Republic of the Philippines

**PANGASINAN STATE UNIVERSITY**

Lingayen, Pangasinan

**COLLEGE OF ARTS & SCIENCES**

COURSE SYLLABUS

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| **VISION**  To become an ASEAN premier state university in 2020. | | | | | | | | | | | | | | | |
| **MISSION**  The Pangasinan State University, through instruction, research, extension and production commits to develop highly principled, morally upright, innovative and globally competent individuals capable of meeting the needs of industry, public service and civil society. | | | | | | | | | | | | | | | |
| **INSTITUTIONAL OUTCOMES**  The Pangasinan State University Institutional Learning Outcomes (PSU ILO) are the qualities that PSUnians must possess. These outcomes are anchored on the core values:**A**ccountability and Transparency, **C**redibility and Integrity, **C**ompetence and Commitment to Achieve, **E**xcellence in Service Delivery, **S**ocial and Environmental Responsiveness and **S**pirituality – (ACCESS). Anchored on these values, the PSU graduates are able to:   1. demonstrate through institutional mechanisms, systems, policies, and processes which are reflective of transparency, equity, participatory decision making, and accountability; 2. engage in relevant, comprehensive and sustainable development initiatives through multiple perspectives in decisions and actions that build personal and professional credibility and integrity; 3. set challenging goals and tasks with determination and sense of urgency which provide continuous improvement and producing quality outputs leading to inclusive growth; 4. exhibit life-long learning and global competency proficiency in communication skills, inter/interpersonal skills, entrepreneurial skills, innovative mindset, research and production initiatives and capability in meeting the industry requirements of local, ASEAN and international human capital market through relevant and comprehensive programs; 5. display, socially and environmentally responsive organizational culture, which ensures higher productivity among the university constituents and elevate the welfare of the multi-sectoral communities and; 6. practice spiritual values and morally upright behavior which promote and inspire greater harmony to project a credible public image. | | | | | | | | | | | | | | | |
| **PROGRAM OUTCOMES** | | | | | | | | | | | | | | | |
| **Graduate Attributes** | | **BS Information Technology Program Outcomes (PO)** | | | | | | | **=**  **Performance Indicators** | | | | | | |
| Knowledge for solving computing problems | | * Apply knowledge of computing, science, and mathematics appropriate to the discipline. | | | | | | | * Identify or determine the techniques, tools, methodologies to be used given a particular scenario that involves computing, science, and mathematics * Compare different tools, techniques, methodologies as to their pros and cons that will help in decision making | | | | | | |
| * Distinguish best practices and standards and their applications. | | | | | | | * Identify the characteristics that conform to standards and their best practices. * Compare and contrast tools and methodologies in terms of best practices, standard and their application | | | | | | |
| Problem Analysis | | * Analyze complex problems, and identify and define the computing requirements appropriate to its solution. | | | | | | | * Analyze complex problems * Identify and define the complexity requirements appropriate to its solution. | | | | | | |
| * Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems. | | | | | | | * Analyze the user’s needs and take them into account in the selection, creation, evaluation and administration of computer-based systems. * Identify the user’s requirements and take them into account in the selection, creation, evaluation and administration of computer-based systems. | | | | | | |
| Design, development of solutions | | * Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints. | | | | | | | * Translate specification into a design * Design software to meet desired needs under various constraint * Design a database to meet desired needs for storing data under various constraints * Design networks to meet desired needs for sharing information under various constraints * Design a hardware infrastructure to meet desired processing needs under various constraints * Implement a network to meet desired needs for sharing information under various constraint * Implement database to meet desired needs for storing data under various constraint * Implement a software to meet desired needs for task under various constraints * Evaluate software on its functionality and level of satisfying user requirements for task under various constraint * Evaluate an existing network for its level of satisfying user requirements for under various constraint | | | | | | |
| * Integrate IT-based solutions into the user environment effectively. | | | | | | | * Implement a network to meet desired needs for sharing information under various constraint * Implement database to meet desired needs for storing data under various constraint * Implement a software to meet desired needs for task under various constraints * Evaluate software on its functionality and level of satisfying user requirements for task under various constraint * Evaluate an existing network for its level of satisfying user requirements for under various constraint | | | | | | |
| Modern Tool Usage | | * Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession. | | | | | | | * Evaluate techniques, methodologies, standards/frameworks and tools for its appropriateness to the IT Infrastructure to be designed and managed considering its advantages and limitations. * Select, use and adapt appropriate techniques, methodologies, standards/frameworks and tools the IT Infrastructure to be designed and managed. * Create new IT Infrastructure as necessary to improve the efficiency and effectiveness of performing tasks and achieve goals. | | | | | | |
| Individual and Team Work | | * Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal. | | | | | | | Team member:   * Independently source necessary knowledge, assistance, skills and resources to complete tasks. * Performs tasks effectively to accomplish a common goal * Leader of a team: * Set proper goals and timeline of activities to complete team objectives * Allocate task according to team member capabilities * Monitor task completion and performance of team member * Provide expertise, assistance and support to team members to achieve of team goals * Resolve and reduce conflicts within the team | | | | | | |
| * Assist in the creation of an effective IT project plan. | | | | | | | * Perform task in the creation of an effective IT project plan * Create an effective IT project plan | | | | | | |
| Communication | | * Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions. | | | | | | | * Interview clients to gather background information, situation, existing concerns and issues necessary to frame and achieve common understanding of problems to be addressed by computing solutions * Write effective reports and documentations about the results of performing specific computing and professional tasks * Write documentations (including design documentations) completely and comprehensively, with appropriate tone, correct grammar and construction, adapting to documentation standards, to communicate ideas, choices, assumptions, and consequences of decisions * Develop effective presentation material that will enhance understanding of ideas being communicated * Deliver presentations effectively and efficiently to various audience (computing community, society at large, and users) using English and Filipino as needed, with appropriate tone, correct grammar and construction * Choose appropriate language suitable to the audience and respectful to the audience background and culture * Provide clear instructions to team members | | | | | | |
| Computing Professionalism and Social Responsibility | | * Analyze the local and global impact of computing and information technology on individuals, organizations, and society. | | | | | | | * Analyze the local impact of computing and information technology on individuals, organizations, and society * Analyze the global impact of computing and information technology on individuals, organizations, and society * Make design and implementation decision considering the impact of IT on individuals, organizations, and society * Provide /conceptualize solutions to domain where IT is needed * Evaluate the impact of this solutions to individuals, organizations, and society | | | | | | |
| * Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology. | | | | | | | * Make decisions considering professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology * Assess professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology | | | | | | |
| Life-long Learning | | * Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development. | | | | | | | * Reflect on own abilities and skills to determine necessary development needs to reach level of expectations and aspirations as a computing professional * Prepare a personal development plan for continuing professional   development   * Engage independently in developmental activities (like participating in professional organizations, attendance to seminars and training) as a result of recognizing the need to further and continuously develop one’s competencies as a computing professional * Evaluate achievements and deficiencies against owns personal development plan | | | | | | |
| **COURSE INFORMATION** | | | | | | | | | | | | | | | |
| **Course Code:** ICT 303  **Time Frame:** 18 weeks (36 hours(Lec)/54 hours (Lab)  **Course Prerequisite:** NONE | | | | | | | | **Course Title:** ICT ELECTIVE 3 – Game Development and Design  **Credits:** 2/1 Units | | | | | | | |
| **Course Description:**  This course provides the students with the fundamental understanding of mobile application development using Apache Cordova and Adobe PhoneGap. It introduces the different concepts that are commonly associated with mobile application development  At the end of the course, the students are expected to have a deeper understanding about mobile application development using different framework. Students are also expected to implement programming practices in mobile application development. | | | | | | | | | | | | | | | |
| **Program Outcomes Code** | | | **Course Outcomes (CO)** | | | | | | | | | | | | |
| **CO1** | | | 1. | Have a firm grasp of event-based computing models. | | | | | | | | | | | |
| **CO2** | | | 2. | Be able to demonstrate an understanding of and the ability to use different types of components used in mobile platforms. | | | | | | | | | | | |
| **CO3** | | | 3. | Be able to use threading efficiently and correctly in mobile apps. | | | | | | | | | | | |
| **CO4** | | | 4. | Be able to appropriately use different types of data management for mobile devices | | | | | | | | | | | |
