



TRIBHUVAN UNIVERSITY  
INSTITUTE OF SCIENCE AND TECHNOLOGY

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BACHELOR'S IN INFORMATION TECHNOLOGY (BIT)  
CURRICULUM (I, II, III & IV SEMESTER)

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EFFECTIVE FROM 2075/076(2018)

**Tribhuvan University**  
**Institute of Science and Technology**

**Course of Study**

**Bachelors in Information Technology**

**(BIT)**

**2018**

**Eligibility Condition for Admission**

Students who wish to admission in BIT programs:

1. They must have successfully completed twelve years of schooling in any stream.

2. They must have a minimum of second division.

3. They must have successfully passed the entrance examination conducted by Institute of Science

and Technology (IST), TU.

**Prepared by**

**Computer Science and Information Technology Subject Committee**

## **Introduction:**

The Bachelors in Information Technology (BIT) curriculum is designed by closely following the courses practiced in accredited international universities, subject to the condition that the intake students are twelve years of schooling in any stream or equivalent from any recognized board. In addition to the foundation and core Information Technology courses, the program offers several elective courses to meet the undergraduate academic program requirement and to fulfill the demand for development and implementation of new technology.

Students enrolled in the four year BIT program are required to take foundation and core courses of Information technology, courses of mathematics, statistics, management, economics, sociology, psychology, research methodology and technical writing, and some elective courses. All undergraduate students are required to complete 120 credit hours of Information Technology and allied courses, and will have opportunity in the field of software development, information security, database administration, network and system administration, and in all the sectors that develop and/or use Information Technology.

## **Objective:**

The main objective of BIT program is to provide students intensive knowledge and skill to design, develop, and use information technology in different areas. It is envisaged that graduate of this program will be equipped with necessary knowledge of Information Technology to compete in this global world.

## **Eligibility Condition for Admission**

A student who seeks admission to BIT program:

- Should have successfully completed twelve years of schooling in any stream.
- Should have secured a minimum of second division.
- Should have successfully passed the entrance examination conducted by Institute of Science and Technology (IOST), TU.
- Complied with all the application procedures.

## **Course Duration:**

The entire course is of eight semesters (four academic years). There is a separate semester examination after the end of each semester.

### **Hours of Instruction:**

a) Working days: 90 days in a semester

b) Class hours:

- 3 credit hours courses with theory and labs is equivalent to 3 hours lecture and 3 hours lab = 6 working hrs per week.
- 3 credit hours theory-only course is equivalent to 3 hours lecture and 2 hours tutorial = 5 working hrs per week.

### **Evaluation**

Theory course should have internal weightage of 20% and external weightage of 80%. For the course having lab work, the internal weightage is 20%, lab work weightage is 20% and external weightage is 60%. A student should secure minimum of 40% in each category to pass a course. The final score in each course will be the sum of overall weightage of in all categories. There will be a separate practical examination for the 20% weightage of lab work conducted by concerned college in the presence of an external examiner.

The project work and internship are evaluated by different evaluators. To pass project work and internship, students should secure at least 40% marks in the evaluation of each evaluator and final score will be the sum of all the evaluations. For the evaluation of final presentation, an external examiner will be assigned from the IOST:

### **The Grading System**

A student having passed his/her 8 semesters (4 years) of study will be graded as follows:

- **Distinction:** 80 % and above ( 8 semester's average)
- **First Division:** 70 % and above ( 8 semester's average)
- **Second Division:** 55 % and above ( 8 semester's average)
- **Pass Division:** 40 % and above ( 8 semester's average)

### **Attendance Requirement:**

Students are required to attend regularly all theory and practical classes and should maintain 80 percent attendance in each course separately.

### **Final Examination:**

Institute of science and technology, Tribhuvan University, will conduct the final examination at the end of each semester. 80% weightage will be given to the final examination for theory course and 60% will be given for the course having both theory and practical.

