

We are providing here **BCA First Semester Syllabus Pokhara University** Nepal. This syllabus **pdf** is provided by Pokhara University to 1st semster BCA Students. This is the official version and updated from time to time if any changes made by the university in their course. The course of BCA Pokhara university is almost the same as Tribhuvan University. You can download this detailed and simplified BCA first-semester syllabus of Pokhara University.



BCA first semster syllabus pokhara university

### Name of College and scholarships quota:

SN	Name of College	Scholarships seats (Quota)
1	LA Grande International College, Simalchaur, Pokhara Kaski	2
2	Crimson College of Technology, Devinagar Rupandehi	2
3	Oxford College of Engineering and Mangement, Gaidakot, Nawalparasi	5
4	Lumbini Engineering, Management and ScienceCollege, Bhalwari, Butwal Rupandehi	0
5	National Academy of Science and Technology (Dhangadi Engineering College),Dhangadi, Kailali	2
6	Rapti Engineering College, Sital Nagar, Dang	2

All Pokhara Affiliated College

## BCA I Semester: ENG 101.3 English I (3-0-0)

### Evaluation:

	Theory	Practical	Total
Sessional	50	–	50
Final	50	–	50
Total	100	–	100

Marks scheme of BCA first semester english

### Course Objectives:

This BCA course contains informative reading to improve reading skills, exercise to help improve listening skills, effective writing exercises to develop useful techniques in writing and realistic creative writing to give an opportunity to express oneself. The course aims to develop the overall skills in the use of the English language. Especially it aims to:

- Revise and consolidate on what the students have already learned in their +2 or higher secondary course;
- Develop and extend their knowledge further;
- Develop their reading, listening, and writing skills;
- Orient them towards creative writing;
- Polish students "problem areas" of English grammar;
- Develop their vocabulary skills; and
- Develop the knowledge, skills, and practice of functional language needed in different situations.

The method of teaching should be student-centred and activity-oriented with fully practical. Extensive use of audiovisuals and workbooks should be made by the teachers.

### Course Contents of BCA fist semester English:

- Module I

Desert Island, around the world, that's show business!, Food and drink, Crossing the Channel 16 hours

- Module II

Buildings and homes put it in writing. At the third age, It takes all sorts  
 ....communication 16 hours

- Module III

The English- speaking world, Travelers, Love Stories, on business, here  
 is the news 16 hours

### **Text Book of BCA First Semester English:**

1. Jones, Leo: Cambridge Advanced English, Cambridge: CUP

### **Reference book of BCA First Semester English:**

1. Dictionary, Video and Cassettes

## **BCA First Semester MTH 000.3**

### **Mathematics-I (3-0-0)**

Evaluation:

	Theory	Practical	Total
Sessional	50	–	50
Final	50	–	50
Total	100	–	100

Marks scheme of Mathematics – I

Course Objectives:

This course contains aims to provide students with an opportunity to review basic mathematical tools necessary for computer information system core courses.

#### **Course Contents: Unit I: Sets [6 hours]**

Introduction, Types of sets, Venn diagram, and Number of elements in a set.

#### **Unit II: Real Numbers [7 hours]**

Types of real numbers, Absolute value of real numbers, Open and close intervals, Linear inequality their graph, and Mathematical induction.

**Unit III: Limits & Continuity [8 hours]**

Introduction, Limit of a function, Techniques of finding limits, Continuity & discontinuity, Demand & Profit function.

**Unit IV: Differentiation [7hours]**

Introduction, Techniques of differentiation, Derivative of algebraic, exponential, logarithmic & simple trigonometric functions, Higher-order derivative, Application of derivative, Increasing & Decreasing function, Maxima & minima of the function of one variable, Concavity of the function, Inflection point, Average cost & Marginal cost, Average revenue & marginal revenue, Profit maximization under perfect competition and Profit maximization under monopoly.

**Unit V: Functions of Several Variables [7 hours]**

Introduction, Partial derivative, Homogeneous function, Euler's theorem, Differentiation, Second & Higher order differentials, and Implicit functions.

