

# CB2240: INTRODUCTION TO BUSINESS PROGRAMMING IN PYTHON

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## Effective Term

Semester A 2024/25

## 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 DEC-A1 app.) |   | DEC-A2 | DEC-A3 |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|---|--------|--------|
| 1     | Explain the structure of a Python program and understand the basics of computer programming.                                                       | 20                         | x |        |        |
| 2     | Analyze, read, 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 in real life, 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.

### Learning and Teaching Activities (LTAs)

| LTAs |              | Brief Description                                                                           | CILO No.   | Hours/week (if applicable) |
|------|--------------|---------------------------------------------------------------------------------------------|------------|----------------------------|
| 1    | LTA1:Lecture | Students will learn the concepts and general knowledge of programming techniques in Python. | 1, 2, 3, 4 | Seminar : 3 Hours/Week     |

|   |                                        |                                                                                                                                                                                                                                                                                                     |            |  |
|---|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--|
| 2 | LTA2: Laboratory Practice              | Students will practise with hands-on computer exercises related with business domains in order 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 | LTA3:Tutorial                          | Students will learn concepts, techniques, and good practices of programming.                                                                                                                                                                                                                        | 1, 2, 3, 4 |  |
| 4 | LTA4:Class Discussion and Presentation | Students will 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)**

|   | <b>ATs</b>                                                                                                                                                                                                                 | <b>CILO No.</b> | <b>Weighting (%)</b> | <b>Remarks (e.g. Parameter for GenAI use)</b> |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------|-----------------------------------------------|
| 1 | AT1: Participation and Laboratory Exercises<br>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 Assignment<br>The 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

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**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

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**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

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### **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

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### **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

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#### **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

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#### **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

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**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

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**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

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**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

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### 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

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## 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, 3rd Edition, Wiley, 2019.                                                 |
| 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, 3rd Edition, No Starch Press, 2023.      |
| 4     | Al Sweigart, Automate the Boring Stuff with Python: Practical Programming for Total Beginners, 2nd Edition, No Starch Press, 2019. |
| 5     | Mahesh Venkitachalam, Python Playground: Geeky Projects for the Curious Programmer, 2nd Edition. No Starch Press, 2023.            |
| 6     | Data Visualization with Python for Beginners: Visualize Your Data using Pandas, Matplotlib and Seaborn, AI Publishing LLC, 2020.   |