## Course Structure:

### Semester I

Course Code	Course Title	Credit Hours	Full Marks
BIT101	Introduction to Information Technology	3	100
BIT102	C Programming and Design	3	100
BIT103	Digital Logic and Communications	3	100
MTH104	Basic Mathematics	3	100
SCO105	Sociology	3	100
<b>Total</b>		<b>15</b>	<b>500</b>

### Semester II

Course Code	Course Title	Credit Hours	Full Marks
BIT151	Microprocessor and Computer Architecture	3	100
BIT152	Discrete Structure	3	100
BIT153	Object Oriented Programming	3	100
STA154	Basic Statistics	3	100
ECO155	Economics	3	100
<b>Total</b>		<b>15</b>	<b>500</b>

### Semester III

Course Code	Course Title	Credit Hours	Full Marks
BIT201	Data Structures and Algorithms	3	100
BIT202	Database Management System	3	100
BIT203	Numerical Methods	3	100
BIT204	Operating Systems	3	100
MGT205	Principles of Management	3	100
<b>Total</b>		<b>15</b>	<b>500</b>

1. Geographical Information System (BIT355)
2. Multimedia Computing (BIT356)
3. Wireless Networking (BIT357)
4. Society and Ethics in IT (BIT358)
5. Psychology (PSY359)

#### Semester IV

Course Code	Course Title	Credit Hours	Full Marks
BIT251	Web Technology I	3	100
BIT252	Artificial Intelligence	3	100
BIT253	Systems Analysis and Design	3	100
BIT254	Network and Data Communications	3	100
ORS255	Operations Research	3	100
Total		15	500

#### Semester V

Course Code	Course Title	Credit Hours	Full Marks
BIT301	Web Technology II	3	100
BIT302	Software Engineering	3	100
BIT303	Information Security	3	100
BIT304	Computer Graphics	3	100
ENG305	Technical Writing	3	100
Total		15	500

#### Semester VI

Course Code	Course Title	Credit Hours	Full Marks
BIT351	NET Centric Computing	3	100
BIT352	Database Administration	3	100
BIT353	Management Information System	3	100
RSM354	Research Methodology	3	100
	Elective I	3	100
Total		15	500

#### List of Electives:

1. Geographical Information System (BIT355)
2. Multimedia Computing (BIT356)
3. Wireless Networking (BIT357)
4. Society and Ethics in IT (BIT358)
5. Psychology (PSY359)

### Semester VII

Course Code	Course Title	Credit Hours	Full Marks
BIT401	Advanced Java Programming	3	100
BIT402	Software Project Management	3	100
BIT403	E-commerce	3	100
BIT404	Project work	3	100
	Elective II	3	100
<b>Total</b>		<b>15</b>	<b>500</b>

#### List of Electives:

1. DSS and Expert System (BIT405)
2. Mobile Application Development (BIT406)
3. Simulation and Modeling (BIT407)
4. Cloud Computing (BIT408)
5. Marketing (MGT409)

### Semester VIII

Course Code	Course Title	Credit Hours	Full Marks
BIT451	Network and System Administration	3	100
BIT452	E Governance	3	100
BIT453	Internship	6	200
	Elective III	3	100
<b>Total</b>		<b>15</b>	<b>500</b>

#### List of Electives:

1. Data Warehousing and Data Mining (BIT454)
2. Knowledge Management (BIT455)
3. Image processing (BIT456)
4. Network Security (BIT457)
5. Introduction to Telecommunications (BIT458)

## Introduction to Information Technology

**Course Title:** Introduction to Information Technology

**Course No:** BIT101

**Nature of the Course:** Theory + Lab

**Semester:** I

**Full Marks:** 60 + 20 + 20

**Pass Marks:** 24 + 8 + 8

**Credit Hrs:** 3

### Course Description:

This course covers basic concepts of computers, computer hardware, memory, input/output devices, computer software, data representation, database, computer networks, internet, computer security and applications of IT.

### Course Objectives:

The main objective of this course is to provide basic knowledge of fundamental concepts of computer system and Information Technology.

### Course Contents:

#### Unit 1: Introduction to Computer (4 Hrs.)

Introduction of Computer; Characteristics of Computer; History of Computer; Generations of Computer; Digital and Analog Computers; Classification of Computer based on size; The Computer System; Application of Computers

#### Unit 2: Computer Hardware (8 Hrs.)

Introduction; Central Processing Unit; Components of CPU, Instruction Format; Instruction Set; Instruction Cycle; Microprocessor; Computer Bus, Components of Computer Cabinet(power supply, motherboard, memory chips, expansion slots, ports and interface, processor, cables and storage devices)

Computer Memory: Memory Representation; Memory Hierarchy; CPU Registers; Cache Memory; Primary Memory(RAM, ROM); Secondary Memory (Magnetic Tape; Magnetic Disk; Optical Disk; Magneto-Optical Disk, Flash Memory Device), Access Types of Storage Devices (sequential and direct)

Input and Output Devices: Input-Output Unit; Input Devices; Human Data Entry Devices; Source Data Entry Devices; Output Devices; I/O Port; I/O System

