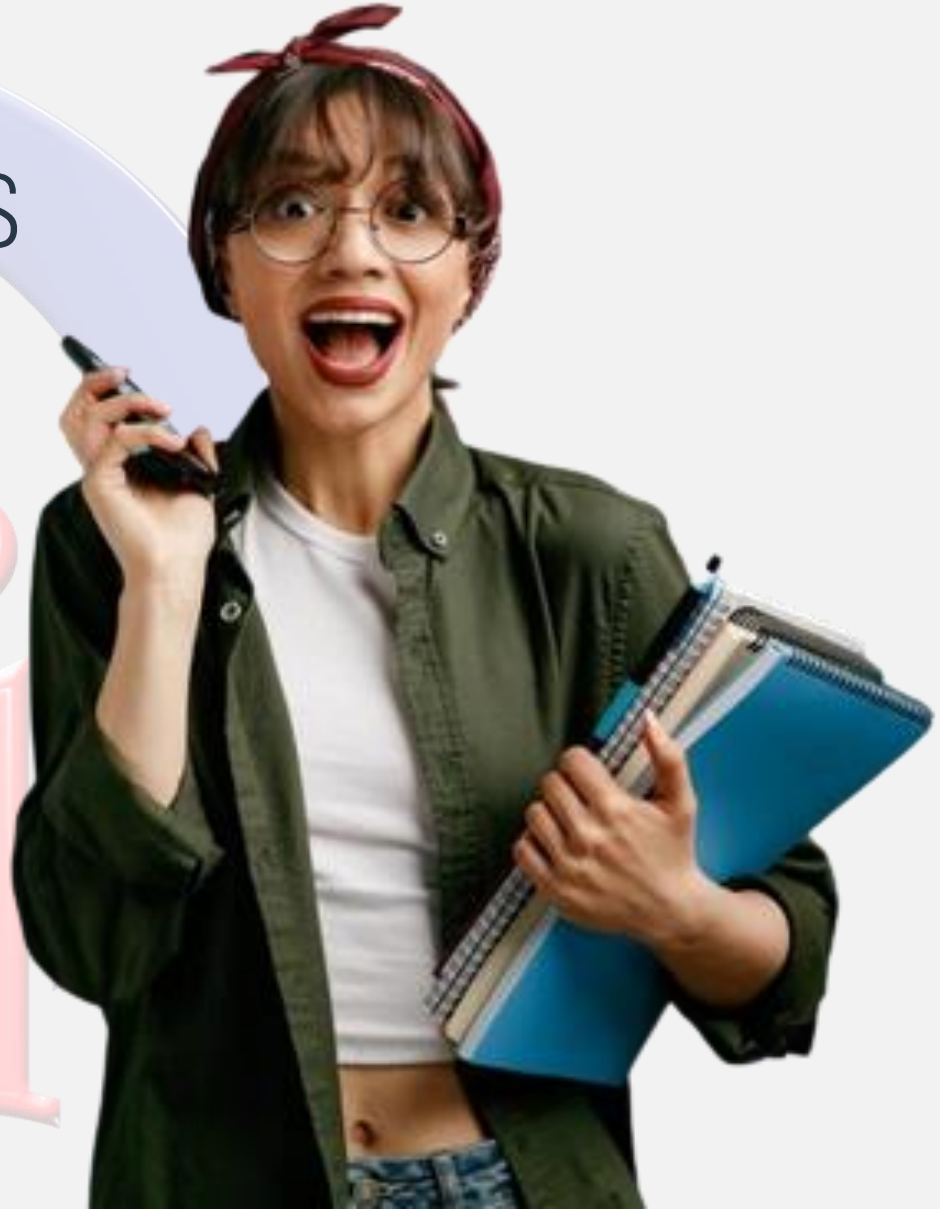
Refers to a course that covers a specific and often advanced area of IT that may not be covered extensively in the standard curriculum.

GOALS

- ✓ Research Opportunities
- ✓ Preparation for Specialized Careers
- ✓ Enhancing Critical Thinking
- ✓ Encouraging Lifelong Learning

