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| **CLO Name** | **CLO Details** | **LO Details** |
| 1 | CLO1 | Understand the development environment (IDE), programming concepts and python's world |
| 2 | CLO2 | Understand variables, expression and statement |
| 3 | CLO3 | Understand Conditional Execution, Functions, Loop and Iterations |
| 4 | CLO4 | Understand Strings |
| 5 | CLO5 | Understand Files |
| 6 | CLO6 | Understand List, Dictionaries, Tuples |
| 7 | CLO7 | Understand OOP and how to apply this technology to an actual application |

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| **Session No** | **Name** | **Details** |
| 1 | 1 | CQ1 | What is a program? |
| 2 | 2 | CQ2 | What is the difference between a compiler and an interpreter? |
| 3 | 2 | CQ3 | Where in the computer is a variable such as “x” stored after the following Python line finishes? |
| 4 | 3 | CQ4 | Write a detailed algorithm for making a peanut butter and jelly sandwich (or some other everyday activity) |
| 5 | 3 | CQ5 | Explain each of the following using an example of a human capability: (1) Central processing unit, (2) Main Memory, (3) Secondary Memory, (4) Input Device, and (5) Output Device. For example, “What is the human equivalent to a Central Processing Unit”? |
| 6 | 4 | CQ1 | it is a good idea to begin variable names with a lowercase letter. Why? |
| 7 | 4 | CQ2 | What is the keyword in Python for? Can we use the keyword as a variable name? Explain and Example |
| 8 | 5 | CQ3 | How many kinds of statements are there in Python? Explain and Example |
| 9 | 6 | CQ4 | What do you think will happen if you use a negative number as the second parameter in the round function? For example, what should be the result of round(314 .159265, -1) ? |
| 10 | 6 | CQ5 | Compare and constrast operators and operands? Write a program to explain this definition |
| 11 | 7 | CQ1 | What is PEMDAS stand for? |
| 12 | 7 | CQ2 | Beside + operator, how to combine two strings in Python? Write a program to explain |
| 13 | 8 | CQ3 | Which function can we get the input from a user? What will happen if we input strings of digits in Python? |
| 14 | 9 | CQ4 | What is "mnemonic variable names"? |
| 15 | 9 | CQ5 | How many types of error message are there in Python? Explain and Example |
| 16 | 10 | CQ1 | Explain the following patterns in your own words: simple decision ? Write a program using this pattern |
| 17 | 11 | CQ2 | Explain the following patterns in your own words: two-way decision? Write a program using this pattern |
| 18 | 11 | CQ3 | Explain the following patterns in your own words: multi-way decision? Write a program using this pattern |
| 19 | 12 | CQ4 | How is exception handling using try I except similar to and different from handling exceptional cases using ordinary decision structures (variations on if)? |
| 20 | 12 | CQ5 | What is the Short-circuit evaluation of logical expressions in Python? |
| 21 | 13 | CQ1 | In your own words, describe the two motivations for defining functions in your programs. |
| 22 | 14 | CQ2 | We have been thinking about computer programs as sequences of instructions where the computer methodically executes one instruction and then moves on to the next one. Do programs that contain functions fit this model? Explain your answer. |
| 23 | 14 | CQ3 | Parameters are an important concept in defining functions. a) What is the purpose of parameters? b) What is the difference between a formal parameter and an actual parameter? c) In what ways are parameters similar to and different from ordinary variables? |
| 24 | 15 | CQ4 | How does a program provide "input" to one of its functions? |
| 25 | 15 | CQ5 | How does a function provide "output" to the program? |
| 26 | 16 | CQ1 | What is the different between fruitful functions and void functions? Give example |
| 27 | 17 | CQ2 | Describe algorithm and write a function to compute the nth Fibonacci number |
| 28 | 17 | CQ3 | Rewrite your pay computation with time-and-a-half for overtime and create a function called computepay which takes two parameters (hours and rate). |
| 29 | 18 | CQ4 | Lab 2 assistance |
| 30 | 18 | CQ5 | Lab 2 assistance (cont.) |
| 31 | 19 | CQ1 | Compare and contrast the following pairs of terms: definite loop vs. indefinite loop |
| 32 | 20 | CQ2 | Compare and contrast the following pairs of terms: for loop vs. while loop |
| 33 | 20 | CQ3 | Compare and contrast the following pairs of terms: interactive loop vs. sentinel loop |
| 34 | 21 | CQ4 | Compare and contrast the following pairs of terms: sentinel loop vs. end -of-file loop |
| 35 | 21 | CQ5 | Write a program that prompts for a list of numbers and prints out both the maximum and minimum of the numbers |
| 36 | 22 | CQ1 | Explain why public key encryption is more useful for securing communications on the Internet than private (shared) key encryption. |
| 37 | 23 | CQ2 | How can we traversal through string in Python? |
| 38 | 23 | CQ3 | How can we show the availabe methods in strings object type? |
| 39 | 24 | CQ4 | Assignment 1 assistance |
| 40 | 24 | CQ5 | Assignment 1 assistance (cont) |
| 41 | 25 | CQ1 | What is string slices? Explain and Example |
| 42 | 25 | CQ2 | What is strings immutable in Python? |
| 43 | 26 | CQ3 | Write a program that counts the number of words in a sentence entered by the user |
| 44 | 27 | CQ4 | Write a program that calculates the average word length in a sentence entered by the user. |
| 45 | 27 | CQ5 | How to compare two strings in Python? |
| 46 | 28 | CQ1 | Why do we need to start to work with file in Python? |
| 47 | 28 | CQ2 | How to operate with file in Python like as open, read and write file? Give example |
| 48 | 29 | CQ3 | What if our user types something that is not a file name? |
| 49 | 30 | CQ4 | Write a program to read through a file and print the contents of the file (line by line) all in upper case |
| 50 | 30 | CQ5 | Write a program to prompt for a file name, and then read through the file in 89 page |
| 51 | 31 | CQ1 | What is the Pythonic definition? |
| 52 | 32 | CQ2 | How to debug with File in Python? |
| 53 | 32 | CQ3 | Do lab 4 |
| 54 | 33 | CQ4 | Do lab 4 |
| 55 | 33 | CQ5 | Do lab 4 |
| 56 | 34 | CQ1 | What data type can a LIST contain? |
| 57 | 35 | CQ2 | How to operate with list? Explain and Example |
| 58 | 35 | CQ3 | How many ways could we delete an element in LIST? |
| 59 | 36 | CQ4 | Compare and constrast LIST and STRINGS? Explain and Example |
| 60 | 36 | CQ5 | How can we find to extract a bit of information which we are looking for? |
| 61 | 37 | CQ1 | What is the difference between string and list when use object and value? |
| 62 | 38 | CQ2 | What is aliasing in Python? |
| 63 | 38 | CQ3 | What is the important thing when you pass a list to a function? |
| 64 | 39 | CQ4 | How to debug with LIST in Python? |
| 65 | 39 | CQ5 | Write a program to find all unique words in a file using LIST? |
| 66 | 40 | CQ1 | What is dictionary in Python? |
| 67 | 41 | CQ2 | What is the hashtable algorithm for? |
| 68 | 41 | CQ3 | If you want to count how many times each letter appears, how could do it? |
| 69 | 42 | CQ4 | How to remove punctuation character in Python? |
| 70 | 42 | CQ5 | List of some solution to debug with Dictionary in Python |
| 71 | 43 | CQ1 | How to create tuple in Python? Explain and Example |
| 72 | 44 | CQ2 | What is the DSU stand for when comparing tuple? |
| 73 | 45 | CQ3 | Which is one of the unique syntactic features of the Python language? |
| 74 | 46 | CQ1 | Comparing and constrast dictionary and tuple |
| 75 | 47 | CQ2 | What is the tuple assignment? |
| 76 | 48 | CQ3 | Comparing and constrast string, list and tuples |
| 77 | 49 | CQ1 | In your own words, describe the process of OOD |
| 78 | 50 | CQ2 | In your own words, define encapsulation |
| 79 | 51 | CQ3 | In your own words, define polymorphism |
| 80 | 52 | CQ1 | In your own words, define inheritance. |
| 81 | 53 | CQ2 | Do lab 5 |
| 82 | 54 | CQ3 | Do lab 5 |
| 83 | 55 | CQ1 | Do lab 5 |
| 84 | 56 | CQ2 |  |
| 85 | 57 | CQ3 |  |
| 86 | 58 | CQ1 | Review assignment 2 |
| 87 | 59 | CQ2 | Review assignment 2 (cont) |
| 88 | 60 | CQ3 | Practice Exam |