#### Unit 3: Computer Software (6 Hrs.)

Introduction; Types of Software; System Software; Application Software; Operating System (Introduction, Objectives of Operating System, Types of OS, Functions of OS, Process Management, Memory Management, File Management, Device Management, Protection and Security, User Interface, Examples of Operating Systems); Device Drivers and Utility Software; Programming Languages, Language Translators: assembler, compiler; Software Licensing, Open Source Software; Case study: Unix Vs Windows

4. Introduction to Information Technology, E. Turban  
5. Information Technology for Management, E. Turban, C. Pollard, G. Wood, Wiley Publication  
6. Information Technology for Management, Henry C. Lucas, Jr.

**Unit 4: Data Representation (5 Hrs.)**

Introduction; Number System; Conversion from Decimal to Binary, Octal, Hexadecimal; Conversion of Binary, Octal, Hexadecimal to Decimal; Conversion of Binary to Octal, Hexadecimal; Conversion of Octal, Hexadecimal to Binary; Binary Arithmetic

**Unit 5: Computer Networks and Internet Services (10 Hrs.)**

Introduction; Importance of Networking; Data Transmission Media (Twisted pair, coaxial cable, optical fiber, RF transmission, microwave transmission, satellite transmission); Data Transmission across Media; Data Transmission and Data Networking; Computer Network; Network Types; Network Topology; Communication Protocol; Network Devices; Wireless Networking

Internet; History of Internet; Internetworking Protocol; The Internet Architecture; Managing the Internet; Internet Connections; Internet Address; WWW, Domain Name System, Internet Services; E-mail and its working principle; E-commerce and E-governance; Web 2.0; Internet of Things (IoT); Wearable Computing; Cloud Computing; Smart City; Case Study: ISP in Nepal and their services

**Unit 6: Database Systems (5 Hrs.)**

Introduction; Database; Database System; Database Management System; Database System Architectures; Data Models, Database Applications; Introduction to Data Warehousing, Data mining, and BigData

**Unit 7: Computer Security (4 Hrs.)**

Introduction; Security Threat and Security Attack; Malicious Software; Security Mechanisms (Cryptography, Digital Signature, Firewall, Users Authentication, Intrusion Detection Systems); Security Awareness; Security Policy

**Unit 8: Application and Impact of IT (3 Hrs.)**

Applications of IT; Impact of IT on Organization and individuals; Societal Impacts of IT, IT Strategic Planning, IT and Business Alignment

**Laboratory Works:**

The laboratory work includes realizing hardware components of computer, using operating systems, Word Processors, Spreadsheets, Presentation Graphics, Database Management Systems, and Internet and its services.

**Text Books:**

1. Computer Fundamentals, Anita Goel, Pearson Education India

**Reference Books:**

1. Introduction to Computers. Peter Norton, 7<sup>th</sup> Edition, McGraw Hill Education
2. Fundamentals of Information Technology, Leon and Leon
3. Computer Fundamental, Pradeep K. Sinha and Priti Sinha
4. Introduction to Information Technology, E. Turban
5. Information Technology for Management, E. Turban, C. Pollard, G. Wood, Wiley Publication
6. Information Technology for Management, Henry C. Lucas, Jr.

## C Programming

**Course Title:** C Programming

**Course No:** BIT102

**Nature of the Course:** Theory + Lab

**Semester:** I

**Full Marks:** 60 + 20 + 20

**Pass Marks:** 24 + 8 + 8

**Credit Hrs:** 3

### Course Description:

This course familiarizes students with basic principles of programming. It introduces structured programming paradigm using a high level language called C. It covers the concept of problem solving techniques, program design, and basic elements of C along with the detailed concept of operators, statements, arrays, functions, pointers, structures and file handling.

### Course Objective:

The main objective of this course is to acquaint the students with good program design through structured programming paradigm for developing programs for specific tasks using C Programming Language as well as to present the syntax and semantics of the "C" language.