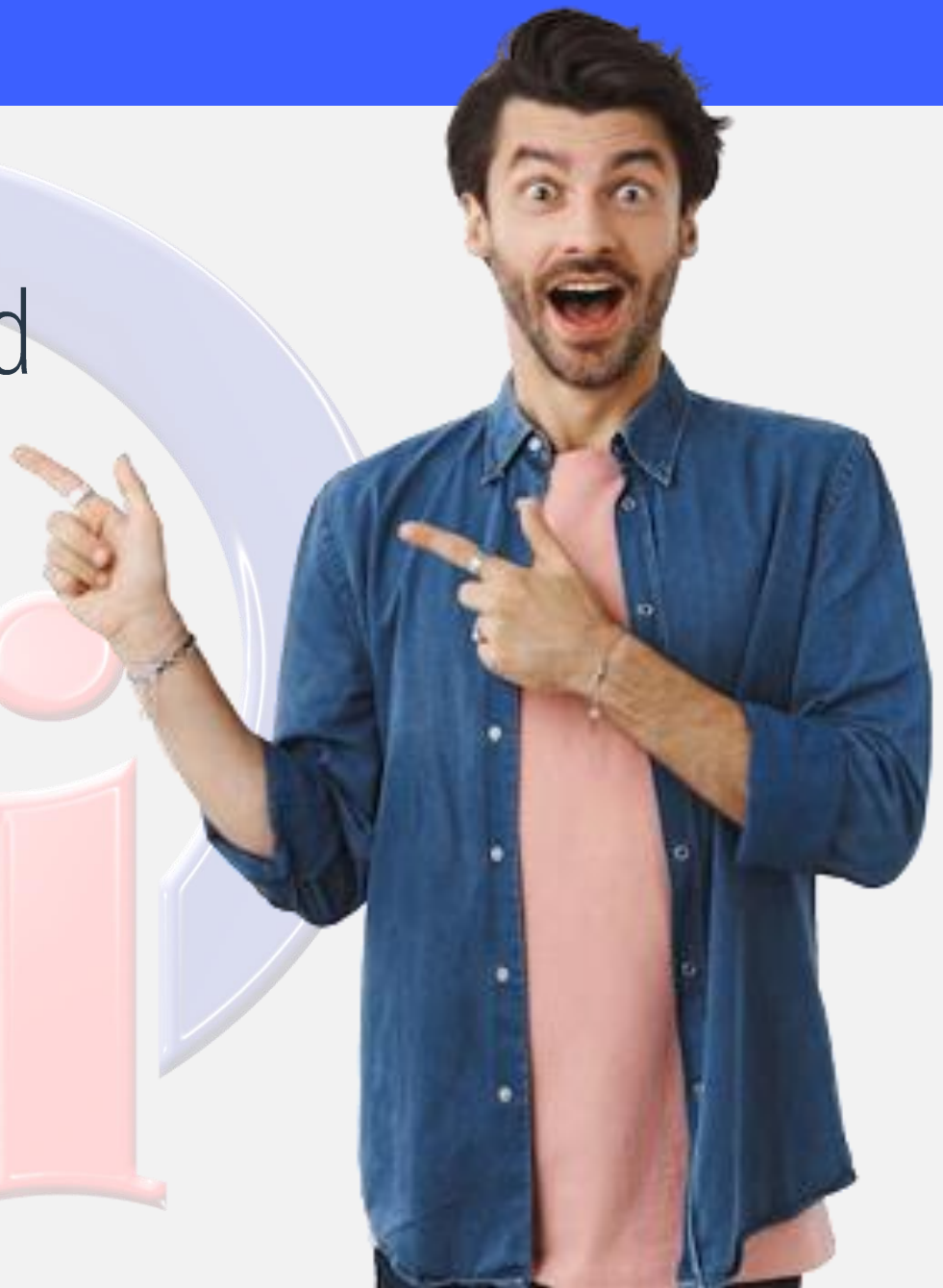
GOALS

- ✓ Exploring Emerging Technologies
- ✓ In-Depth Study
- ✓ Addressing Industry Trends
- ✓ Customization



COURSE DESCRIPTION

In this course, you'll learn the fundamentals of building a simple and yet functional RESTful API using C# and .NET Core. You'll gain hands-on experience in designing, developing, and testing APIs, and learn best practices for API development.



