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| **College of Information TEchnology and Computing**  Department of Information Technology | | **SYLLABUS**  Course Title: **Computer Programming 2**  Course Code: **IT121**  Credits: 3 units (2 hours Lecture, 1 hrs Laboratory) |
| **USTP Vision**    A nationally-recognized Science and Technology (S&T) university providing the vital link between education and the economy    **USTP Mission**     * Bring the world of work (industry) into the actual higher education and training of the students; * Offer entrepreneurs of the opportunity to maximize their business potentials through a gamut of services from product conceptualization to commercialization; * Contribute significantly to the national development goals of food security and energy sufficiency through technology solutions.     **Program Educational Objectives:**     |  | | --- | | **1:** | | **2:** | | **3:** |   **Program Outcomes:**   |  | | --- | | **a:** Apply knowledge of computing, science, and mathematics in solving computing/IT-related problems through critical and creative thinking; | | **b:** Use current best practices and standards in solving complex computing/IT-related problems and requirements; | | **c:** Analyze complex computing/IT-related problems by applying analytical and quantitative reasoning; and define the computing requirements appropriate to its solution; | | **d:** Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer based systems; | | **e:** Design creatively, implement and evaluate different computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints; | | **f:** Integrate effectively the IT-based solutions into the user environment with appropriate consideration for public health and safety, cultural, societal, and environmental concerns; | | **g:** Select, adapt and apply appropriate techniques, resources, skills, and modern computing tools to complex computing activities, with an understanding of the limitations; | | **h:** Function effectively as individual, or work collaboratively and respectfully as a member or leader in diverse development teams and in multidisciplinary and/or multicultural settings; | | **i:** Assist in the creation of an effective IT project plan; | | **j:** Communicate effectively in both oral and in written form by being able to deliver and comprehend instructions clearly; and present persuasively to diverse audience the complex computing / IT-related ideas and perspectives; | | **k:** Assess local and global impact of computing information technology on individuals, organizations, and society; | | **l:** Act in recognition of professional, ethical, legal, security and social responsibilities in the utilization of information technology; | | **m:** Recognize the need to engage in independent learning and be at pace with the latest developments in a specialized field in IT, with emphasis on Database Management and Information System; Network Design and Administration; and Computer Vision and Image processing for continual development as a computing professional; | | **n:** Participate in generation of new knowledge; or in research and development projects aligned to local and national development agenda or goals with the end view of contributing to the local and national economy; and | | **o:** Preserve and Promote Filipino historical and cultural heritage. | | **p:** program outcomes | | |  |  | | --- | --- | | Semester/Year:**2nd Semester SY 2023-2024**  Class Schedule: 1R1 - M 10:30 AM - 1:30 PM / W 9:00 AM - 11:00 AM  1R4 - M 1:30 PM - 4:30 PM / W 11:00 AM - 1:00 PM  1R7 - T 10:30 AM - 1:30 PM / W 1:00 PM - 3:00 PM  1R10 - T 1:30 PM - 4:30 PM / W 3:00 PM - 5:00 PM  Bldg./Rm. No.: ICT Building (Building 9) | Prerequisite(s):IT111, IT112  Co-requisite(s):None | | Instructor: Jc Vanny Mill Saledaien  Email: jcvannymill.saledaien@ustp.edu.ph  Mobile No.: 09176770112 | Consultation Schedule: TH 8:00 AM - 12:00 PM  Bldg.Rm. No.: ICT Building (Building 9), 4th floor, IT Faculty  Office Phone No./Local: | | 1. **Course Description:**   This course focuses on development, debugging and execution of different type of programs using a variety of techniques and methods. Topics include structured programming techniques, procedural and data abstraction programming. | | | 1. **Course Outcome:**  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Course Outcomes (CO)** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | | CO1: Execute variety of operations in single dimensional, multidimensional and string arrays in a chosen programming language. | D | D | D | E | I | I | I | D | D | D | E | I | I | E | E |  | | CO2: Define and call built-in and user-defined functions to implement code modularization and improve code readability. | D | D | D | E | I | I | I | D | D | D | E | I | I | E | E |  | | CO3: Create graphical user interfaces based on object programming concepts. | D | D | D | E | I | I | I | D | D | D | E | I | I | E | E |  | | CO4: Simulate file and exception handling in simple programs to read and write data from secondary storage devices. | D | D | D | E | I | I | I | D | D | D | E | I | I | E | E |  | | CO5: Develop a small-scale system applying the concepts of arrays, functions, file and exception handling with a graphical user interface (GUI). | D | D | D | E | I | I | I | D | D | D | E | I | I | E | E |  | | | | 1. **Course Outline:**  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Allotted Time (hr)** | **Course**  **Outcomes (CO)** | **Intended Learning Outcomes (ILO)** | **Topic/s** | **Suggested Readings** | **Teaching-Learning Activities** | **Assessment Tasks/Tools** | **Grading Criteria** | **Remarks** | | Week 1 |  |  | Course Orientation - Universitys Vision and Mission - CITC Goals and Objectives - Class Policies and Agreement - Grading System - Course Requirements - Course Syllabus, Course Outline Presentation | Student Handbook Course Syllabus |  | Diagnostic Test | Not Graded |  | | Week 1 -2 | CO1 | \* Implement Program logic in Python \* Apply 1D, 2D and Multidimensional Arrays operations in simple programming problems \* Distinguish the upside and draw backs among 1D, 2D and Multidimensional Arrays \* Use strings and its operations operations in simple programming problems | PYTHON BASICS - Variables, Expressions, and Statements - Loops/Selections - Functions LISTS and TUPLES - Sequences - Introduction to Lists - List Slicing - Finding Items in Lists with the in operator - List methods and useful built-in functions - Copying lists - Processing lists - 2D lists - Tuples | Introduction to Programming Using Python www.tutorialspoint.com | Discussion Presentation of outputs | Quiz Laboratory Activity |  |  | | Week 5-6 | CO1, CO2 | \* Utilize built-in functions from different libraries \* Define and call user-defined functions appropriate for a given programming problem | FUNCTIONS - Defining/Calling functions - Built-in and user defined functions - Passing arguments by reference values - Scope of variables - Default arguments - Returning multiple values - Recursions |  | Discussion Presentation | Quiz Laboratory activity |  |  | | Week 7-8 | CO3 | \* Define objects and classes in Python \* Analyze the impact of objects and classes in a computer program | OBJECTS AND CLASSES - Introduction - Defining objects and classes - Immutable and mutable objects |  | Discussion Presentation of outputs | Quiz Laboratory Activity |  |  | | MIDTERM EXAMINATION | | | | | | | | | | Week 10-11 |  | \* Create simple GUI based on given programming requirements | OBJECTS AND CLASSES - Introduction - Defining objects and classes - Immutable and mutable objects |  | Discussion Presentation of outputs | Quiz Laboratory Activity |  |  | | Week 12-17 |  | \* Simulate file and exception handling in simple programs \* Apply the knowledge and skills in programming to develop a small-scale system based on Python | OBJECTS AND CLASSES - Introduction - Defining objects and classes - Immutable and mutable objects |  | Discussion Presentation of outputs | Quiz Laboratory activity |  |  | | FINAL EXAMINATION | | | | | | | | | | | | 1. **Course Requirements:**   1. Class attendance and participation :policy Refer to Student Handbook 2. Course Readings/Materials: (a) Books, E-books Introduction to Programming Using Python, Y. Liang, Pearson (2013) Python: The Ultimate Beginner's Guide, Andrew Johansen (2016) (b) Supplies needed (Python Programming Language, Desktop PCs, Internet Connection) (c) URLs for Online Resources • https://www.python.org • www.tutorialspoint.com, https://github.com/python 3. Assignments, Assessment, and Evaluation (a) Policy concerning homework • 6 homework/assignment in a Semester (b) Policy concerning make-up exams • refer to student handbook (c) Policy concerning late assignments/requirements • late assignments will not be accepted (d) Preliminary information on term papers or projects, with due dates • late projects will be given equivalent deduction per hour (e) List of assignments that will impact the final grade and % weight given each • 3 assignments per term 4. Grading System   |  |  | | --- | --- | | Lecture Grade (67%) | | | Performance Item/Criteria | % | | Class Performance Item | 10% | | Quizzes (All quizzes, prelim and pre-final exams) | 40% | | Major Exams (i.e, Midterm and Final Exams) | 30% | | Performance Innovative Task / Project | 20% | | TOTAL | 100% | | Laboratory Grade (33%) | | | Performance Item/Criteria | % | | Laboratory Exercises/Reports | 30% | | Laboratory Major Exam | 40% | | Hands-on Exercises | 30% | | TOTAL | 100% | | Term/Periodic Grade = 67% Lecture Grade + 33% Laboratory Grade | |   Criteria and Weights in computing the FINAL GRADE (FG) (a) If the final exam coverage are all topics discussed from the beginning of the semester: Final Grade (FG) = 1/3 MTG + 2/3 FTG; MTG Midterm Grade FTG Final term grade (b) If the final exam coverage are all topics during the final term only Final Grade (FG) = 1/2 MTG + 1/2 FTG (Passing Percentage is 70%) Ex. In a 10-item quiz, obtaining 7 points would be equivalent to a passing score. 5. Use of VLE in class to distribute course materials, to communicate and collaborate online, to post grades, to submitassignments, and to give you online quizzes and surveys. | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | **Prepared by:** | |  | | Saledaien Saledaien  Instructor | |  | | |  | | --- | | **Recommending Approval:** | |  | | Jay Noel Rojo | | Chair | |  | |  | | |  | | --- | | **Approved by:** | |  | | Junar Landicho | | Dean | |  | | |  |  |  |  |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  | |  |  |  | |  |  |  | | |