### Course Contents:

#### Unit 1: Introduction (3 Hrs.)

History and advantages of C; Problems analysis, algorithm and flowchart; Structure of a C Program; Writing, compiling, debugging, executing and testing a C Program in windows and Unix/Unix like environment

#### Unit 2: Elements of C (3 Hrs.)

C Tokens; C Character Sets; Data types, Constants and Variables; Expression, statements and comments; Escape sequences and Delimiters

#### Unit 3: Input/output function (2 Hrs.)

Conversion Specifiers; I/O functions; Formatted I/O

#### Unit 4: Operators and Expression (4 Hrs.)

Arithmetic operators; Relational operators; Logical operators; Assignment operators; Type conversion in assignment; Increment and decrement operators; Ternary operator; Bitwise operator; Other operators (comma, sizeof); Expression evaluation; Operator precedence and associativity

#### Unit 5: Control Structures (8 Hrs.)

Introduction to selection and iterative statements; GOTO and labels; Selection statements: if, if..else, if..else if ladder, nested if, switch case; Conditional operator; Iterative statement: For Loop, While Loop, Do while Loop, Nested Loop; The odd loop; Controlling the loop execution – break and continue

#### Unit 5: Arrays and Strings (5 Hrs.)

Introduction to Arrays; Initializing Arrays; The meaning of array indexing; One dimensional and Multidimensional Arrays; String and Basic functions dedicated to string manipulation

#### **Unit 6: Functions (6 Hrs.)**

Introduction and types of functions; Declaring, Defining and calling functions; Arguments and Return Statement; Recursive functions; Function call by value and reference; Variables' scope, local variables and function parameters; Arrays as function parameter; Void as a parameter; Parameterizing the main function; External function and variables; Header files; Static variables; Register Variables

#### **Unit 7: The C Preprocessor (2 Hrs.)**

Features of C Preprocessor; Macro Expansion; Macros with Arguments; Macros versus Functions; File Inclusion; Conditional Compilation; #if and #elif Directives; #undef Directive; #pragma Directive; The Build Process; Preprocessing; Compiling; Assembling; Linking; Loading

#### **Unit 8: Pointers (5 Hrs.)**

Introduction of Pointers, declaration and initialization of pointer variables; An address, a reference, a dereference and the sizeof operator; Pointer to nothing (NULL); Pointer assignment; Pointer Arithmetic; Pointer as argument and Pointer as return values; Pointers vs. arrays; Dynamic memory allocation

#### **Unit 9: Structure and Unions (5 Hrs.)**

Definition of Structure; Array of structures; Passing structure and array of structure to function; Pointers to structures and arrays of structures; Self-referential structures; Typedef; Table Lookup; Unions

#### **Unit 10: File Handling (2 Hrs.)**

Files vs. streams; Header files needed for stream operations; Opening and closing a stream, open modes, errno variable; Reading and writing to/from a stream; Predefined streams: stdin, stdout and stderr; Stream manipulation: fgetc(), fputc(), fgets() and fputs() functions; Raw input/output: fread() and fwrite() functions; Random access to files

#### **Laboratory Works:**

Laboratory work emphasizes the verification of programming concepts learned in class. Therefore, each unit should include sufficient practical lab exercise.

#### **Text / Reference Books:**

1. Let Us C, Yashavant P. Kanetkar
2. Brian Kernighan and Dennis Ritchie, The C Programming Language
3. Byron Gottfried, Programming with C, McGraw Hill Education

## Digital Logic

**Course Title:** Digital Logic  
**Course No:** BIT103  
**Nature of the Course:** Theory + Lab  
**Semester:** I

**Full Marks:** 60 + 20 + 20  
**Pass Marks:** 24 + 8 + 8  
**Credit Hrs:** 3

### Course Description:

This course familiarizes students with Number System, Digital Design Fundamentals, Understand and Design Functions of Combinational Logic, Sequential Logic (Counters, Registers and Finite State Machine), Memories, Programmable Logic Devices Integrated Circuit Technologies.

### Course Objective:

To provide the concepts used in the design and analysis of digital systems and introduces the principles of digital computer organization and design.

### Course Contents:

#### Unit 1: Number Systems, Operations and Codes (6 Hrs.)

Introduction to Number System, Decimal, Binary, Octal, Hexadecimal Number Systems, Conversion from one number system to another, Complements of Numbers, Addition and Subtraction of Binary Numbers, Binary Codes and Error Detection Codes

#### Unit 2: Digital Design Fundamentals and Boolean algebra (8 Hrs.)

Digital and Analog Signals, Logic Operations, Introduction to the System Concept, Logic Gates (Basic Gates, Derived Gates, Universal Gates), Logic Function and Boolean Algebra

#### Unit 3: Simplification of Boolean Functions (5 Hrs.)

K-map, Two and Three variable maps, Four variable maps, product of sum simplification, NAND and NOR implementation, Don't Care conditions