**Unit VI: Symbolic Logics [6 hours]**

Introduction, Statements, Logical connectives, Conjunction, Disjunction, Negation, conditional or Implication, Biconditional, Logical equivalence, Negation of compound events and Tautology & contradiction

**Unit VII: Asymptotes [7 hours]**

Introduction, Determination of asymptotes of algebraic curves, Vertical asymptotes, Horizontal asymptotes, Oblique asymptotes, Asymptotes of Algebraic curves, and Asymptotes of the curve in polar coordinates.

**Text Books of BCA First Semester Mathematics**

1. Yamane, Taro; Mathematics for Economist, Prentice Hall of India.
2. Chaing, Alpha C.: Fundamental Methods of Mathematical Economics, McGraw Hill International.

**Reference Book of BCA First Semester Mathematics:**

1. B.C. Das & N.B. Mukharjee Differential Calculus.

# BCA First Semester CMP 111.3 Computer Fundamental and Application(3-0-3)

Evaluation:

	Theory	Practical	Total
Sessional	30	20	50
Final	50	–	50
Total	80	20	100

Marks Scheme of Computer Fundamentals and Application

## Course Objectives:

3. To know the basics of computer.
4. To understand the basics of operating systems.
5. To understand how to use software packages in the day-to-day.
6. To familiarize computer hardware and general take care.
7. To apply communicative tools (E-mail, Internet, etc.) for common practices.

## Course Contents:

### Unit I: Introduction to Computer [4 hours]

Definition, History of Computer, Generation of Computer, Types of Computer, Characteristics of Computer, Application of Computer

### Unit II: Basic Organization of Computer [3 hours]

Basic function of Computer, Basic functional organization of computer, Input unit, Output unit, Storage unit, Arithmetic, and logic unit, Control unit, Central Processing Unit (CPU) and the system concept.

### Unit III: Computer Software [3 hours]

Introduction to software and hardware, Different between hardware and software, Logical system, architecture, Types of software, Firmware, and Middleware

### Unit IV: Accessories (devices) and Data Handling [8 hours]

The input accessories, Keyboard Devices, Point and Draw Devices, Data Scanning Devices, Digitizer, Electronic Cards Based Devices, Speech Recognition Devices,

Vision-Based Devices, The Output Accessories, Monitor, Prier, Plotter, Computer Output Microfilm (COM), Screen Image Projector, Voice Response Systems, Ergonomically Designed Devices, How to buy a computer (Detailed Configuration), Computer Network, Definition, Types of Computer Network (PAN, LAN, SAN, MAN, and WAN), Network Topologies, Internet and E-mail

### **Unit V: Mastering DOS, Windows [7 hours]**

Introduction, Functions of OS, Types of OS, Different between GUI and TUI/CUI, Booting System and its types (Warm and Cold Booting), The DOS (involves different commonly used command), Windows operating system, settings, properties and installation guides, Software Tools and application (Disk Defragmentation, Scan Disk, System Restore, Partition, etc.)

### **Unit VI: Computer Hardware [13 hours]**

Different Components of Computer, Power supply, Types of power supply, ratings, Concepts of SMPS, UPS, Motherboard, Components of Motherboard, System Chipset, System based, System BIOS, Processor and types, Storage Devices: Primary Memory and Secondary Memory, Types of Primary and Secondary Memory

### **Unit VII: System care guide [10 hours]**

Maintenance, Types of Maintenance, Preventive Maintenance (Various Kinds of Preventive Maintenance), Corrective Maintenance, System Care, System Care Factor (General System Care Factors, environmental care factors, cooling and ventilation care factors, power care factors, data loss, and virus prevention factors, data problem prevention factors), Backups and Disaster Recovery, Backup methods, Devices, and Media

## **Laboratory task of BCA Pokhara University First Semester**

### **Computer Fundamental and appication:**

- Use of windows environment
- Office Automation (MS-Word, Ms-Excel, Ms-Power Point)
- Assembling and Disassembling of Computer 4. E-mail, Internet

### **Reference Books of Computer Fundamentals and Appliation:**

- B. Ram: Computer Fundamentals, New Age International (P) Ltd.

- Foundations of Computing, BPB Publication (Third Edition)
- Gina Courter & Annette Marquis: Microsoft Office 2007/2010, BPB Publications
- Allan Simpsons & Elizabeth Olson: Easy Guide to Windows 2007, BPB Publications

## BCA First Semester CMP 124.3

### Programming Logic and Techniques (3-0-0)

Evaluation:

	Theory	Practical	Total
Sessional	50	–	50
Final	50	–	50
Total	100	–	100

Marks scheme of Programming Logic and Techniques

#### Course Objectives:

This course is designed to acquaint the student with the concept of fundamental problem analysis, modelling, and coding techniques.

#### Course Contents:

##### Unit I: Programming Languages [11 hours ]

Introduction, Analogy with Natural Language, Classification of Computer Language (Low-Level Language and High-Level Language), Low-Level Languages, (Machine and Assembly Language), Advantages and Disadvantages of, Machine Level Language, Advantages of Assembly Language over Machine Level Language, Disadvantages of Assembly Language, High-Level Language, Advantages and Limitations of High-Level Language, Difference between, Low Level and High-Level Language, Program Language Translator, Types of Translator (Compiler, Assembler, and Interpreter), Different among Translator, Linker, and Loader, Types of Linder and Loader, Generation of Computer Languages, 3GL and 4GL, Advantages of 4GL over 3GL, Feature of 4GL (Object-Oriented Language), Machines Independent and Portability of programs and Some Important types of High-Level Language

##### Unit II: Software Development (Program Development) [10 hours]

Intro]duction to programming development/software development, Program Development Life Cycle: Problem identification, Problem Analysis/Requirement Analysis, Program Design, Phases of program Design (Data design, Input, Output, Procedure, File design), Program coding, Program Testing and Debugging, Program Delivery/Implementation & valuation, Program, Maintenance, Documentation, Programming Tools, Algorithm, Flowchart, Decision Table, Pseudocode, Comparison of them, Advantages and Disadvantage of Them, Symbols and some examples

### **Unit III: Programming Technique [8 hours]**

Introduction, Type of Programming Technique (Approaches), Modular, Top-down, bottom-up, Structure and Object-Oriented approach, Advantages and Disadvantages, Program Development Methods (Models), Types of Program Development Models (Waterfall or Traditional model, Prototype or Transformation model, Spiral model, Iterative model, V-model, RAD model, Bog Bang model, Evolutionary models), Advantage and Disadvantages of Waterfall, Prototype and Spiral Model (Simple Introduction to other Models), Cohesion and coupling, Types of Cohesion and Coupling, Use of Cohesion and Coupling in Program Development, Logics Program Development, Types of Logics (Sequential, Selection Iteration, and Recursion), Differentiation, Communication between modules

### **Unit IV: Program Maintenance [8 hours]**

Introduction, Types of Program maintenance (Corrective maintenance, Adoptive maintenance, Perfective maintenance, Emergency maintenance), Problem Areas in Program Maintenance, Cost issues in software maintenance, Impact of software Errors, Program documentation and its standards, Requirements of Documentation, Importance of Documentation, Types of Documentation, Program Specification, System Flow Chart, Elements of System Flowcharts, Examples, Data Flow Diagram, Element of DFD, Leveling the data flow diagram, Idea for Drawing DFD and Examples

### **Unit V: Standalone and Client-Server Programming Concept [8 hours]**

Introduction to standalone Programming concept, Advantage, and limitations of Standalone Programming, Introduction to Client-Server Programming (CSP), Advantages and Disadvantages of CSP, Distinguish between Standalone and Client-Server Programming, Client-Server Programming Architecture, Introduction to Web-based Programming, Advantages and Disadvantages of web-based programs, Architecture of web-based programming, Web-based System and Programming,



Introduction to a few web-based languages and their capabilities, Requirement of Platform-Independents system

### Reference Books of BCA First Semster Programming Language:

- V.K. Jain: Computer Fundamentals, BPB Publication
- Foundations of Computing, BPB Publication (Third Edition)

## BCA First Semester ELX 131.3 Digital Logic Systems (3-1-2)

Evaluation:

	Theory	Practical	Total
Sessional	30	20	50
Final	50	–	50
Total	80	20	100

Marks Scheme Of Digital Logic System Pokhara University

### Course Objectives:

This course aims to develop methods of designing, constructing, and building logic circuits and also to introduce the operation and application of microprocessors. Topics will include basic gates, number system, flip-flops, decoder, encoder, and ALU.

### Course Contents:

Unit I: Number System [6 hours]

Introduction to number systems (Decimal, Binary, Octal, and Hexadecimal), Conversions, Complements subtraction using 1's complement, 2's complement, 9's complement and 10's complement, Application of the complements (1's and 2's) BCD code, Error detection codes, alphanumeric codes, Excess- 3code, Gray code

Unit II: Boolean Algebra and Logic Gates [6 hours]

Introduction to Digital System, Basic theorem and properties of Boolean Algebra (identity law, boundedness law, idempotent law, complement law, commutative law, distributive law, absorption law, associative law, de morgan's law, and involution law) Boolean functions, the complement of boolean function, Digital logic gates and truth tables (AND, OR, NOT, NAND, NOR, XOR, XNOR), Canonical and standard forms, Minterms and max terms, the sum of Minterms, a product of max terms

### Unit III: Simplification of Boolean Functions [6 hours]

The Karnaughmap-2, 3, and 4 variables, Simplification and realization using NAND & NOR gates, Practical design steps

### Unit IV: Combinational Logic with MSI and LSI [8 hours]

Introduction, Design procedures, Half and full adders, Subtractors, Code conversion (BCD to excess-3, 8, 4, -2, -1 code to BCD, 2, 4, 2, 1 code to 8, 4, -2, -1 code), Decoder, Encoder, Multiplexers, and De-multiplexers, BCD to seven segment decoder, ROM and its implementation, PLA

### Unit V: Sequential Logic [10 hours]

Introduction, Flip-Flops: RS flip flop, D-flip flop, J-K flip flop, T flip-flop, Triggering of flip flops, (Positive, negative and level trigger), Master-Slave flip-flop, Analysis of clocked sequential, Circuits with an example, state table, state diagram, state Equation, flip-flop input functions, State reduction and assignment, Flip-Flips excitation Tables and design procedures.

### Unit VI: Registers and Counters [6 hours]

Introduction, Shift Registers (Serial in Serial out, Serial in Parallel out, Parallel in parallel out, parallel in Serial out), Ripple counters (binary ripple counter, BCD ripple counter), Synchronous UP/Down counters, Timing Sequences.

### Unit VII: Processor Logic Design [6 hours]

Introduction, Processor Organization, Bus organization, scratchpad memory, Accumulator Register, Arithmetic Logic Unit (ALU), Design of arithmetic circuit, design of logic circuit.

### Laboratory task for Digital Logic BCA Pokhara University:

1. Verification of basic gates function: OR, AND, NAND, NOR, EX-Or, EX\_NOR)
2. Multiplexers and demultiplexers (using the Principle learned in K-Map)
3. Encoders and decoders (using the principle learned in K-Map)
4. Adder and subtractions, in these laboratory students, will construct a full adder and subtractor using basic design principles.

5. RS, D-Type, clocked D, and master-slave. In this laboratory, students will design and verify the concepts of different flip-flops based on basic logic gates.

6. Design of counters (decade counters and binary counters). Students will design a decade and binary counters verify the concepts using the CAD tools.

7. Design of shift registers (serial in serial out and parallel in parallel out)

#### Reference Books for Digital Logic Systems:

- Malvino: Digital Computer Electronics
- Morris Mano: Digital Logic and Computer Design
- Frederic J. Mowle: A systematic approach to digital logic design