ACC 201: Financial Accounting

Module Objectives:
This module aims to familiarize students with the function and process of financial reporting system from a user and system designer perspective.

Course Description:

Course Details
Unit 1: Introduction
- Meaning of accounting
- Objective, importance and functions of accounting
- Accounting information and economic decisions
- Users of accounting information
- Basic terminologies: Capital, Liabilities: long term and short term, assets: fixed assets, intangible assets, and current assets, purchases, sales, debtors, creditors, inventories, revenues and expenses.

Unit 2: General Accepted Accounting Principles (GAAP)
- Business entity concept
- Money measurement concept
- Going concern concept
- Cost concept
- Accounting period concept
- Realization concept
- Matching concept

Unit 3: Double Entry System
- Concept, Features, Advantages of Double entry book-keeping system
- Accounting Equation
- Accounting Cycle/Process
Unit 4: Recording of Business Transactions

- Types of Accounts, Rules for Debit and Credit
- Meaning and objectives of Journal, Journalizing based on types of account and on
- Ledger: Meaning, Objectives, Account formats (T format and balancing format). Posting accounting equation: Simple and Compound entries including bills of exchange into ledger, Balancing and closing of ledger accounts

Unit 5: Sub-division of Journal

- Sales Book: Concept, Trade discount and cash discount application and treatment,
- Purchase Book: Concept, Preparation and Posting from Purchase Book
- Sales Return Book: Concept, Credit Note, Preparation and Posting from Sales Return
- Preparation and Posting from Sales Book
- Purchase Return Book: Concept, Debit Note, Preparation and Posting from Purchase
- Bills Payable Book: Concept, Preparation and Posting from Bills Payable Book
- Bills Receivable Book: Concept, Preparation and Posting from Bills Receivable Book

Unit 6: Accounting for Cash and Banking Transactions

- Cash and Banking Transactions: Objectives, importance. Bank account: Current account,
- Cheques: Meaning, Parties to a cheque, Types, Rules for drawing a cheque, Issue,
- Pass Book: Concept and importance
- Cash Book: Concept and importance. Types of Cash Book: Single, Double and Triple
- Saving account. Fixed deposit account Deposit, Endorsement and Dishonor of Cheque Column

Unit 7: Trial Balance

- Meaning and Objectives, Preparation of Trial Balance, Adjusted trial balance
- Journal Proper: Concept, Opening entry, Closing entries, Transfer entries. Adjusting
- Errors: Meaning, Causes of accounting errors, Types of errors, Errors disclosed and not
- Rectification of errors before and after preparation of Trial Balance, Suspense account:

Unit 8: Reserve and Provision

- Concept and Objectives of Reserve and Provision
- Maintaining General reserve, Provision for bad debt. Provision for discount on debtors

Unit 9: Capital and Revenue concept and creditors

- Concept, Types and Difference between Capital and Revenue: Receipts, Expenditures,

Unit 10: Financial Statements

- Concept and Types of financial statements
- Preparation of Income Statements and Balance Sheet with and without adjustment by
References:
Ramesh Pandey, and et al., *Principles of Accounting Part I*, Bhundhipuran Prakashan, Kathmandu.
Ratna M. Dangol and et al., *A Basic Course In Accountancy I*, Talaju Prakashan, Kathmandu.
IT 215 : Web Programming I

Course Objective:
This course is designed to serve as an ideal beginners guide to writing web pages using XHTML, using CSS to make pages more appealing and add interactivity to pages using JavaScript.

Course description:

Course Details
Unit 1: HTML

- Structuring Documents for the Web

- Basic Text Formatting, Presentational Elements, Phrase Elements

- Lists
  Using the <ul> Element to Create Unordered Lists,Ordered Lists, Definition Lists, Nesting Lists, Comments, Understanding Block and Inline Elements, Grouping Elements with <div> and <span>,The XML Declaration, Document Type Declaration

- Understanding Directories and Directory Structures
  Understanding URLs, Absolute and Relative URLs, The <base> Element

- Creating Links with the <a> Element
  Basic Links, Linking to Other Web Pages, Linking to E-mail Addresses, Creating a Source Anchor with the href Attribute, Creating a Destination Anchor Using the name and id Attributes , (Linking to a Specific Part of a Page), The <a> Element’s Other Attributes,

- Images, Audio, and Video, Using Images as Links, Choosing the Right Image Format

- Adding Flash, Video, and Audio to Your Web Pages
  Adding Flash Movies to Your Site, Adding Videos to Your Site, Adding Videos, Using Flash Video
Audio to Your Site, Automatically Playing Audio and Video When a Page Loads, A Closer Look at the `<object>` and `<param>` Elements, The `<param>` Element

