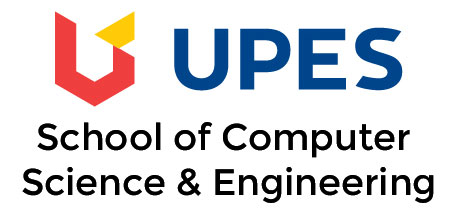
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**UNIVERSITY OF PETROLEUM & ENERGY STUDIES**

**College of Engineering Studies**

**Dehradun**

**COURSE PLAN**

Programme : B. Tech CSE

Course : IT Applications & open Standards

Subject Code : CSIB 112

No. of credits : 3

Semester : II

Session : 2017-18

Batch : 2016-20

Prepared by : Bhupesh Kumar Dewangan

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P.O. Bidholi, , Dehradun

**COURSE PLAN**

1. **PREREQUISITE:**

Knowledge of computers and softwares, open source and Open standards, various IT Applications and application areas, policies etc.

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

**B1. PROGRAM OUTCOMES (POs)**

PO1: Apply knowledge of Mathematics and Sciences in Computer Science and Engineering and Information Technology.

PO2: Understand the impact of Computer Science and Engineering and Information Technology over global economics, environment and social structure to cater the needs of the society.

PO3: Understand the importance of team work with professional and ethical responsibilities.

PO4: Communicate effectively in various forms useful during all professional activities.

PO5: Implement, and evaluate computer-based systems, processes, components, or programs to meet the desired goal of the business/research domains.

PO6: Develop software by analyzing a problem to identify and define its computational requirements.

PO7: Acquire new technologies for individual and professional development.

PO8: Use current techniques, skills, and tools necessary for computing practices and to solve Engineering problems for the furtherance of the various application domains.

PO9: Apply design and development principles in the development of software systems of varying complexity.

PO10: Ability to understand the concepts of methodologies, tools, techniques, marketing and governance of Open source & Open Standards in S/W development

PO11: Apply the Open Source and Open Standards tools and techniques in Software System Development

PO12: Ability to test applications with concepts of Open Source and Open Standards

**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.

**PSO3:** Understand and apply Cloud Computing architecture for scalable, secure and dynamically provisioned business oriented environment with optimized performance tuning and data reliability.

1. **COURSE OUTCOMES FOR INTRODUCTION TO VIRTUALIZATION AND CLOUD COMPUTING: At the end of this course student should be able to**

CO1. Understand the benefits and principles of open standards

CO2. Illustrate e-governance using open standards.

CO3. Analyze various open standards for enterprise applications.

CO4. Analyze various open standards for healthcare applications.

CO5. Analyze various open standards for retail applications.

CO6. Analyze various open standards for insurance applications.

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Engineering Knowledge | Problem analysis | Design/development of solutions | Conduct investigations of complex problems | Modern tool usage | The engineer and society | Environment and sustainability | Ethics | Individual or team work | Communication | Project management and finance | Life-long Learning | Perform system and application programming using computer system concepts, concepts of Data Structures, algorithm development, problem solving and optimizing techniques | Apply software development and project management methodologies using concepts of front-end and back-end development and emerging technologies and platforms |  |
| Course Code | Course Title | PO1 | PO2 | PO3 | PO 4 | PO 5 | PO6 | PO 7 | PO8 | PO9 | PO 10 | PO 11 | PO12 | PSO1 | PSO2 | PSO3 |
| CSIB 112 | IT Applications & open Standards | 2 |  | 3 |  |  |  |  |  |  | 2 | 1 | 1 |  |  |  |

1=weakly mapped 2= moderately mapped 3=strongly mapped

**Relationship between the Course Outcomes (COs) and Program Outcomes (POs)**

|  |  |  |
| --- | --- | --- |
| **Mapping between COs and POs** | | |
|  | **Course Outcomes (COs)** | **Mapped Programmed Outcomes/PSO** |
| **CO1** | Understand the benefits and principles of open standards | **PO1** |
| **CO2** | Illustrate e-governance using open standards. | **PO10** |
| **CO3** | Analyze various open standards for enterprise applications. | **PO1, PO3** |
| **CO4** | Analyze various open standards for healthcare applications. | **PO3, PO12** |
| **CO5** | Analyze various open standards for retail applications. | **PO3, PO12** |
| **CO6** | Analyze various open standards for insurance applications. | **PO3, PO12** |

