CB2240: INTRODUCTION TO BUSINESS PROGRAMMING IN PYTHON

Effective Term

Semester A 2022/23

Part I Course Overview

Course Title

Introduction to Business Programming in Python

Subject Code

CB - College of Business (CB)

Course Number

2240

Academic Unit

Information Systems (IS)

College/School

College of Business (CB)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

IS2240 Python Programming for Business

Exclusive Courses

Nil

Part II Course Details

Abstract

This course will introduce fundamental programming concepts and applications in business services. The main topics include basic concepts of expressions, variables, functions, logic, and conditional statements. Python modules will be used to solve business problems through data analyses and visualizations. After completing the course, students will be able to write simple Python programs to solve real and practical problems in various business disciplines. As an introductory programming course, the concepts and skills will help students understand how information technologies (Python programming) facilitate data-driven decision-making processes in modern organizations. With the looming transformative impacts of AI and machine learning in areas such as auditing, FinTech, digital marketing, and supply chain 4.0, this introductory Python course will pave ways for all business students to pursue more advanced skills necessary to adapt to the changing labor market. Students wishing to advance their programming skills in Python and basic machine learning can take the advanced course of IS2240 Python Programming for Business.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the structure of a Python program and understand the basics of computer programming.	20	x		
2	Read, analyze, test and debug Python programs.	20	x	x	
3	Identify, characterize, and analyze a problem, and write Python programs to solve the business problem.	30		x	x
4	Apply Python programming knowledge and techniques to facilitate data-driven decision-making through data analyses and visualization.	30		x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	TLA1:Lecture	Concepts and general knowledge of programming techniques in Python are explained.	1, 2, 3, 4	Seminar : 3 Hours/Week

2	TLA2: Laboratory Exercise	Hands-on computer exercises related with business domains are designed to help students apply what they have learned in lectures. Assignments involve individual work or teamwork by a group of students in the same laboratory group to solve a specific business problem.	2, 3, 4	
3	TLA3:Tutorial	Concepts, techniques, and good practices of programming are discussed.	1, 2, 3, 4	
4	TLA4:Class Discussion and Presentation	Perform online quizzes in lectures, tutorials, and laboratory sessions to get immediate feedback from students. These are followed by discussions of quizzes to reinforce the learning of the materials tested. Presentation of laboratory results and assignments may be required.	1, 2, 3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	AT1: Participation and Laboratory Exercises Each laboratory has in-class exercises to assess students' hands-on programming skills of the topics covered.	1, 2, 3, 4	20	
2	AT2: Individual AssignmentThe individual assignment, including programme codes, results, written reports and presentation, is required to assess the technical analysis and implementation skill sets of the students.	2, 3, 4	20	

3	AT3: Weekly QuizThe quizzes serve the purpose of continuous assessment of students' understanding of the critical domain areas and as an indicator of how well the students have performed.	1, 2, 3, 4	20	

Continuous Assessment (%)

60

Examination (%)

40

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

AT1: Participation and Laboratory Exercises

Criterion

Ability to accurately describe and understand the basic concepts in Python programming

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

AT1: Participation and Laboratory Exercises

Criterion

Ability to quickly understand and analyze a Python program

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT1: Participation and Laboratory Exercises

Criterion
Ability to creatively, effectively and efficiently write Python programs

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT1: Participation and Laboratory Exercises

Criterion
Capability to creatively and effectively develop applications that involve advanced techniques to solve business problems

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT2:Individual Assignment

Criterion
Ability to effectively test and debug Python programs

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT2:Individual Assignment

Criterion
Ability to creatively, effectively and efficiently write Python programs

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT2:Individual Assignment

Criterion
Capability to creatively and effectively develop applications that involve advanced techniques to solve business problems

Excellent (A+, A, A-)
High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

AT3:Weekly Quiz

Criterion

Ability to accurately describe and understand the basic concepts in Python programming

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

AT3:Weekly Quiz

Criterion

Ability to accurately understand and analyze a Python program

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

AT3:Weekly Quiz

Criterion

Ability to creatively, effectively and efficiently write Python programs

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

AT3:Weekly Quiz

Criterion

Capability to creatively and effectively develop applications that involve advanced techniques to solve business problems

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

AT4:Final Examination

Criterion

Ability to accurately describe and understand the basic concepts in Python programming

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT4:Final Examination

Criterion
Ability to accurately understand and analyze a Python program

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT4:Final Examination

Criterion
Ability to creatively, effectively and efficiently write Python programs

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

AT4:Final Examination

Criterion

Capability to creatively and effectively develop applications that involve advanced techniques to solve business problems

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

This is an introductory course, and basic concepts of expressions, variables, functions, logic and conditional statements, and modules will be covered. The course will focus on programming skills with practical applications to business disciplines.

Reading List

Compulsory Readings

	Title
1	David I. Schneider, An Introduction to Programming Using Python, 1st edition, Pearson, 2016.

Additional Readings

	Title
1	Cay S. Horstmann, Rance D. Necaise, Python for Everyone, 2nd Edition, Wiley, 2016.
2	Mark Lutz, Learning Python, 5th Edition, O'Reilly Media, 2013.
3	Eric Matthes, Python Crash Course: A Hands-On, Project-Based Introduction to Programming, 1st Edition, No Starch Press, 2015.
4	Al Sweigart, Automate the Boring Stuff with Python: Practical Programming for Total Beginners, 1st Edition, No Starch Press, 2015.

| 5 | Mahesh Venkitachalam, Python Playground: Geeky Projects for the Curious Programmer, 1st Edition. No Starch Press, 2015. |
| 6 | Data Visualization with Python for Beginners: Visualize Your Data using Pandas, Matplotlib and Seaborn, AI Publishing LLC, 2020. |