5 assessment(s)

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| **Category** | **Type** | **Part** | **Weight** | **Completion Criteria** | **Duration** | **CLO** | **Question Type** | **No Question** | **Knowledge and Skill** | **Grading Guide** | **Note** |
| Assignment | on-going | 2 | 20.0% | >0 | 28 slots | LO1, LO2, LO3, LO4, LO5, LO6, LO7 | Review |  | All subjects in syllabus | in class, by teacher |  |
| Lab | on-going | 5 | 10.0% | >0 | 90'/each | LO1, LO2, LO3, LO4, LO5, LO6, LO7 | Review |  |  | in class, by teacher |  |
| Practical Exam | on-going | 1 | 30.0% | >0 | 90'/each | LO1, LO2, LO3, LO4, LO5, LO6, LO7 | PEA |  |  | in class, by teacher |  |
| Progress Test | on-going | 2 | 10.0% | >0 | 30'/each | LO1, LO2, LO3, LO4, LO5, LO6, LO7 | Multiple choicesMarked by Computer or a suitable format | 20/each | Based on the progress on the class | in class, by LMS system | Instruction and schedules for Progress Tests must be presented in the Course Implementation Plan approved by director of the campus. Progress test must be taken right after the last lectures of required material. Instructor has responsibility to review the test for students after graded. \*\*\* Test 1: LO1, LO2, LO3 and Test 2: LO4, LO5, LO6, LO7 |
| Final Exam | final exam | 1 | 30.0% | 4 | 60'/each | LO1, LO2, LO3, LO4, LO5, LO6, LO7 | Multiple choicesMarked by Computer | 50 | All subjects in syllabus | Exam room | The exam questions must be updated or different at least 70% to the previous ones. |