- **Tables**
  Introducing Tables, Basic Table Elements and Attributes, The `<table>` Element Creates a Table, The `<tr>` Element Contains Table Rows, The `<td>` and `<th>` Elements Represent Table Cells, Adding a `<caption>` to a Table, Grouping Sections of a Table, Spanning Columns Using the `colspan` Attribute, Spanning Rows Using the `rowspan` Attribute, Splitting Up Tables Using a Head, Body, and Foot, Grouping Columns Using the `<colgroup>` Element, Columns Sharing Styles Using the `<col>` Element

- **Forms and Form Controls**
  Introducing Forms, Creating a Form with the `<form>` Element, The action Attribute, The method Attribute, The id Attribute, The onsubmit Attribute, The onreset Attribute, The enctype Attribute, The accept-charset Attribute, The accept Attribute, The target Attribute, White Space and the `<form>` Element, Text Inputs, Buttons, Checkboxes, Radio Buttons, Select Boxes, File Select Boxes, Hidden Controls,

- **Creating Labels for Controls and the `<label>` Element**
  Structuring Your Forms with `<fieldset>` and `<legend>` Elements, Focus, Tabbing Order, Access Keys, Disabled and Read-Only Controls, Sending Form Data to the Server, HTTP `get`, HTTP `post`, Cascading Style Sheets

After completion of this section following web-pages have to be developed:
- Web page with list and menus
- Different look and feel web pages using divisions
- Photo gallery
- Page with internal and external links
- Web page with videos
- User interface with different controls to take user data should be developed

Unit 2 : **Introducing CSS**

A Basic Example, Inheritance, Where You Can Add CSS Rules, The `<link>` Element, The `<style>` Element, Advantages of External CSS Style Sheets, CSS Properties

- **Controlling Text**

- **Text Formatting**

- **Selectors**

- **The General Sibling Selector**
  Using Child and Sibling Selectors To Reduce Dependence on Classes in Markup, Attribute Selectors,

- **Lengths**
  Relative Units, Absolute Units, Percentages

- **Introducing the Box Model**
  An Example Illustrating the Box Model, The Border Properties, The padding Property, The margin Property, Dimensions of a Box, Internet Explorer Box Model Bug
• **More Cascading Style Sheets**
  Links, Backgrounds: The background-color Property, The background-image Property, The background-repeat Property, The background-position Property (for Fixing Position of Backgrounds), The background-attachment Property (for Watermarks), The background Property (the Shorthand)

• **Lists**
  The list-style-type Property, The list-style-position Property, The list-style-image Property, The list-style Property (the Shorthand)

• **Tables**

• **Outlines**
  The outline-width Property, The outline-style Property, The outline-color Property, The outline Property (the Shorthand)

• **The :focus and :active Pseudo-Classes**
  Generated Content

• **Positioning and Layout with CSS**

• **Page Layout**
  Understanding the Site’s Audience
  Who Will Visit the Site? Why Have They Visited Your Site? What Does a Visitor Need to Achieve a Goal? How Often Will People Want to Visit? Things You Want the Site to Do, Prioritizing Information, Grouping and Categorization, Creating a Site Map, Identifying Key Elements for Each Page, Page Size (and Screen Resolution), Understanding Screen Sizes, Fixed-Width vs. Liquid Designs
  After completing CSS,
  Program with different kinds of styles should be developed

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**Unit 3 : Learning JavaScript**

What Is Programming About? How to Add a Script to Your Pages, Comments in JavaScript, The `<noscript>` Element, The Document Object Model, Accessing Values Using Dot Notation, The Document Object, The Forms Collection, Form Elements, Images Collection, Different Types of Objects, A Word About Data Types, Keywords,

• **Starting to Program with JavaScript**
  Variables, Assigning a Value to a Variable, Lifetime of a Variable, Operators, Arithmetic Operators, Assignment Operators, Comparison Operators, Logical or Boolean Operators, String Operator (Using + with Strings)

• **Functions**
  How to Define a Function, How To Call a Function, The Return Statement

• **Conditional Statements**
  if Statements, if . . . else Statements, switch Statement

• **Looping**
  While, do . . . while, for, Infinite Loops and the break Statement

• **Events**
  Built-in Objects: String, Date, Array, Window
• **Form Validation**
  When to Validate, What You Can Check For, How to Check a Form, Checking Text Fields, Select Box Options, Radio Buttons, Checkboxes
  
  *After completion of JavaScript:*
  - User interface with form validation capability should be developed, (validation: check for empty fields, specific length string, email validation etc)
  
  *After completion of this course, web site with data entry form with form validation functionality and attractive look and feel should be developed*

**Reference**

IT 216: JAVA Programming – I

Course Objective
This course aims to develop students’ skill in JAVA programming. Students are expected to have the basic knowledge of programming with ‘C’ language. This course should be associated with laboratory experiments to augment the concepts taught in the class.

