**Format No. QSP/7.1/01.F01 (B) Issue No. 05, Rev. No. 5,Dated: Jan 1, 2017**

**UNIVERSITY OF PETROLEUM & ENERGY STUDIES**

**School of Computer Science**

**Dehradun**

**COURSE PLAN**

Programme : B. Tech CSE-Mobile Computing

Course : Mobile Application Development using IOS Lab

Subject Code : CSMC3003

No. of credits : 1

Semester : VI

Session : 2019-20

Batch : 2018-22

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P.O. Bidholi, , Dehradun

**COURSE PLAN**

1. **PREREQUISITE:**
   1. HTML
   2. Android

1. **PROGRAM OUTCOMES (POs) and PROGRAM SPECIFIC OUTCOMES (PSOs) for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:**

**B1. PROGRAM OUTCOMES (POs)**

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**B2. Program Specific Outcomes (PSOs)**

1. Perform system and application programming using computer system concepts, concepts of Data Structures, algorithm development, problem solving and optimizing techniques,
2. Apply software development and project management methodologies using concepts of front-end and back-end development and emerging technologies and platforms.
3. Able to design , develop and deploy Mobile Applications(Apps) and Protocols for Ubiquitous Computing

**COURSE OUTCOMES for Mobile Application Development using IOS Lab: At the end of this course, student should be able to**

|  |  |
| --- | --- |
| CO1 | describe the usage and implementation of xcode5 |
| CO2 | classify Memory management and categories |
| CO3 | demonstrate the application patterns and architecture of IOS |
| CO4 | analyze the view, navigation and touch taps of IOS |
| CO5 | evaluate the performance and power optimization of IOS |

**Table: Correlation of POs and PSOs v/s COs**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| CO1 | 1 | 1 | - | - | - | - | - | - | - |  |  |  | - | - | - |
| CO2 | - | - | 1 | - | - | 2 | - | - | - |  |  |  | - | - | - |
| CO3 | - | - | - | - | - | 1 | 1 | - | - |  |  |  | - | - | - |
| CO4 | - | - | - | - | - | - | - | - | - |  |  |  | 1 | 1 | - |
| CO5 |  |  |  |  |  |  |  | - |  |  |  |  | 2 | 2 | - |
| CO6 |  |  |  |  |  |  |  |  |  |  |  |  | 2 | 2 |  |

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

1. **PEDAGOGY**

**1. Power Point Presentation,**

**2. Experimental learning with continuous evaluation**

1. **COURSE COMPLETION PLAN**

|  |  |
| --- | --- |
| **Total Lab sessions** | 10 |
| **Total Viva** | 03 |

One Session =120 minutes

1. **EVALUATION & GRADING**

Students will be evaluated continuously throughout the course based on the following:

1. Performance & Record - 50%
2. Viva Voce - 50%

**F1. Performance & Record:** WEIGHTAGE - 50%

. The lists of activities performed under the experiments are detailed clearly in Section-F. F2F experiments have 100% weightage.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Experiment Evaluation (10 marks per experiment)** | |  |  |
|  | Algorithm Design | 3 Marks |  |  |
|  | Coding Syntax | 2 Marks |  |  |
|  | Execution / Bug Finding | 2 Marks |  |  |
|  | Records (submitted before the very next turn.) | 3 Marks |  |  |

**F2*.* Viva Voce:** WEIGHTAGE - 50%

The preparation of the students would be evaluated based on viva-voce or quiz examination in periodic schedules.

It is mandatory for the students to attend the above said continuous evaluation. Students who do not attend will lose their marks. Continuous Internal Assessment Record Sheet will be displayed at the end of the semester.

**F3. GRADING:**

The overall marks obtained at the end of the semester comprising the above two mentioned shall be converted to a grade.

Student(s), who have met the qualifying criteria of individual practical subject but not met qualifying criteria of SGPA, will not be allowed to re-appear for improvement. Students, who wish to re-appear in the practical subject, shall be required to pay the prescribed fee per subject as notified by the University. The student with Grade “F” only will be eligible to *repeat continuous evaluation* of that respective practical subject (s) during summer vacation (June-July).

Grade shall be awarded on the performance of the student(s). The Grade will be capped as per the rules mentioned in student Bulletin. There will be no capping of SGPA for the students re-appeared for Practical Subject. All Other rules and regulations such as requirement of passing, etc. will remain same as mentioned in rules & regulations.

1. **DETAILED SESSION PLAN**
2. To understand the IOS application Environment by developing Hello World Application.
3. To understand basic swift programming.

* Write a Swift program to compute and return the absolute difference of n and 51, if n is over 51 return double the absolute difference
* Write a Swift program that accept two integer values and return true if one of them is 20 or if their sum is 20.
* Write a Swift program to accept two integer values and return true if one is negative and one is positive. Return true only if both are negative.
* Write a Swift program to change the first and last character of a given string.
* Write a Swift program to add the last character (given string) at the front and back of a given string. The length of the given string must be 1 or more.
* Write a Swift program to check if a given non-negative number is a multiple of 3 or a multiple of 5.
* Write a Swift program to take the first two characters from a given string and create a new string with the two characters added at both the front and back
* Write a Swift program to find the largest number among three given integers.
* Write a Swift program that accept two integer values and to test which value is nearest to the value 10, or return 0 if both integers have same distance from 10.
* Write a Swift program that accept two integer values and test if they are both in the range 20..30 inclusive, or they are both in the range 30..40 inclusive.
* Write a Swift program to convert the last three characters in upper case. If the string has less than 3 chars, lowercase whatever is there.
* Write a Swift program to check if the first instance of "a" in a given string is immediately followed by another "a".
* Write a Swift program to create a string made of every other char starting with the first from a given string.
* Write a Swift program to count the number of 7's in a given array of integers.
* Write a Swift program to check if one of the first 4 elements in a given array of integers is a 7. The length of the array may be less than 4.

1. To understand the Login Concept of IOS
2. To understand the concept of array

* Write a Swift program to check if 5 appears as either the first or last element in a given array of integers. The array length should be 1 or more.
* Write a Swift program to check whether the first element and the last element of a given array of integers are equal. The array length must be 1 or more.
* Write a Swift program to test if two given arrays of integers have the same first and last element. Both arrays length must be 1 or more.
* Write a Swift program to compute the sum of all the elements of a given array of integers and length 4.
* Write a Swift program to create a new array with the elements in reverse order of a given array of integers.
* Write a Swift program to check if a given array of integers contains 3 twice, or 5 twice.
* Write a Swift program to check if two given arrays of integers have 0 as their first element.
* Write a Swift program to compute the sum of the values of two given array of integers and each length 2. Find the array, which has the largest sum and return the first array if the sum of two given arrays are equal.
* Write a Swift program to count the number of even integers in the given array.
* Write a Swift program to find the difference between the largest and smallest values in a given array of integers and length 1 or more.
* Write a Swift program to compute the sum of the numbers of a given array of integers except the number immediately after a 11.

1. To understand the concept of String
2. To demonstrate the usage of class.
3. To demonstrate the usage of ARC
4. To demonstrate the usage of Generics
5. To demonstrate the functionality of Type Casting.
6. To demonstrate the functionality of Enum and Protocol.
7. Group Project Submission.
8. **GUIDELINES:**

***Cell Phones and other Electronic Communication Devices*:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the class room.

***E-Mail and online learning tool:*** Each student in the class should have an e-mail id and a pass word to access the e-labs system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment. All the assignments preferably should be uploaded on online learning tool. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.

***Attendance:*** Students are required to have **minimum attendance of 75%** in each subject. Students with less than said percentage shall **NOT** be allowed to appear in the end semester examination.

***Passing criterion:*** Passing criterion: If the batch size is upto 30, Grading shall be done on the basis of absolute grading system

• If the batch size is more than 30, the grading will be done based on Relative Grading System

Both in Absolute and Relative Grading System passing criteria will be:

• For UG-Students: Scoring less than 35 absolute marks in individual course either in end semester examination or as composite score shall be awarded as ‘F’

• For PG-Students: Scoring less than 40 absolute marks in individual course either in end semester examination or as composite score shall be awarded as ‘F’

• For UG & PG: Students scoring 85 marks and above as composite score (IA+MS+ES) shall be awarded as the highest grade as ‘O’ i.e., Outstanding (on 10 point Scale) and ‘A’ i.e., Outstanding (on 4 point Scale)

**Course outcome assessment:** To assess the fulfilment of course outcomes two different approaches have been decided. Degree of fulfillment of course outcomes will be assessed in different ways through direct assessment and indirect assessment. In Direct Assessment, it is measured through quizzes, tests, assignment, Mid-term and/or End-term examinations. It is suggested that each examination is designed in such a way that it can address one or two outcomes (depending upon the course completion). Indirect assessment is done through the student survey which needs to be designed by the faculty (sample format is given below) and it shall be conducted towards the end of course completion. The evaluation of the achievement of the Course Outcomes shall be done by analyzing the inputs received through Direct and Indirect Assessments and then corrective actions suggested for further improvement.