| **CO6** | | | 6. | Have a clear understanding of the creation and use of simple user interfaces. | | | | | | | | | | | |
| **CO7** | | | 7. | Be able to use tools to create apps for a mobile platform. | | | | | | | | | | | |
| **CO8** | | | 8. | Be able to create simple graphics for mobile devices. | | | | | | | | | | | |
| **CO9** | | | 9. | Have an understanding of the importance, role and use of security on mobile devices. | | | | | | | | | | | |
| **LEARNING PLAN** | | | | | | | | | | | | | | |
| **Course Outcomes** | **Intended Learning Outcomes (ILO)** | | | | | **Topics** | | | | **No. of Hours** | | **Resource Materials** | **Teaching and Learning Activities (TLAs)** | **Assessment** |
| **Lec** | **Lab** |
| **CO2,CO3** | * Glimpse in android development environment and introduction to game development | | | | | **Course Introduction**   * Introduction to android app development environment * Introduction to game development | | | | 2 | 4 | 1 | Lecture/Discussion | Sample Application about Android Resources |
| **CO1,CO2, CO3** | * Using JavaScript to run and implement the processes and event-handling. * Introducing Github as version controller | | | | | **Hybrid Mobile Application Development**   * HTML5 game development * Intermediate to advanced level in JavaScript. * Introduction to Github and its importance in app development | | | | 4 | 4 | 2 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes, | Written Quizzes  Machine Exercises |
| **CO1,CO2, CO3** | * Getting familiar with game framework - PHASER | | | | | **Game framework**   * Introduction to 2D game development * Intro to PHASER Framework | | | | 4 | 2 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes, | Written Quizzes  Machine Exercises |
| **CO2, CO3** | * Preparing the game setup | | | | | **Starting the game development**   * The Setup * The Boot State * The Boot Create | | | | 3 | 3 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes | Written Quizzes  Machine Exercises |
| **CO2, CO3** | * Preloading the game and preparing it to perform best | | | | | **The Preloads**   * Preload Setup * Preloading Image Assets * Completing the Loading | | | | 3 | 4 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes | Sample Application about user interfaces  Written quizzes  Machine Exercises |
| **CO2, CO3** | * Creating the biggest and most important part of the game. | | | | | **Game aesthetics**   * The parallax effect * Creating the player * Texts and icons | | | | 4 | 8 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes | Sample Application about user interfaces  Written quizzes  Machine Exercises |
| **CO2, CO3** | * Discuss on how to transform games from boring to exciting | | | | | **Making the game realistic**   * Introduction to Game Physics * Player Movements * Adding Audio | | | | 6 | 12 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes. | Sample Application about user interfaces  Written quizzes  Machine Exercises |
| **CO2, CO3** | * Creating a simple AI(Artificial Intelligence) to add difficulty in game | | | | | **Adding Enemies**   * Creating a simple AI (Artificial Intelligence) * Dealing with Death | | | | 4 | 10 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes. | Sample Application about user interfaces  Written quizzes  Machine Exercises |
|  | * Presents a number of options for storing data on an Android device. | | | | | **Scoring**   * Ways on saving game data * Using LocalStorage to store data * Using file to store data | | | | 4 | 4 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes | Sample Application about user interfaces  Written quizzes  Machine Exercises |
|  | * Discuss on how to quit the game * Free the memory used in game | | | | | **Shutdown** | | | | 2 | 3 | 3 | Lecture/Discussion,  Recitation,  Hands-on Activities,  Test and debug codes | Sample Application about user interfaces  Written quizzes  Machine Exercises |
| **Total : 18 weeks / 90 hours** | | | | | | | | | | **36**  **hours** | **54 hours** |  | | |
| **Course References and Supplemental Readings**  **Books**   1. Mahesh Panhale, Beginning Hybrid Mobile Application Development,2016 2. John M. Wargo, Apache Cordova 3 Programming,2013 | | | | | | | **Internet sources:**  Android Developer Site: <http://developer.android.com>  JavaScript:<https://material.google.com>  Phaser: <http://phaser.io> | | | | | | | |
| **Course Requirements:**   1. Pass quizzes, MidTerm and Final Exams 2. Perform and submit laboratory activities/machine projects/hands-on exercises 3. Participate actively in class discussions and other activities 4. Create 2 games for android | | | | | | | **Grading System:**  Midterm & Final Exam = 40% MG + TFG (2) = FG  Quizzes = 20% 3  Participation = 10%  Project = 30%  **Total = 100%** | | | | | | | |
| **Class Policies**   * Attendance: You are expected to attend all classroom sessions and team meetings, and do all the assigned work, self-study and readings. * Class preparation: You are expected to be prepared for class, participate in the discussion, answer questions, etc., on the topic for the day. * Missed classes, exams and presentations: You are responsible for all class lectures, including handouts and notes. | | | | | | | | | | | | | | |
| **Prepared by:**  **RUFO N. GABRILLO JR.**  Faculty-in-Charge | | | | | **Checked by:**  **MARVIN C. SANTILLAN, MIT MAILA ROSARIO S. PUZON, MS MATH**  Chair, CSIT Department Dean, College of Computing Sciences | | | | | | | | **Approved by:**  **ARMANDO D. JUNIO, Ph. D.**  Campus Executive Director | |