

SEMESTER II

CODE	COURSE TITLE
18CSUCP02/18CAUCP02	LINUX AND PERL PROGRAMMING LAB

Category	CIA	ESE	L	T	P	Credit
Core Practical	40	60	-	-	45	1

Preamble

The student will be able to create programs in the Linux environment using Linux utilities and commands. Student is given an introduction of Perl Programming and they will be able to write Perl scripts.

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO1	Develop Linux utilities to perform File processing, Directory handling and User Management	K3
CO2	Develop shell scripts using pipes, redirection, filters and Pipes	K3
CO3	Develop shell scripts to display system configuration	K3
CO4	Develop simple Perl scripts	K3
CO5	Develop simple Perl scripts applicable to Bioinformatics	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	S
CO2	S	S	S	S	S
CO3	S	S	S	S	S
CO4	S	M	M	M	M
CO5	S	M	M	M	M

S- Strong; M-Medium; L-Low

Syllabus

1. Write a shell script to simulate the file commands :rm, cp, cat, mv, cmp, wc, split, diff.
2. Write a shell script to show the following system configuration :
 - a) currently logged user and his log name
 - b) current shell , home directory , Operating System type , current Path setting , current working directory
 - c) show currently logged number of users, show all available shells
 - d) show CPU information like processor type , speed
 - e) show memory information
3. Write a shell script to display calendar for a specified month or a range.
4. Write a Shell Script to implement the following: pipes, Redirection and tee commands.
5. Write a shell script to implement the filter commands.
6. Write a shell script to find the frequency of nucleotides in a given sequence.
7. Write a shell script to find the greatest among the given set of numbers using command line arguments.
8. Write a Perl script to find for a motif in protein sequences stored in a file.
9. Write a Perl script to use Array and Hash data structure.
10. Write a Perl script to read a file and count the number of lines containing or not containing certain words.

Pedagogy

Lecture, PPT, Quiz

SEMESTER III

CODE	COURSE TITLE
18CSUC306	INTERNET OF THINGS

Category	CIA	ESE	L	T	P	Credit
Core	25	75	70	5	-	5

Preamble

To enable the students to learn about the fundamentals, building blocks, applications of IoT, security and vulnerabilities of internet of things

Course Outcomes

CO Number	CO Statement	Knowledge Level
CO1.	To understand the physical, logical design of IoT and to identify various IoT levels	K1
CO2.	To describe conceptual framework, architectural views and technology behind IoT	K2
CO3.	To understand the Physical Servers and different types of applications in various domains	K1
CO4.	To demonstrate the design methodology and building blocks of IoT devices	K2
CO5.	To understand IoT privacy, security, vulnerabilities solutions and business models	K1

On the successful completion of the course, students will be able

Mapping with Programme Outcome

COs	PO1	PO2	PO3	PO4	PO5
CO1.	S	-	L	S	S
CO2.	M	-	L	S	S
CO3.	M	-	L	S	S
CO4.	M	-	L	S	S
CO5.	L	-	L	S	S

S- Strong; M-Medium; L-Low

Syllabus

UNIT I

15 Hrs.

Introduction to Internet of Things: Introduction – Physical Design of IoT - Logical Design of IoT - IoT Enabling Technologies – IoT levels & Deployment Templates

UNIT II**15 Hrs.**

IOT: Conceptual framework – Architectural view – Technology behind IOT – Sources of IOT – M2M Communication – Examples of IOT

UNIT III**15 Hrs.**

Domain Specific IoTs: Introduction – Home Automation – Cities – Environments –Retail – Logistics - Agriculture –Industry – Health & Lifestyle - **IoT Physical Servers and Cloud Offerings:** Introduction to cloud storage models & communication APIs – WAMP – AutoBahn for IoT – Xively Cloud for IoT

UNIT IV**15 Hrs.**

IoT Platforms Design Methodology: Introduction – IoT Design Methodology – Case Study on IoT System for Weather Monitoring - **IoT Physical Devices & Endpoints:** Building blocks of an IoT Device – Exemplary Device: Raspberry Pi – About the Board – Raspberry Pi Interfaces - Other IoT Devices

UNIT V**15 Hrs.**

IoT Privacy, Security and Vulnerabilities Solutions: Introduction – Vulnerabilities, Security Requirements and Threat Analysis – Use Cases and Misuse Cases - IoT Security Tomography and Layered Attacker Model –**Business Models and Processes Using IoT:** Introduction – Business Models and Business Model Innovation

Text Books

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	ArshdeepBahga, Vijay	Internet of Things: A Hands-On Approach	Universities Press (India) Private Limited	2018, Reprint
2.	Madiseti Raj Kamal	Internet of Things: Architecture and Design Principles (Unit II & V)	McGraw - Hill Education (India) Private Limited Chennai	2017, 1st Edition

Reference Book

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Srinivasa K.G, Siddesh G.M, Hanumantha Raju R	Internet of Things	Cengage Learning India Pvt. Limited	2017, 1st Edition

Pedagogy

- Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

SEMESTER III

CODE	COURSE TITLE
18CSUA303/ 18CAUA303	BUSINESS ACCOUNTING (40% Theory & 60% Problems only)

Category	CIA	ESE	L	T	P	Credit
Allied	25	75	55	5	15	5

Preamble

The objective of the course is to impart accounting skills in Final Accounting and Cost Accounting. The students will be trained on the preparation of final accounts and cost sheet using an accounting package.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify and Apply the appropriate accounting rules for the preparation of Journal and method of posting the same into Ledger	K1 - K3
CO2	Select, Classify, Choose and Categorize the given entries to enter in appropriate subsidiary books	K1 - K4
CO3	Classify, Apply and Build various financial statements like Trial Balance, Trading, P&L account and Balance Sheet	K2 - K4
CO4	Define, Explain and Apply appropriate depreciation method to prepare Machinery Account	K1 - K3
CO5	Classify the elements of cost and Construct the Cost Sheet accordingly	K2 - K3
CO6	Apply the knowledge and skill of preparation of various accounting concepts using an accounting package	K2 - K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	-	-	S	M	M
CO2	-	-	S	M	M
CO3	-	-	S	M	M
CO4	-	-	S	M	M
CO5	-	-	S	M	M
CO6	S	S	S	M	S

S- Strong; M-Medium; L-Low

Syllabus

UNIT I

15 Hrs.

Accounting: Definition – Objectives – Branches of Accounting – Accounting Concepts – Conventions – Systems of Accounting – Rules for Double-Entry System of Book Keeping – Preparation of Journal and Ledger Accounting. **Hands on training.**

UNIT II

15 Hrs.

Subsidiary Books: Purchase Book – Sales Book – Purchase Return Book – Sales Return Book – Cash Book (Two Columnar only) - Petty Cash Book. **Hands on training.**

UNIT III

15 Hrs.

Preparation of Trial Balance – **Final Accounts:** Trading, Profit and Loss Account and Balance Sheet with Simple Adjustments. **Hands on training.**

UNIT IV

15 Hrs.

Accounting Package: Features – Home Screen – Accounts Info Menu – Display Menu. Company Creation – Alteration & Deletion of Company – Selection of Company – Ledger Creation – Preparation of Trial Balance & Final accounts.

UNIT V

15 Hrs.

Depreciation: Definition - Causes of depreciation – Basic factors - Methods of Depreciation – Straight Line Method and Diminishing Balance Method (Simple Problems). **Cost Accounting:** Elements of Costing – Types of Costing – Preparation of Simple Cost Sheets.

Text Books

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Murthy.A, & Reddy .T.S.	Advanced Accountancy	Margham Publications	Second edition, 2012
2.	Jain S. P & Narang, K.L,	Cost Accounting Principles and Practice	Kalyani Publishers	Twenty Third edition, 2012

Reference Books

Sl. No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	Grewal, T.S.	Double Entry Book Keeping	Sultan Chand & Sons Publisher	2004
2.	VinayakamM.N., Mani P.L., Nagarajan K.L,	Principles of Accountancy	Sultan Chand & Sons Publisher	3 rd Edition, 2008

Pedagogy

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

SEMESTER IV

CODE	COURSE TITLE
18CTUC408	C#.NET PROGRAMMING

Category	CIA	ESE	L	T	P	Credits
Core	25	75	71	4	-	4

Preamble

This course provides the students with an overview of .NET framework, Programming structure of C# in developing applications. This course covers the technologies like Common Language Runtime, C# and ADO.NET data access.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Define the basic concepts of .NET framework.	K1
CO2	Understand the general programming structure of C# in developing software solutions based on user requirements.	K2
CO3	Apply console based applications.	K3
CO4	Examine the background process with the help of windows application.	K3
CO5	Illustrate the concepts of database access.	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	M	S	M
CO3	S	S	M	S	M
CO4	S	M	M	S	M
CO5	S	S	S	S	M

S- Strong; M-Medium; L-Low

Syllabus

UNIT I

15 Hrs.

UNDERSTANDING .NET: The C# Environment: -.Net Strategy- Origins of .Net technology- .NET frame work- common language runtime- framework base classes- user and program interfaces- visual studio .NET- .NET languages- benefits of .NET Approach - C# and .NET. - First C# program - Data types and Expressions.

UNIT II

15 Hrs.

Methods and behaviors- Making Decisions - Repeating Instructions - Arrays and Collections: array basics-array declaration- array class- string class.

UNIT III

15 Hrs.

ADVANCED OBJECT ORIENTED PROGRAMMING: Inheritance- abstract classes- partial classes- interfaces- polymorphism. Debugging and Handling Exceptions: Errors-Exceptions- Exception handling Techniques- Exception Classes

UNIT IV

15 Hrs.

INTRODUCTION TO WINDOWS PROGRAMMING: Constrating windows and console applications- Graphical User Interface- Elements of good design - Using C# and visual studio to create windows based applications- windows forms - controls. Programming based on Events: Event handling in C# - Listbox control objects- Combobox control objects- Menustrip control objects- checkbox and Radiobutton objects.

UNIT V

15 Hrs

DATABASE ACCESS USING ADO.NET: Database Access- ADO.Net- Data source configuration Tools.

Text Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	E.Balagurusamy	Programming in C#	Tata McGraw Hill	2 nd Edition,2008 [1- Unit]
2.	Barbara Doyle	C# Programming	Cengage Learning	5 th Edition,2015 [2 - 5 Units]

Reference Books

Sl.No.	Author Name	Title of the Book	Publisher	Year and Edition
1.	John Sharph Jon Jagger	Microsoft Visual C# .Net	Prentice-Hall of India	2005
2.	Herbert Schildt	The Complete Reference C# 4.0	Tata McGraw Hill	2010
3.	Kick Start	Microsoft Visual C# .NET 2003	Pearson Education Private Limited	2004

Web Resources

1. <https://www.tutorialspoint.com/csharp/>
2. <https://www.tutorialsteacher.com/csharp/c>
3. <https://www.guru99.com/c-sharp-tutorial.html>

Pedagogy

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

SEMESTER IV

CODE	COURSE TITLE
18CTUCP04	C#.NET PROGRAMMING LAB

Category	CIA	ESE	L	T	P	Credits
Core	40	60	-	5	70	3

Preamble

This course covers the programming concepts of C# and also developing window based applications. The goal is to practice the aspects of multi-tier application development using .NET framework.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify the basic terminology used in computer programming.	K2
CO2	Understand the execution of the C# program using arrays, control structures and exceptions.	K3
CO3	Use C# to implement object oriented concepts in developing solutions.	K3
CO4	Apply the GUI tools to develop the windows application.	K3
CO5	Demonstrate the use of various controls and connectivity in windows application.	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	M
CO2	S	S	M	S	M
CO3	S	S	M	S	M
CO4	S	M	M	S	L
CO5	S	S	S	S	M

S- Strong; M-Medium; L-Low

Syllabus

1. Program to implement Array List Methods
2. Program to display current time using delegate, event and Inheritance
3. Program to display Floyd's triangle
4. Program to handle exceptions
5. Program to load an image; format the background color using windows application.
6. Program to demonstrate hash table
7. Program to find factorial and prime number using windows form application
8. Develop a simple calculator.
9. Develop a Student registration form and validate its control
10. Develop a Window Application with menu and dialog boxes
11. Developing an application for Employee details
12. Program to implement key press events

Web Resources

1. <https://www.guru99.com/c-sharp-tutorial.html>
2. <https://www.homeandlearn.co.uk/csharp/csharp.html>

Pedagogy

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar