Programming with Python

Course Outline

**Class:** WA170 – Programming with Python

90 hours

**Instructor:**

**Text:**  Fundamentals of Python  
 Kenneth Lambert

CENGAGE Learning

**Prerequisite:** WA170 – Data Development Utilizing Database Design and SQL

**Equipment:** Each student shall be equipped with a desktop computer with the technical characteristics configured to run the programs used throughout the program:

* 20 desktop computers (including 24” monitors and mice) minimum
* Quad Core processor with Microsoft Windows 7, 8.x, or 10,
* Minimum 16 GB Ram
* Minimum 500 GB HD
* Internet access.

**Grading System:**

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|  | | **Grading Scale** | | |
| Classwork, Homework, Participation, Attendance | 10% | 90–100 | A | I - Incomplete |
| Exams/Quizzes | 10% | 80–89 | B | T - Transfer Credit |
| Presentation/Projects | 30% | 70–79 | C | E - Exempt |
| Final Project | 50 % | 65–69 | D | W - Withdrew |
|  | **100%** | Below 65 | F | I - Incomplete |

**Course Description:**

The Python course teaches students a new programming language through problem solving and algorithm development. The students learn several application design strategies using case studies, and enhance coding proficiency by expanding the portfolio of mastered programming languages.

**Overview:** This class meets for a total of 90 hours. Day classes are six hours per day, Monday through Friday.

**Objectives:** Upon successful completion of this course, the student will be able to:

1. Understand Algorithms and Information Processing
2. Use Control Structures
3. Use Boolean logic and Numeric Data Types
4. Use Strings, Text Files, Lists and Dictionaries
5. Use Regular Expressions
6. Understand Procedural Abstraction in Function Definitions
7. Use Objects and Classes
8. Develop with Graphics and Image Processing
9. Understand Networks and Client/Server Programming
10. Develop Graphical User Interfaces
11. Understand Events and Event-driven Programming

**Requirements:** 1. Meet attendance and academic criteria.

2. Completion of all assignments.

3. Completion of the Final Project.

**Graded Work:** The test average and quiz average each comprise 50% of the final grade point average. Quiz grades are based upon completion of the assignment in the time allotted, ability to follow instructions, observance of safety rules and neatness of work area.

**Attendance:** Daily attendance is required. If you anticipate an absence, consult with your instructor.

Be aware that each absence will require an equal amount of make-up time. Each student is required to maintain a minimum attendance of 85% for each course:

* If you miss more than 15% of the total hours in any one course, you will be required to make-up enough missed hours to meet the minimum course attendance requirement of 85%.
* If at the end of the cycle your attendance is less than 85% you will receive an incomplete (I) for the course, and will have 5 business days immediately following the end of the cycle to make-up the hours missed, otherwise your grade will change from an incomplete to an F, and you will be required to retake the course.
* If you miss more than 30% of the total hours in any one course, you will receive a W (withdrawal) and will be required to retake the course.

**Make-up Work:** All missed work is required to be completed as soon as possible. If you need extra help, it is your responsibility to make an appointment with your instructor at a mutually agreeable time.

**Supplies:** Hunter Business School provides all the necessary supplies.

### **Lesson Plan**

##### Day 1 of 15

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| **Name:** |  |
| **Date:** |  | **Department:** |  |

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| --- | --- |
| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 1: Introduction |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Describe the basic features of an algorithm * Explain how hardware and software collaborate in a computer’s architecture * Give a brief history of computing * Compose and run a simple Python program |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:45 AM   * Fundamentals of Computer Science (refresher), slides 2-18 * Getting Started with Python Programming, slides 19-21   10:45 AM – 11 AM   * Break   11 AM – 12:30 PM   * Lab, slide 22   12:30 PM – 1:30 PM   * Lunch break   1:30 PM – 3 PM   * Input, Processing and Output, slides 23-24 * Editing, Saving and Running a Script, slides 25-30 * Summary, slide 31-32 * Lab, slide 33 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material |

