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**UNIVERSITY OF PETROLEUM & ENERGY STUDIES**

**School of Computer Science**

**Dehradun**

**COURSE PLAN**

Programme : B. Tech (CSE-BAO, BFSI)

Course : .Net Technologies

Subject Code : CSEG 3010

No. of credits : 3

Semester : V

Session : July 2019- December2019

Batch : 2017-21

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P.O. Bidholi, , Dehradun

**COURSE PLAN**

1. **PREREQUISITE:**
   1. Basic Knowledge of World Wide Web.
   2. Basic Knowledge of SDLC.
   3. Basic Knowledge of Object Oriented Languages

1. **PROGRAM OUTCOMES (POs) for B.Tech CSE with specialization in Cyber Security & Forensics:**

**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. Develop the understanding of quantitative modeling and data analysis techniques and to apply these to real world business problems, communicate findings, and effectively present results for improved decision-making.
4. **OBJECTIVES OF COURSE:-**

The objectives of this course are to:

1. Understand .Net framework.
2. Design and develop applications (windows, web, and console).
3. Familiar with WPF, WCF.

1. **COURSE OUTCOMES FOR .NET TECHNOLOGIES: At the end of this course student should be able to**

CO1. Understand difference between ASP & HTML and importance of .Net Framework

CO2. Learn and implement web form controls

CO3. Design data access using ADO.Net

CO4. Design web services and develop .net applications

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

|  |  |  |
| --- | --- | --- |
|  | **Course Outcomes (COs)** | Mapped Programme Outcomes |
| CO1 | Understand difference between ASP & HTML and importance of .Net Framework | PO1 PO9 |
| CO2 | Learn and implement web form controls | PO1 PO2 PO9 PO12 |
| CO3 | Design data access using ADO.Net | PO2 PO9, PSO2, PSO3 |
| CO4 | Design web services and develop .net applications | PO9, PSO1, PSO2, PSO3 |

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

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

1=weakly mapped

2= moderately mapped

3=strongly mapped

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 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. | Apply computing knowledge to assess, design and propose cyber security solutions and perform forensic procedures on digital systems and cyber world using tools and technologies in the area of cyber security and cyber forensics. |
| Course Code | Course Title | PO1 | PO2 | PO3 | PO 4 | PO 5 | PO6 | PO 7 | PO8 | PO9 | PO 10 | PO 11 | PO12 | PSO1 | PSO2 | PSO3 |
| CSEG 3010 | .Net Technologies | 1 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0.5 | 1 | 1 | 1 |

1. **COURSE OUTLINE**

**Unit-1 Introduction to .Net Framework**

* CLR, MSIL
* CLS, Common Type System, Assembly
* Namespace, Garbage Collection
* DLL (Data link library) and Com interop
* Windows/web/console applications (asp.net basics)

**Unit-2 ADO.Net**

* Intro to ADO.Net
* ADO.Net v/s ADO
* Creating Connection Strings
* Data Binding
* Working with data adapter, data reader and data set

**Unit-3 Building .Net applications**

* Creating window application using IDE
* GDI+
* Creating asp.net 4.5 web applications
* Configuring master pages

**Unit-4 Building Web Services**

* Introducing web services
* Infrastructure of web services
* Creating and deploying web services
* APS.Net AJAX and web services
* Working with ASP.Net AJAX

**Unit-5 Advanced .Net**

* Introduction to WPF
* Intro to WCF
* Website navigation.

1. **PEDAGOGY**
2. **Quiz**
3. **Assignments/ Tutorials**
4. **Presentations**
5. **Concept diary (needs to be maintained by students-short and concise notes which include course concepts that he/she has understood.)**
6. **COURSE COMPLETION PLAN**

|  |  |
| --- | --- |
| **Total Class room sessions** | 36 |
| **Total Quizzes** | 02 |
| **Total Assignment** | 02 |
| **Class Test** | 01 |

One Session =60 minutes

1. **EVALUATION & GRADING**

Students will be evaluated based on the following 3 stages.

* 1. Internal Assessment - 30%

5.2 Mid-term Examination - 20%

* 1. End term Examination - 50%

**H1. INTERNAL ASSESSMENT: WEIGHTAGE – 30%**

Internal Assessment shall be done based on the following:

|  |  |  |
| --- | --- | --- |
| Sl. No. | Description | % of Weightage out of 30% |
| 1 | Class Test & Quizzes | 60% |
| 2 | Assignments (Problems/Presentations) | 20% |
| 3 | Attendance and conduct in the class and concept diary | 20% |

**H2*. Internal Assessment Record Sheet (including Mid Term Examination marks)*** *will be displayed online at the end of semester i.e. last week of regular classroom teaching.*

**H3. CLASS TESTS/QUIZZES:** One class Tests based on descriptive type theoretical questions and Two Quizzes based on objective type questions will be held; One quiz at least ten days before the Mid Term Examination and second quiz and class test at least ten days before the End Term Examination.

*The marks obtained by the students will be displayed on Blackboard a week before the start of Mid Term and End Term Examinations respectively.*

**H4. ASSIGNMENTS:** After completion of each unit or in the mid of the unit, there will be home assignments based on theory and numerical problems. Those who fail to submit the assignments by the due date shall lose their marks.

**H5. GENERAL DISCIPLINE:** Based on student’s regularity, punctuality, sincerity and participation in the interactions.

*The marks obtained by the students will be displayed offline at the end of semester.*

**H6. MID TERM EXAMINATION: WEIGHTAGE – 20%**

Mid-Term examination in online mode will be of 1hour duration and shall be a combination of objective and true-false type questions.

**H7. END TERM EXAMINATION: WEIGHTAGE – 50%**

End Term Examination shall be Three Hours duration and shall be a combination of Short and Long theory/numerical Questions.

**H8. GRADING:**

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

1. **Detailed Session Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sl.  No | No. of  Sessions | Pedagogy | Detail of References | Coverage |
| 1. | 8 | **Lecture and**  **Assignment #1**  Group Discussion  White board  Class room  Discussion | Black book .Net 4.0 Programming (6 in 1) by Kogent Learning Solution Inc, Dream Tech Press | **Unit-1 Introduction to .Net Framework**   * CLR, MSIL * CLS, Common Type System, Assembly * Namespace, Garbage Collection * DLL (Data link library) and Com interop * Windows/web/console applications (asp.net basics) |
| 2 | 7 | **Lecture**  **Quiz#1**  Presentation/  Group Discussion/  Exercise for  Questionnaire designing  Examples | Black book .Net 4.0 Programming (6 in 1) by Kogent Learning Solution Inc, Dream Tech Press | **Unit-2 ADO.Net**   * Intro to ADO.Net * ADO.Net v/s ADO * Creating Connection Strings * Data Binding * Working with data adapter, data reader and data set |
| 3 | 7 | Presentation/  Group Discussion/  Case Study  Class room | (Black book .Net 4.0 Programming (6 in 1) by Kogent Learning Solution Inc, Dream Tech Press | **Unit-3 Building .Net applications**   * Creating window application using IDE * GDI+ * Creating asp.net 4.5 web applications * Configuring master pages |
| 4 | 7 | **Lecture and**  **Assignment #2**  Group Discussion  White board  Class room  Discussion | Black book .Net 4.0 Programming (6 in 1) by Kogent Learning Solution Inc, Dream Tech Press | **Unit-4 Building Web Services**   * Introducing web services * Infrastructure of web services * Creating and deploying web services * APS.Net AJAX and web services * Working with ASP.Net AJAX |
| 5 | 7 | **Lecture**  **Quiz#2**  Presentation/  Group Discussion | Black book .Net 4.0 Programming (6 in 1) by Kogent Learning Solution Inc, Dream Tech Press | **Unit-5 Advanced .Net**   * Introduction to WPF * Intro to WCF * Website navigation. |

1. **Suggested Reading**

**TEXT BOOK [T]:**

1. Black book .Net 4.0 Programming (6 in 1) by Kogent Learning Solution Inc, Dream Tech Press

**REFERRENCE BOOKS:**

Ref. 1. Beginning ASP.NET 4.5 in C# and VB by Imar Spaanjaars

**WEB RESOURCES:**

**http://www.wavesoft.ir/wp-content/uploads/2013/03/Microsoft-Asp-4-step-by-step.pdf**

1. **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 Blackboard 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)

1. **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.

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

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

Please rate the following aspects of course outcomes of .net technologies

Use the scale 1-4\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sl. No. |  | 1 | 2 | 3 | 4 |
| 1 | CO1. Understand difference between ASP & HTML and importance of .Net Framework |  |  |  |  |
| 2 | CO2. Learn and implement web form controls |  |  |  |  |
| 3 | CO3. Design data access using ADO.Net |  |  |  |  |
| 4 | CO4. Design web services and develop .net applications |  |  |  |  |

3

Below Average

Good

1

**\***

Very Good

Average

4

2