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PO/CO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| CO1 | 2 | - | - | - | - | - | - | - | - | 3 | - | - |  |  |  |
| CO2 | - | - | - | - | - | - | - | - | - | 3 | - | - |  |  |  |
| CO3 | - | - | 3 | - | - | - | - | - | - | 1 | - | 1 |  |  |  |
| CO4 | - | - | 3 | - | - | - | - | - | - | 1 | - | 1 |  |  |  |
| CO5 | - | - | 3 | - | - | - | - | - | - | 1 | - | 1 |  |  |  |
| CO6 | - | - | 3 | - | - | - | - | - | - | 1 | - | 1 |  |  |  |

1. WEAK 2. MODERATE 3. STRONG

1. **COURSE OUTLINE**

The course provides the deep understanding of advanced data structures (Tree and Graphs) and their implementation in C++ programming language

|  |  |  |
| --- | --- | --- |
| **S.No** | **Unit** | **Contents** |
| 1 | Unit - 1 | Introduction to Open Standards |
| 2 | Unit – 2 | Governance of Open Standards |
| 3 | Unit – 3 | Open Standards for Enterprise Applications |
| 4 | Unit – 4 | Healthcare Vertical and Open Standards |
| 5 | Unit – 5 | Retail and Insurance Vertical and Open Standards |

1. **PEDAGOGY**
2. Class Test
3. Quiz
4. Assignment
5. **COURSE COMPLETION PLAN**

|  |  |
| --- | --- |
| **Total Class room Sessions** | 36 |
|  |  |
| **Total Test** | 02 |
| **Total Assignments** | 02 |
| **Quiz** | 02 |

One Session=60 min

Students will be evaluated based on the following 3 stages.

Internal Assessment - 30%

Mid-term Examination - 20%

End term Examination - 50%

**G. INTERNAL ASSESSMENT: WEIGHTAGE – 30%**

Internal Assessment shall be done based on the following:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Description** | **Marks** | **% of Weightage out of 30%** |
| 1 | Test | 2 offline Tests @ 15 Marks each | 30 |
|  |  |  |  |
| 2 | Assignment | Two Online Assignments @ 10 Marks each | 20 |
| 4 | Quiz | 2 Online Quiz @ 10 Marks each | 20 |
| 5 | Attendance | @30 Marks | 30 |
| **Total** | | | **100%** |

**G1*.*** Internal Assessment Record Sheet (including Mid Term Examination marks) will be shown to the students at the end of semester i.e. last week of regular classroom teaching.

**G2. CLASS TESTS/QUIZZES:** One Class Test based on descriptive type theoretical & numerical questions and Two Quizzes based on objective type questions will held. Those who do not appear in Viva-Voce and quiz examinations shall lose their marks.

**G3. ASSIGNMENTS:** There will be four assignments based on theory and numerical problems. Two assignment will be given before mid-semester and two after mid semester examination. Those who fail to submit the assignments by the due date shall lose their marks.

**G4. GENERAL DISCIPLINE:** Based on student’s regularity, punctuality, sincerity and behavior in the class.

**G5. MID TERM EXAMINATION: WEIGHTAGE – 20%**

Mid Term examination shall be online which includes the objective type of questions.

**G6. END TERM EXAMINATION: WEIGHTAGE – 50%**

End-Term examination shall be three hours duration and shall be a combination of short, long and very long theory/numerical questions.

**G7. GRADING:**

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

1. **COURSE DELIVERY PLAN**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SESSION** | **TOPIC** | **Course Outcomes Addressed** | **Required Learning Resources**  **(including media)** | **Discussion(s) and  Postings on Frontier** | **Assignment(s)/Quizzes/ Tests** |
| **5** | **UNIT -1** | CO1. Understand the benefits and principles of open standards | **Books:**   1. iCos study material prepared by IBM SME | **Icos.in** |  |
| **L1** | Recap of Open Source Software and Open Source Standards |  |
| **L2** | Benefits of Open Standards: Application Independence, Platform Independence, |  |
| **L3** | Long term access, Accessibility, Architectural Integrity. |  |
| **L4** | Principles and Practices of Open Standards |
| **L5** | Governance of Open standards |
| **8** | **UNIT 2:** |  | 1.iCos study material prepared by IBM SME |  |  |
| **L1,6** | Introduction to Domain specific Open Standards | CO2. Illustrate e-governance using open standards. |  |  |  |
| **L2,7** | Discussion of IT Governance - FOSS governance program |
| **L3,8** | Scope of FOSS Governance |
| **L4,9** | Impact Areas and Project/ Program Methodology |
| **L5,10** | SDLC |
| **L6,11** | Human Capital, IT Infrastructure |
| **L7,12** | , IT Procurement, IT Outstanding |
| **L8,13** | IT Portfolio Management |  |  |
| **L9,14** | Open Standards For Enterprise Applications:  Introduction to Industry Verticals. |  | Assignment-1 |
| **6** | **UNIT-3:** |  | 1. iCos study material prepared by IBM SME |  |  |
| **L1,15** | Open Standards for various Industry verticals & Advantages of Open Industry standards | CO3. Analyze various open standards for enterprise applications. |  |  |  |
| **L2,16** | Discussion on the Standards in the Healthcare, |  |
| **L3,17** | Retail, Insurance verticals Open Standards |
| **L4,18** | Advantages of Open Industry standards in Healthcare, Retail, |
| **L5,19** | Advantages of Open Industry standards in Insurance & Telecom verticals |
| **L6,20** | Healthcare Vertical Open Standards: Introduction to available Open standards in Healthcare, |
| **L7,21** | HL7 Overview |  |  |  |  |
| **L22** | **TEST-1** |  |  |  |  |
| **5** | **UNIT-4:** |  | 1. iCos study material prepared by IBM SME |  |  |
| **L1,23** | Healthcare Applications –Patient Index, | CO4. Analyze various open standards for healthcare applications. |  |  |  |
| **L2,24** | Patient Registration, Admission, Discharge, Transfer, |
| **L3,25** | Registration and Update, Clinical Order Message, |
| **L4,26** | Order Placer, Order Filler, Reporting, Observations. |
| **L5,27** | Application of an Healthcare Open standard – A case study |
| **L28** | **QUIZ 1** |  |  |  |
| **4** | **UNIT-5:** |  | 1. iCos study material prepared by IBM SME |  |
| **L1,29** | Retail Vertical & Open Standards: Introduction to available Open Standards in Retail, ARTS Overview | CO5. Analyze various open standards for retail applications. |  |  |
| **L2,30** | Retail Applications – Merchandising, Inventory, |  |
| **L3,31** | Ordering, Billing, Reports, Workforce, CRM and POS |  |  |
| **L4,32** | Application of a Retail Open Standard – A case study |  | Assignment-2 |
| **3** | **UNIT-6:** |  | 1. iCos study material prepared by IBM SME |  |  |
| **L1,33** | Insurance Vertical & Open Standards: Introduction to available Open Standards in Insurance Vertical | CO6. Analyze various open standards for insurance applications |  |  |
| **L2,34** | Insurance Applications, ACORD Overview |  |
| **L3,35** | Other Domains/ Verticals Students Reports / Cases on Open Standards |  |  |  |  |
| **L36** | **TEST-2** |  |  |  |  |

**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 password to access the LMS 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.

**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. Capping

***Passing criterion:*** Student has to secure minimum 30%/40% marks of the “highest marks in the class scored by a student in that subject (in that class/group class)” individually in both the ‘End-Semester examination’ and ‘Total Marks’ in order to pass in that paper.

* Passing Criterion for B. Tech: Minimum 30% and 40% of the highest marks in the class applicable to the students admitted before July 2015 and onwards July 2015 respectively.
* Passing Criterion for M. Tech: minimum 40% of the highest marks in the class

**Sample format for Indirect Assessment of Course outcomes**

|  |
| --- |
| NAME: |
| ENROLLMENT NO: |
| SAP ID: |
| COURSE: |
| PROGRAM: |

Please rate the following aspects of course outcomes of B.Tech(CSE), 3rd sem, Advanced Data Structures. Use the scale 1-4\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. | Course outcomes | 1 | 2 | 3 | 4 |
| 1 | Understand the Object Oriented Programming concepts. |  | Y |  |  |
| 2 | Familiar with C++ programming. |  |  | Y |  |
| 3 | Model the solutions using OOPs methodology. |  | Y |  |  |
| 4 | Analyze various data structures and their design techniques. |  |  | Y |  |
| 5 | Apply advanced data structure strategies to solve real world problems. |  |  |  | Y |
| 6 | Devise new data structures. |  |  |  | Y |
| 7 | Implement the solutions for real world applications using C++ |  |  | Y |  |

3

Below Average

Good

1

**\***

Very Good

Average

4

2