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### **Lesson Plan**

##### Day 2 of 15

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| **Name:** |  |
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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 2: Software Development, Data Types and Expressions |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Describe the basic phases of software development: analysis, design, coding, and testing * Use strings for the terminal input and output of text * Use integers and floating point numbers in arithmetic operations * Construct arithmetic expressions * Initialize and use variables with appropriate names * Import functions from library modules * Call functions with arguments and use returned values appropriately * Construct a simple Python program that performs inputs, calculations, and outputs * Use docstrings to document Python programs |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:45 AM   * Software Development Life Cycle, slides 2-11 * Python Data Types, slides 12-24 * Expressions, slides 25-33   10:45 AM – 11:00 AM   * Break   11:00 AM – 12:00 PM   * Lab, slide 34   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Functions and the “math” module, slides 35-37 * Main Module and Program Structure, slides 38-40 * Running a script, slides 41-43 * Summary, slides 44-46 * Lab, slides 47 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material |

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### **Lesson Plan**

##### Day 3 of 15

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| **Name:** |  |
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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 3: Control Statements |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Write a loop to repeat a sequence of actions a fixed number of times * Write a loop to traverse the sequence of characters in a string * Write a loop that counts down and a loop that counts up * Write an entry-controlled loop that halts when a condition becomes false * Use selection statements to make choices in a program * Construct appropriate conditions for condition-controlled loops and selection statements * Use logical operators to construct compound Boolean expressions * Use a selection statement and a break statement to exit a loop that is not entry-controlled |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:30 AM   * The “for” loop, slides 2-11 * Formatting text for output, slides 12-14 * Case study, slides 15-18   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Lab, slide 19   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * The “if/else” statements, slides 20-30 * The “while” loop, slides 31-36 * Random numbers, slides 37-39 * Case study, slides 40-43 * Summary, slides 44-46 * Lab, slide 47 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. |

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##### Day 4 of 15

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| **Name:** |  |
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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 4: *Strings and Text Files* |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Access individual characters in a string * Retrieve a substring from a string * Search for a substring in a string * Convert a string representation of a number from one base to another base * Use string methods to manipulate strings * Open a text file for output and write strings or numbers to the file * Open a text file for input and read strings or numbers from the file * Use library functions to access and navigate a file system |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:45 AM   * The structure of Strings, slides 2-6 * Data Encryption, slides 7-11 * Strings and Number Systems, slides 12-19   10:45 AM – 11:00 AM   * Break   11:00 AM – 12:00 PM   * String methods, slides 20-26 * Lab, slide 27   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Writing and reading files, slides 28-38 * Case Study, slides 39-44 * Summary, slides 45 * Lab, slide 46 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. |

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### **Lesson Plan**

##### Day 5 of 15

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| **Name:** |  |
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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 5: *Lists and Dictionaries* |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Construct lists and access items in those lists * Use methods to manipulate lists * Perform traversals of lists to process items in the lists * Define simple functions that expect parameters and return values * Construct dictionaries and access entries in those dictionaries * Use methods to manipulate dictionaries * Decide whether a list or a dictionary is an appropriate data structure for a given application |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:45 AM   * Lists and tuples, slides 2-18 * Lab, slide 19   10:45 AM – 11:00 AM   * Break   11:00 AM – 12:00 PM   * Function definitions, slides 20-25 * Case study, slides 26-30 * Lab, slide 31   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Dictionaries, slides 32-41 * Case study, slides 42-48 * Summary, slides 49-50 * Lab, slide 51 |
| **Review / Assessment:** | 3 Lab assignments are planned to assess students understanding of the material. Optional homework assignment can be given to those students who did not complete the labs in class. |

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### **Lesson Plan**

##### Day 6 of 15

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| **Name:** |  |
| **Date:** |  | **Department:** |  |

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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 6: *Design with Functions* |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Explain why functions are useful in structuring code in a program * Employ top-down design to assign tasks to functions * Define a recursive function * Explain the use of the namespace in a program and exploit it effectively * Define a function with required and optional parameters * Use higher-order functions for mapping, filtering, and reducing |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:45 AM   * Functions , their purpose and use, slides 2-10 * Recursive functions, slides 11-19 * Case Study, slides 20-25   10:45 AM – 11:00 AM   * Break   11:00 AM – 12:00 PM   * Lab, slide 26   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Namespace, Scope and Arguments, slides 27-35 * Mapping, Filtering and Reducing, slides 36-39 * Anonymous functions and Jump Tables, slides 40-41 * Summary, slides 42-44 * Lab, slide 45 |
| **Review / Assessment:** | 2 Lab assignments and homework are planned to assess students understanding of the material. |

