COURSE OUTLINE : CS/IS 151
D Credit – Degree Applicable
COURSE ID 005209
Cyclical Review: August 2020

COURSE DISCIPLINE : CS/IS

COURSE NUMBER : 151

COURSE TITLE (FULL) : Python Programming

COURSE TITLE (SHORT) : Python Programming

CATALOG DESCRIPTION

CS/IS 151 is a course in programming computers in the Python language for those who plan to be programmers or those interested in graphics and Graphical User Interface (GUI) programming. Python is used in both business and game applications. The course covers the basics of the Python language and reviews computer science concepts. Data types, decision structures, loops, functions, object-oriented programming, and some basic graphics and GUI concepts will be presented.

Total Lecture Units: 3.00

Total Laboratory Units: 0.00

Total Course Units: 3.00

Total Lecture Hours: 54.00

Total Laboratory Hours: 0.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 54.00

Total Out-of-Class Hours: 108.00

Recommended Preparation: CS/IS 112 or equivalent.

ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	CS/IS	112	Introduction To Programming Using Java	Examine problems, apply logic, and provide solutions/algorithms for the problems;	Yes
2	CS/IS	112	Introduction To Programming Using Java	show the solution/algorithm using flowcharts or pseudocode;	No
3	CS/IS	112	Introduction To Programming Using Java	utilize a compiler to write, debug, and test Java programs.	No

EXIT STANDARDS

1 Use basic programming concepts;
2 code complete programs from program descriptions and provide complete documentation;
3 acquire a vocabulary of Python commands;
4 develop and code intermediate level object oriented programs using Python;
5 describe, and implement basic graphics in Python programs.

STUDENT LEARNING OUTCOMES

1 explain, recognize and describe Python programming commands and code;
2 create intermediate level object oriented Python code;
3 describe and implement basic graphical user interface programs in Python.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Introduction to the Python Language • Brief history • Compiled vs. interpreted languages • Object-oriented languages • How Python runs programs/the Python interpreter	4	0	4

2	Writing Programs: Basic Python Syntax • Software development • Elements of programs: names, expressions, output statements • Computing with numbers: numeric concepts, data types, variables, assignment statements, simple Input/Output (I/O)	7	0	7
3	Computing with Strings • Python syntax • String operations: indexing, slicing, string conversion and formatting tools	5	0	5
4	Basic Control Structures • Algorithms and selection structures • If statements and multi-way branching (if/elif) and block delimiters • Boolean operators • Loops and repetition statements	10	0	10
5	Intermediate Control Structures for Loops and Tuples	3	0	3
6	Python Collection Types: Lists and Dictionaries	2	0	2
7	Functions: Definitions and Calls; Scopes and Arguments	3	0	3
8	Files and Exceptions	2	0	2
9	Software Objects/Object-Oriented Programming • Using software objects • Object-oriented concepts • Designing and implementing object-oriented programs • Basic graphics and graphical user interfaces (GUI) • Basic graphics and GUI programming concepts • Basic program development using the Tkinter graphics module	18	0	18
				54

OUT OF CLASS ASSIGNMENTS

1 programming assignments (e.g. designing a playing card game);
2 computer assignments (e.g. hands-on exploration of GUI programming fundamentals).

METHODS OF EVALUATION

1 quizzes;
2 midterm examination;
3 final examination.

METHODS OF INSTRUCTION

- [x] Lecture
- [ ] Laboratory
- [ ] Studio
- [ ] Discussion
- [x] Multimedia
- [ ] Tutorial
- [ ] Independent Study
- [ ] Collaboratory Learning
- [x] Demonstration
- [ ] Field Activities (Trips)
- [ ] Guest Speakers
- [ ] Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Starting Out with Python	Required	Pearson	4	print	Gaddis, Tony	9780134444321	2018