Course Description:
Java’s Lineage, An overview of Java, Data types, Variables and Arrays, Operators, Control Statements, Introducing Classes, A Closer Look at Methods and classes, Inheritance, Packages and Interface, Exception handling, Multithreaded programming, Enumerations, autoboxing, and annotations, String handling, Input/output

Course Details
Unit 1: Java’s Lineage 2hrs
- The Creation of Java
- How Java Changed the Internet
- The Bytecode
- Servlets: Java on the Server Side
  - Simple
  - Object-oriented
  - Robust
  - Multithreaded
  - Architecture Neutra
  - Interpreted and High Performance
  - Distributed
  - Dynamic

Unit 2: An overview of Java 2hrs
- Object-Oriented Programming
  - Two Paradigms
  - Abstraction
  - The Three OOP Principles
- Lexical Issues
  - Whitespace
  - Identifiers
  - Literals
  - Comments
  - Separators
  - The Java Keywords
Unit 3: Data types, Variables and Arrays
- Java is a strongly Typed Language
- The Primitive Types
  - Integers
    - Byte, short, int, long
  - Floating point Types
    - Float, double
- Characters
- Booleans
- A closer Look at Literals
  - Integer Literals, Floating-Point literals, Boolean Literals, Character Literals, String Literals
- Variables:
  - Declaring a Variable, Dynamic Initialization, The Scope and Lifetime of Variables
  - Type conversions and Casting, Casting Incompatible types
- Automatic Type promotion Rules
- Arrays
  - One Dimensional Arrays, Multidimensional arrays, Alternative Array Declaration syntax
- Scanner Object

Unit 4: Operators
- Arithmetic Operators: +, -, /, *, %, ++, --
- The Bitwise operators:
  - The bitwise logical operators
  - The left shift, right shift, Unsigned Right shift, bitwise operator compound assignments
- Relational operators
- Boolean logical operators
  - Short-circuit logical operators
  - The ? operator
  - Operator precedence
  - Using parenthesis

Unit 5: Control Statements
- Java’ Selection statements
  - If..., switch....
  - Iteration statements: while, do-while, for, the for-each version of the for loop, nested loops
- Jump statements: using break, using continue

After the completion of above five units, programs like following should be developed:
- Multiple choice problems
- Working on sequence of values (calculating average, mean, mode etc.)
Unit 6: Introducing Classes
- Class fundamentals
  - The general form of a class, a simple class
- Declaring objects
- Assigning Object Reference variables
- Introducing methods
  - Adding a method to the box class, returning a value, adding a method that takes parameters
- Constructors: Parameterized Constructors
- The this keyword: instance variable hiding
- Garbage collection
- The finalized() method
- A Stack class

Unit 7: A Closer Look at Methods and classes
- Overloading methods; overloading constructors
- Using objects as parameters
- A closer look at arguments passing, returning objects, recursion, introducing access control, understanding static, introducing final, arrays revisited, introducing nested and inner classes, exploring the string class, using command-line arguments
- Varargs: variable-length arguments; overloading vararg methods, varargs and ambiguity

Unit 8: Inheritance
- Inheritance Basics: Member access and inheritance,
- Using super: using super to call superclass constructors, a second use for super
- Creating a multilevel hierarchy
- When constructors are called
- Method overriding
- Dynamic method dispatch: why overridden method?
- Using abstract classes, using final with inheritance
- The object class

After completion of above three units following programs should be developed:
- Program that work on group of similar objects like, generating average age of employees, displaying maximum salary of employees, displaying names of persons with same address etc.

Unit 9: Packages and Interface
- Packages: defining a package, finding packages and CLASSPATH
- Access Protection
- Interfaces: defining an interface, implementing interfaces, nested interfaces, applying interfaces, variables in interfaces, interfaces can be extended
Unit 10: Exception handling  
- Exception-handling fundamentals, exception types, uncaught exceptions, using try..catch
- Multiple catch clauses
- Nested try statements
- Throw, throws, finally, Java’s built-in exception
- Creating your own exception subclasses

Unit 11: Multithreaded programming
- The Java Thread Model
- Thread priorities, synchronization, messaging, the thread class and the runnable interface
- The main thread
- Creating a thread: implementing runnable, extending thread
- Creating multiple threads: using isAlive() and join()
- Thread priorities
- Synchronization: using synchronized methods, the synchronized statement

Unit 12: Enumerations, autoboxing, and annotations
- Enumerations
  - Fundamentals, the values() and valueOf() methods, Java Enumerations Are class types, enumerations inherit Enum
  - Type Wrappers: character, Boolean, the numeric type wrappers
- Autoboxing
  - Autoboxing and methods, autoboxing/unboxing occurs in expressions, autoboxing/unboxing Boolean and character values, autoboxing/unboxing helps prevent errors
- Annotations
  - Annotation basics, specifying a retention policy, obtaining annotations at runtime by use of reflection

Unit 13: String handling
- The String constructors, string length,
- Special string operators: string literals, concatenation, conversion and toString()
- Character Extraction
  - charAt(), getChars(), getBytes(), toCharArray()
  - String comparison: equals() and equalsIgnoreCase(), regionMatches(), startsWith() and endsWith(), equals() versus ==, compareTo
- Modifying a String
  - Substring(), concat(), replace(), trim()

After completion of above two units programs like following should be developed:
- Efficient codes with minimum code redundancy
- Program capable of handling errors on own instead of terminating programs abnormally
Unit 14: Input/output:
- File: directories, using filenameFilter, the listFiles(), creating directories
- The Autocloseable, Closeable, and Flushable Interfaces
- I/O Exceptions
- The stream classes
- The Character Streams: Reader, Writer, FileReader, FileWriter, PrintWriter
- The Console Class
- Serialization: Serializable, Externalizable, ObjectOutputStream, ObjectInputStream

After completion of this unit, program which record keeping capability with searching, manipulating features should be developed.

Textbooks:
1. Thinking in JAVA- Bruce Fikal
2. Complete reference for JAVA 2
3. Schaum's outline programming in C++- John Hubbard
Course Objective:
This module aims to provide knowledge to understand the architecture of hardware components used in organization and design of digital computers and also design procedures of digital computers. Laboratory work is essential in this module.

Course Description:
Digital components used in the organization and design of digital computers, detailed steps that a designer must go through in order to design an elementary basic computer, the organization and architecture of CPU, I/O and Memory, Pipelining and Vector Processing, Concept of Multiprocessing.

Course Details
1. Data Representation
   1.1 Data Types
   1.2 Complements
   1.3 Fixed Point Representation
   1.4 Floating Point Representation
   1.5 End of Chapter 1 Assignment:
      1.5.1 Computer Program: Write program to visualize the representation of complement numbers, integers, floating point numbers and character data, overflow detection while adding binary data.

2. Register Transfer and Microoperations
   2.1 Register and Register Transfer Language
   2.2 Bus and Memory Transfers
   2.3 Arithmetic, Logic and Shift Micro-operations
   2.4 Arithmetic Logic Shift Unit

3. Basic Computer Organization and Design
   3.1 Instruction Codes
   3.2 Computer Registers
   3.3 Computer Instructions
   3.4 Timing and Control
   3.5 Instruction Cycle
   3.6 Input Output and Interrupt
   3.7 End of Chapter 2 and 3 Assignment:
      3.7.1 Circuit Design: Design of Basic Computer

4. Programming the Basic Computer
   4.1 Introduction
   4.2 Machine Language
   4.3 Assembly Language
   4.4 The Assembler
   4.5 Program Loops
   4.6 Programming Arithmetic and Logic Operations
   4.7 Subroutines
4.8 Input Output Programming
4.9 End of Chapter 3 and 4 Assignment:
   4.9.1 Computer Program: Develop assembler which can execute the program written for Basic Computer.

5. Microprogrammed Control  
   5.1 Control Memory  
   5.2 Address Sequencing  
   5.3 Microprogram Example  
     5.3.1 Computer Configuration  
     5.3.2 Microinstruction Format

6. Central Processing Unit  
   6.1 CPU Organizations  
   6.2 Instruction Formats  
   6.3 Addressing Modes  
   6.4 RISC and CISC Characteristics  
   6.5 End of Chapter 5 and 6 Assignment:  
     6.5.1 Computer Program: Write program to illustrate the use of different addressing modes.

7. Pipeline and Vector Processing  
   7.1 Parallel Processing, Flynn’s Classification of Computers  
   7.2 Pipelining  
   7.3 Arithmetic Pipeline  
   7.4 Instruction Pipeline  
   7.5 Pipeline Hazards and Their Solution  
   7.6 Array and Vector Processing  
   7.7 End of Chapter 7 Assignment:  
     7.7.1 Case Study: Available array and vector processor; their application domain  
     7.7.2 Computer Program: write program which simulates instruction pipeline and arithmetic pipeline. Program generates space time diagram considering pipeline hazards.

