

Gandaki University
Gandaki Province, Pokhara, Nepal

Title: Syllabus

Subject: IT

Faculty: Faculty of Engineering/ICT

Post: Assistant Professor/Lecturer-ICT

Section A: Academic knowledge (subject-oriented)

- I. Background of IT
 1. Basic concept of IT
 2. Knowledge about computer architecture
 3. Problem solving techniques
 4. Technical communication

- II. System design and development
 1. Information system
 2. Basic programming knowledge (E.g., C, C++)
 3. Front end programming language (E.g., Java, .NET)
 4. Backend programming Language (E.g., DBMS)
 5. Machine level programming (E.g., Artificial Intelligence, Python)
 6. Microprocessor
 7. Simulation and modeling

- III. Network and Communication
 1. Communication system
 2. Computer network
 3. Control system

- IV. Data management and analysis
 1. Data mining and warehousing
 2. Software engineering
 3. Image processing and pattern recognition

- V. Basic electrical and electronics
 1. Electronic devices and circuits
 2. Electrical system
 3. Digital logic
 4. Control system
 5. Instrumentation

- VI. Organization and management
 1. Project organization and management
 2. Research methodology
 3. Social and professional issues in IT
 4. Entrepreneurship

- VII. Mathematics
 - 1. Probability and statistics
 - 2. Discrete structure
 - 3. Numerical method
 - 4. Managerial economics

- VIII. Security
 - 1. Information security
 - 2. Cryptography
 - 3. Security protocols

Section B: Specific and advance knowledge testing

- I. Specific knowledge testing
 - 1. Problem solving techniques
 - 2. Information system design
 - 3. Data Structure and algorithm (Structures like Stack, Queue, Tree and Operations like search, sort)
 - 4. Software design
 - a. Front end programming (E.g., Php, Java, Python)
 - b. Back end programming (E.g. My-Sql, MS-Sql, Oracle)
 - 5. Testing (Different levels of testing of the system)
- II. Advanced knowledge testing
 - 1. Software engineering
 - 2. SDLC (Software development life cycle)
 - 3. Validation and verification
 - a. SRS (Software requirement specification)
 - 4. Data analysis (Data mining)
 - 5. Analysis of system
 - a. Feasibility study of the system
 - i. Technical analysis
 - ii. Economical analysis
 - b. Statistical analysis of the system
 - i. Variance analysis
 - ii. Data mining
 - 6. Communication and security

Section C: Contemporary development of IT science

- I. Current status of IT
 - 1. Development and uses of IT in Nepal
 - 2. Issues and existing policy of IT development in Nepal
 - 3. Use of IT
- II. Shaping future of IT
 - 1. Adapting new technological advancement (Accepting emerging IT)

2. Computer-aided design (CAD)
3. Solving existing problems of IT development
4. IT revolution in fields such as government, gaming, social networking, and cloud computing, etc.

Section D: Research methods and advances including knowledge of statistical analysis and tools

I. Methods of research

1. Research design
2. Sampling
3. Variables
4. Hypothesis
5. Primary and secondary data
6. Qualitative and quantitative methods
7. Experiment method

II. Advanced knowledge and tools of statistical analysis

1. Data interpretation
2. Measures of central tendency
3. Sample size estimation
4. Parametric and non-parametric tests

Section E: Knowledge application and system perspective

1. Knowledge management
2. Emerging IT
3. Innovations in IT
4. Relationship between knowledge management and organizational innovation
5. Knowledge-based theory (Information processing approach)
6. Knowledge application
7. R&D (Research and development) & knowledge application