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### **Lesson Plan**

##### Day 7 of 15

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| **Name:** |  |
| **Date:** |  | **Department:** |  |

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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 7: *Simple Graphics and Image Processing* |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Use the concepts of object-based programming—classes, objects, and methods—to solve a problem * Develop algorithms that use simple graphics operations to draw two-dimensional shapes * Use the RGB system to create colors in graphics applications and modify pixels in images * Develop recursive algorithms to draw recursive shapes * Write a nested loop to process a two-dimensional grid * Develop algorithms to perform simple transformations of images, such as conversion of color to grayscale |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:30 AM   * Overview of Turtle Graphics, slides 2-19 * Case Study, slides 20-24   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Lab, slide 25   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Overview of the Image module, slides 26-46 * Summary, slides 47-48 * Lab, slide 49 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. Optional homework assignment can be given to those students who did not complete the labs in class. |

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### **Lesson Plan**

##### Day 8 of 15

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| **Name:** |  |
| **Date:** |  | **Department:** |  |

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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 8: *Design with Classes* |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Determine the attributes and behavior of a class of objects required by a program * List the methods, including their parameters and return types, that realize the behavior of a class of objects * Choose the appropriate data structures to represent the attributes of a class of objects * Define a constructor, instance variables, and methods for a class of objects * Recognize the need for a class variable * Define a method that returns the string representation of an object * Define methods for object equality and comparisons * Exploit inheritance and polymorphism when developing classes * Transfer objects to and from files |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:30 AM   * Python Objects and Classes, slides 2-13 * Case Study, slides 14-17   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Lab, slide 18   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Object modeling examples, slides 19-33 * Case study, slides 34-36 * Inheritance and Polymorphism, slides 37-43 * Summary, slides 44-46 * Lab, slide 47 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. |

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### **Lesson Plan**

##### Day 9 of 15

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| **Name:** |  |
| **Date:** |  | **Department:** |  |

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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 9: Graphical User Interfaces |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Structure a GUI-based program using the model/view/controller pattern * Instantiate and lay out different types of window objects, such as labels, entry fields, and command buttons, in a window’s frame * Define methods that handle events associated with window objects * Organize sets of window objects in nested frames |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:30 AM   * Terminal-based and GUI-based programs, slides 2-8 * Python Tkinter library, slides 9-20 * Case study, slides 21-24   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Lab, slide 25   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Colors and Text Attributes, slides 26-28 * Layouts and Widgets, slides 29-38 * Mouse and Keyboard events, slides 39-41 * Summary, slides 42-43 * Lab, slide 44 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. Optional homework assignment can be given to those students who did not complete the labs in class. |

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### **Lesson Plan**

##### Day 10 of 15

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| **Name:** |  |
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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Chapter 10: Multithreading, Networks, and Client/Server Programming |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Describe what threads do and how they are manipulated in an * application * Code an algorithm to run as a thread * Use conditions to solve a simple synchronization problem with threads * Use IP addresses, ports, and sockets to create a simple client/server application on a network * Decompose a server application with threads to handle client requests efficiently * Restructure existing applications for deployment as client/server applications on a network |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:15 AM   * Threads and Synchranization, slides 2-16   10:15 AM – 10:30 AM   * Break   10:30 AM – 12:00 PM   * Lab, slide 17   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Networks and IP Addresses, slides 18-21 * Client-Server examples, slides 22-29 * Case study, slides 30-33 * Summary, slides 34-35 * Lab, slide 36 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. Optional homework assignment can be given to those students who did not complete the labs in class. |

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### **Lesson Plan**

##### Day 11 of 15

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| **Name:** |  |
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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Searching, Sorting and Complexity Analysis |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Measure the performance of an algorithm by obtaining running times and instruction counts with different data sets * Analyze an algorithm’s performance by determining its order of complexity, using big-O notation * Distinguish the common orders of complexity and the algorithmic patterns that exhibit them * Distinguish between the improvements obtained by tweaking an algorithm and reducing its order of complexity * Write a simple linear search algorithm and a simple sort algorithm |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:30 AM   * Measuring the Efficiency of Algorithms, slides 2-18   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Lab, slide 19   12:00 PM – 1:00 PM   * Lunch break   1:00 PM – 3 PM   * Search and Sort algorithms, slides 20-40 * Case study, slides 41-44 * Summary, slides 45-46 * Lab, slide 47 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. Optional homework assignment can be given to those students who did not complete the labs in class. |

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### **Lesson Plan**

##### Day 12 of 15

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| **Subject:** | Version Control Systems |
| **Subject Topics:** | Git Fundamentals |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | After completion of the lesson, students will be able to:   * Understand the basics of Version Control Systems * Version control project files with Git |
| **Technology:** | * Overhead projector |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * Question and Answer interactions * Class exercises |
| **Lesson Plan** | 9 AM – 10:45 AM   * Introduction to Git, slides 2-11 * Lab, slide 12   10:45 AM – 11:00 AM   * Break   11:00 AM – 12:30 PM   * Operating a Git repository, sides 13-27   12:30 PM – 1:30 PM   * Lunch break   1:30 PM – 3 PM   * Lab, slide 28 |
| **Review / Assessment:** | 2 Lab assignments are planned to assess students understanding of the material. |

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### **Lesson Plan**

##### Day 13 of 15

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| **Name:** |  |
| **Date:** |  | **Department:** |  |

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| **Subject:** | Introduction to Python |
| **Subject Topics:** | Final Project |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | Comprehensive evaluation of the student’s understanding of concepts covered in the WA170 course. |
| **Technology:** | * N/A |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * N/A |
| **Lesson Plan** | 9 AM – 10:30 AM   * Introduction to Google API, slides 2-3 * JSON overview, slides 4-5 * OAuth overview, slide 6 * Lab: Getting Started with Google API library, slides 7-8   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Lab: Getting Started with Google API library, slides 7-8 * Final project overview, slides 9-10   12:00 PM – 1:00 PM   * Lunch break   1:30 PM – 3 PM   * Final project   + Ideation   + Design   + Development |
| **Review / Assessment:** | N/A |

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Completion Date of Lesson Teacher Signature

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Date Lesson was reviewed by Dept. Chair Department Chair Signature

### **Lesson Plan**

##### Day 14 of 15

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| --- | --- |
| **Name:** |  |
| **Date:** |  | **Department:** |  |

|  |  |
| --- | --- |
| **Subject:** | Introduction to Python |
| **Subject Topics:** | Final Project |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | Comprehensive evaluation of the student’s understanding of concepts covered in the WA170 course. |
| **Technology:** | * N/A |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * N/A |
| **Lesson Plan** | 9 AM – 10:30 AM   * Final Project implementation   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Final Project implementation   12:00 PM – 1:00 PM   * Lunch break   1:30 PM – 3 PM   * Final Project implementation |
| **Review / Assessment:** | N/A |

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Completion Date of Lesson Teacher Signature

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Date Lesson was reviewed by Dept. Chair Department Chair Signature

### **Lesson Plan**

##### Day 15 of 15

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| --- | --- |
| **Name:** |  |
| **Date:** |  | **Department:** |  |

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| --- | --- |
| **Subject:** | Introduction to Python |
| **Subject Topics:** | Final Project |
| **# of Students in the Class:** |  |
| **Previous Requirements:** | WA120 - Programming with JavaScript & jQuery  WA140 - Object Oriented Programming with Java  WA150 - Data Development Utilizing Database Design and SQL |
| **Aim / Objective:** | Comprehensive evaluation of the student’s understanding of concepts covered in the WA170 course. |
| **Technology:** | * N/A |
| **Materials:** | * PowerPoint presentation |
| **Teacher/Student Input:** | * N/A |
| **Lesson Plan** | 9 AM – 10:30 AM   * Final Project implementation   10:30 AM – 10:45 AM   * Break   10:45 AM – 12:00 PM   * Final Project testing * Presentation materials preparation   12:00 PM – 1:00 PM   * Lunch break   1:30 PM – 3 PM   * Final Project presentations * Feedback on the project results * Q&A |
| **Review / Assessment:** | N/A |

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Completion Date of Lesson Teacher Signature

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Date Lesson was reviewed by Dept. Chair Department Chair Signature