COURSE OBJECTIVES

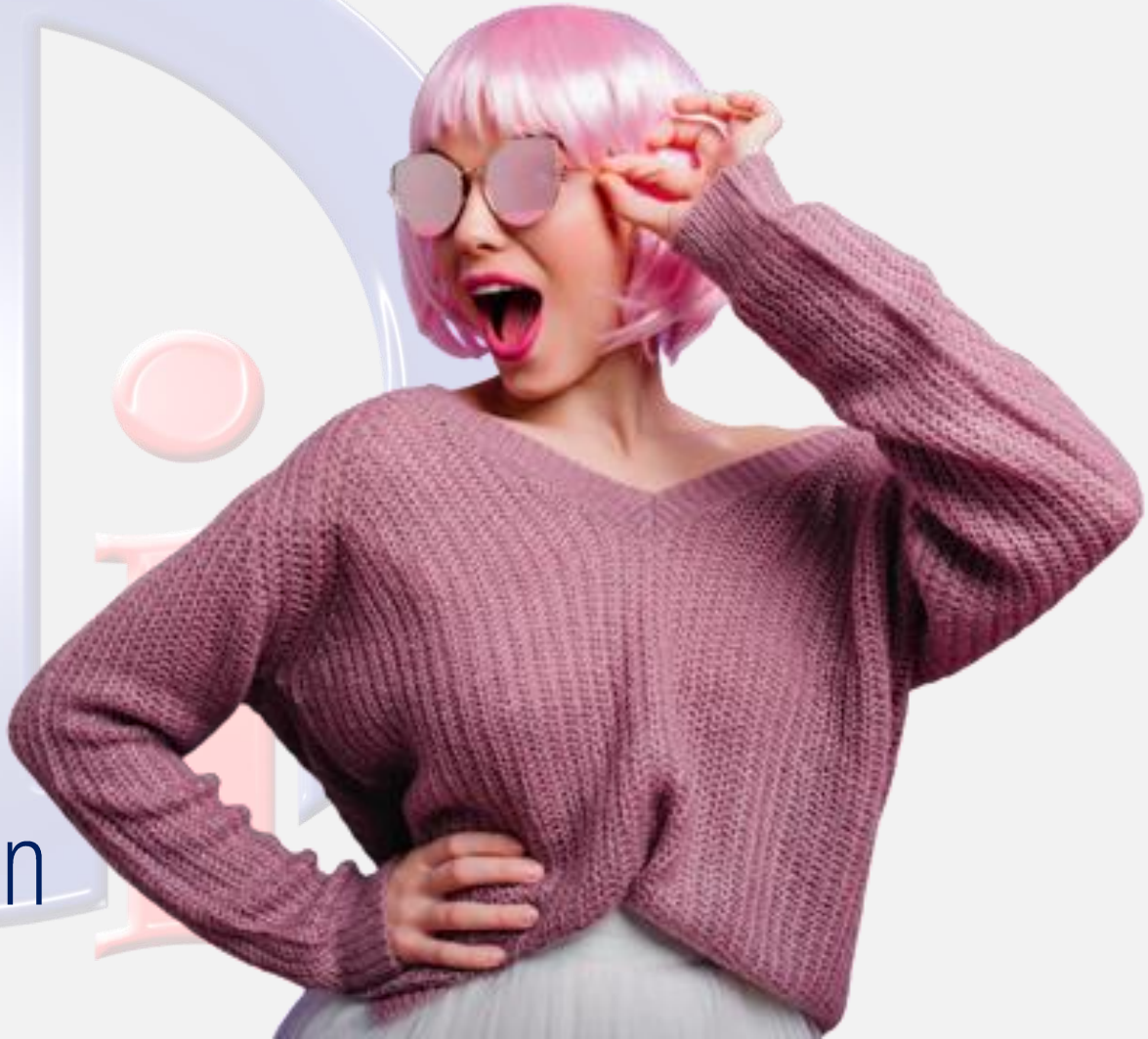
- Review C# and OOP concepts
- Understand the basics of API development and RESTful architecture
- Design and develop simple RESTful APIs using C# and .NET Core

COURSE OBJECTIVES

- Implement API security and authentication mechanisms
- Test and debug APIs using various tools and techniques

TOPICS OVERVIEW

- Develop Minimal API's with .Net Core
- Manage data using SQL Server database
- Creating a database migration
- Learning and implementing OOP concepts
- API Endpoints and documentation



TOPICS OVERVIEW

WEEK 01 – C# Object-Oriented Programming

- Classes, Objects, and Constructors
- Inheritance and Polymorphism
- Encapsulation and Abstraction

WEEK 02 - Introduction to API Development

- Introduction to APIs and RESTful architecture
- Setting up .NET Core and Visual Studio
- Building a simple API

TOPICS OVERVIEW

WEEK 03– API Design and Development

- API design principles and best practices
- Building API endpoints and handling request

WEEK 04 - API Security and Authentication

- Introduction to API security and authentication
- Using JSON Web Tokens (JWT) for authentication

TOPICS OVERVIEW

WEEK 05– API Testing and Debugging

- Introduction to API testing
- Unit testing API endpoints

WEEK 06 & 07 - Final Project

- A well-designed API with multiple endpoints
- Implementation of API security and authentication mechanisms
- Unit tests for API endpoints
- Documentation of the API

Case Study: Student Management

This project aims to develop a simple and scalable RESTful Web API that can store, retrieve, and manage student profiles. This backend API will serve as the foundation for future applications, such as:

- A web dashboard for staff to manage records,
- A mobile app for students to update their information,
- Or even an analytics platform to study student demographics.

QUESTION ?

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