8. Computer Arithmetic  
   8.1 Addition and Subtraction of Signed Magnitude Data  
   8.2 Addition and Subtraction of Signed 2’s Complement Data  
   8.3 Multiplication of Signed Magnitude Data  
   8.4 Multiplication of Signed 2’s Complement Data  
   8.5 End of Chapter 8 Assignment:  
     8.5.1 Computer Program: Implement all algorithms learned in this chapter.

9. Input and Output Organization  
   9.1 Peripheral Devices  
   9.2 I/O Interface  
   9.3 Asynchronous Data Transfer  
   9.4 Modes of Transfer  
   9.5 Priority Interrupt  
   9.6 Direct Memory Access  
   9.7 I/O Processor
9.8 End of chapter 9 Assignment:
9.8.1 Case Study: Device Independence I/O Software; USB (universal serial bus)

10. Memory Organization LH 4
10.1 Memory Hierarchy
10.2 Main Memory
10.3 Associative Memory
10.4 Cache Memory
10.5 Virtual Memory
10.6 Memory Management Hardware
10.7 End of Chapter 10 Assignment:
   10.7.1 Computer Program: write program to visualize the advantage of using memory hierarchy.

11. Multiprocessor LH 4
11.1 Characteristics of Multiprocessor
11.2 Interconnection Structures
11.3 Inter Processor Arbitration
11.4 Inter Processor Communication and Synchronization
11.5 Cache Coherence
11.6 End of chapter 11 Assignment:
   11.6.1 Case Study: ARM multicore processors and Intel multicore processors
   11.6.2 Computer Program: Simulate cache coherence problem and simulate solution too.

Course Book

References
   David A Patterson and John L. Hennessy, “Computer Organization and design”
   Sajjan G. Shiva, “Computer Design And Architecture”, 3rd edition, Marcel Dekker Inc
STT 201: Business Statistics
(BBA, BIM 3rd Semester)

Credit Hours: 3 Hours

Nature of the course:
Theory and Practical with EXCEL (60% + 40%)
The student must succeed in Theory exam and Practical exam separately

Course Objectives:
This course introduces the students to statistical tools and techniques which are applied to in business decision-making. The course will cover the basic tools used to describe data for the purposes of transforming data into information. In addition, the course will present the fundamentals of statistical inference showing how it is possible to examine a small subset of data to reach conclusions about the larger set of data.

The statistical tools should be introduced from an applied perspective using business related examples. Microsoft Excel software will be used throughout the course to aid in statistical analysis.

Course Content:
Unit 1 Describing Data using Graphs and Tables 4 hrs
Statistics in Business, Frequency distribution, Stem-and-leaf plots, Diagrams and Graphic presentation of Frequency distribution – Histogram, Ogive curve

Unit 2 Describing Data Using Numerical Measures 9 hrs
Measures of Central Tendency (Mean, Median and Mode), Partition values (quartiles, deciles and percentiles), Measures of variation (Range, Inter Quartile Range, quartile deviations), Variance and standard deviation, Coefficient of Variation, Skewness, Kurtosis, Five number summery, Box-Whisker plot,

Unit 3 Probability 5 hrs
Sample Space and Events, Probability, laws of probability, conditional probability, Baye’s theorem.

Unit 4 Probability Distributions 5 hrs
Random variable, Mathematical Expectation , Binomial Distribution, Poisson Distribution, Normal Distribution.

Unit 5 Sampling Theory and Sampling Distributions 4 hrs
Population and Sample, Sampling Methods, Central limit theorem, Sampling Distribution of Mean and Proportion.

Unit 6 Estimation 5 hrs
Estimation, Properties of Good Estimator: Consistency, unbiasedness, efficiency and sufficiency, Point and interval estimates, Margin of Error and Levels of Confidence, Confidence interval estimates for mean and proportion,
Unit 7  Introduction to Hypothesis Testing  7 hrs

Unit 8  Simple Linear Correlation  5 hrs
Scatter plot, Measures to describe correlation, Pearson's product moment correlation coefficient, Correlation Coefficient for Bi-Variate Data, test of significance of Sample Correlation Coefficient using Probable Error, Spearman's rank correlation coefficient

Unit 9  Simple Linear Regression  4 hrs
Linear models, Assumptions of the linear model, Linear regression model, Obtaining the least-squares linear regression model, interpretation of regression Coefficients,

Reference books: