**Course Planner**

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| **Course Incharge** |  | **Semester** | Fall |
| **Batch/Section(s)** | Session 2023 | **Year** | 2023 |
| **Course Title** | **CIT with Introduction to Python: Essentials of Computing and Programming** | **Weekly Hours** | 4+0 |
| **Prerequisite(s)** | a. Minimum Matriculation with Science  b. Having a Personal Computer (with average specifications)  c. Able to read, write and understand the English language | **Total Hours** | 48 |

**Tools & Technologies:**

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| Are you ready to future-proof your career and join the world of IT but not sure where to start? Essentials of Computing and Programming course is for newcomers to the field of IT. In this course, a variety of areas of Information technology have been included to help students understand their potential and pursue a particular discipline according to their inclination |

**Course Description:**

**Course Objective:**

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| \* The course content includes the following:  Microsoft Office automation (MS Word, MS PowerPoint, and MS Excel),  \* Programming introduction with Python, and introduction to various Emerging IT Fields including Cybersecurity, Cloud Computing, Machine Learning and Artificial intelligence, \*  \* Data Science effective use of trending AI tools. At the end of the course, students will be  \* Better understand how to kick start IT career and know which fields excite most to direct future study. |

**Grading Criteria:**

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| **Particulars** | **Marks (%)** |
| 1. Quizzes | 20 |
| 2. Class Participation/ Attendance | 15 |
| 3. Projects | 25 |
| 4. Final Projects | 40 |
| **Total** | **100** |

**Tentative Lecture Schedule:**

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| **Week** | **Classes** | **Contents/Topics** | **Assignment/Projects** |
| Week 1 |  | * Introduction to Microsoft Office and Applications, Getting Started with MS Word * Editing a Document, Formatting Text, Paragraphs, Adding Table, Header and Footer |  |
| Week 2 |  | * Drawing Toolbar Word Art, Create Word Macros, Proofing a Document * Introduction to Microsoft PowerPoint, creating a Presentation, Working with Content, Formatting Text, Adding Content |  |
| Week 3 |  | * Graphics, Tables, Charts, Slide Effects, Printing * Getting Started with MS Excel, Formulas and Functions |  |
| Week 4 |  | * Editing Features, Working with the Large Workbooks * Inserting Page Breaks for Printing, Working with Charts * Analyzing Data Using Pivot Tables and Pivot Charts |  |
| Week 5 |  | * Introduction to the course and Python * Setting up Python environment (IDE installation) * Variables, data types (integers, floats, strings) * Basic input/output operations * Arithmetic operations and expressions |  |
| Week 6 |  | * Conditional statements (if, else if, else) * Logical operators (and, or, not) * Writing and debugging conditional code * Loops (while, for) and their applications * Iterative problem-solving exercises * Writing reusable functions |  |
| Week 7 |  | * Introduction to lists * List manipulation (accessing, updating, appending) * Practical exercises involving lists * Introduction to dictionaries * Working with key-value pairs * Dictionary manipulation and exercises |  |
| Week 8 |  | * Introduction to classes and objects * Creating and using classes * Methods and attributes * Inheritance and polymorphism * Creating class hierarchies * OOP problem-solving exercises |  |
| Week 9 |  | * Reading from and writing to files * Handling text and CSV files * Try-except blocks for error handling * Handling common file-related exceptions * File manipulation exercises * Debugging and preventing errors |  |
| Week 10 |  | * Introduction to web development with Python * Basics of HTML and CSS for web interfaces * Setting up a simple web server using Python * Introduction to Flask or Django (web frameworks) * Creating routes and handling requests * Building dynamic web pages with templates |  |
| Week 11 |  | * Essentials of Cybersecurity & Ethical Hacking * Essentials of Cloud Computing |  |
| Week 12 |  | * Essentials of Machine learning and AI * Introduction to Data Science |  |