#### Unit 4: Combinational Logic (7 Hrs.)

Adders and Subtractors, Parallel Binary Adders, Multiplexers and Demultiplexers, Encoders and Decoders. Seven segment decoder, Code Converters

#### Unit 5: Sequential Logic (4 Hrs.)

Latches, Edge-Triggered Flip-Flops, Flip-Flop Operating Characteristics, Flip-Flop Application

#### Unit 6: Counters, Registers and Memory (9 Hrs.)

Asynchronous Counters, Synchronous Counters, Up/Down Counters, Counter Applications, Basic Shift Register Operations, Shift Register Types, Bidirectional Shift Registers, Shift Register Counters, Basic Memory Operations and memory types

#### Unit 7: Processor Logic Design (6 Hrs.)

Processor Organization, Arithmetic Logic Unit, Design of Arithmetic Circuit, Design of Logic Circuit, Design of Arithmetic Logic Unit, Status Register, Design of Shifter

### Laboratory Works:

- Familiarization with Logic Gates
- Encode and Decodes
- Multiplexer and De-Multiplexer
- Design of simple combination Circuits
- Design of Adder/combination Circuits
- Design of Flip Flop
- Clock driven sequential circuits
- Conversion of parallel data into serial format
- Generation of timing signal for sequential system

### Text Book:

- Mano M.M., *Digital logic and Computer Design*, Pearson Education

### References Books:

- Mano M.M. and Ciletti M. M, *Digital Design*, 4<sup>th</sup> edition
- Brown S. and Vranesic Z., *Fundamentals of Digital Logic with VHDL Design*, 3rd edition, McGraw Hill
- Rafiquzzaman M., *Fundamentals of Digital Logic and Microcomputer Design*, 5th edition. John Wiley & Sons, Inc.
- Holdsworth B. and Woods C., *Digital Logic Design*, 4th edition
- Mano M. M, Kime C. R , *Logic and computer design fundamentals*, 2nd edition

### Unit 2: Limits and Continuity (3 Hrs.)

Limit of a Function and Limit Laws, The Precise Definition of a Limit, One-Sided Limits, Continuity, Limits involving infinity, Asymptotes of Graphs.

### Unit 3: Differentiations (5 Hrs.)

Tangents and the Derivative at a Point, The Derivative as a Function, The Derivative as a Rate of Change, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Derivatives of Inverse Functions and Logarithms, Inverse Trigonometric Functions, Related Rates.

### Unit 4: Applications of Derivatives (5 Hrs.)

Extreme values of functions, The Mean value theorem, Monotonic functions and the first derivative test, Concavity and Curve sketching, Indeterminate forms and L'Hôpital's rule, Applied optimization, Newton's method.

### Unit 5: Integration (5 Hrs.)

Antiderivatives, Area and estimating with finite sums, Sigma notation and Limits of finite sums, The definite integral, The Fundamental theorem of calculus, Indefinite integrals and the substitution method, Double and Area between curves.

## Basic Mathematics

**Course Title:** Basic Mathematics

**Course No:** MTH104

**Nature of the Course:** Theory

**Semester:** I

**Full Marks:** 80 +20

**Pass Marks:** 32 + 8

**Credit Hrs:** 3

### Course Description:

This course familiarizes students with functions, limits, continuity, differentiation, integration of function of one variable, logarithmic, exponential, applications of derivative and antiderivatives, differential equations, partial derivatives.

### Course Objectives:

1. Students will be able to understand and formulate real world problems into mathematical statements.
2. Students will be able to develop solutions to mathematical problems at the level appropriate to the course.
3. Students will be able to describe or demonstrate mathematical solutions either numerically or graphically.

### Course Contents:

#### Unit 1: Functions Limits and Continuity (5 Hrs.)

Functions and Their Graphs, Combining Functions; Shifting and Scaling Graphs, Trigonometric Functions, Graphing with Calculators and Computers, Exponential Functions, Inverse Functions and Logarithms, Rates of Change and Tangents to Curves.

#### Unit 2: Limits and Continuity (3 Hrs.)

Limit of a Function and Limit Laws, The Precise Definition of a Limit, One-Sided Limits, Continuity, Limits Involving Infinity; Asymptotes of Graphs.

#### Unit 3: Differentiations (5 Hrs.)

Tangents and the Derivative at a Point, The Derivative as a Function, The Derivative as a Rate of Change, Derivatives of Trigonometric Functions, The Chain Rule, Implicit Differentiation, Derivatives of Inverse Functions and Logarithms, Inverse Trigonometric Functions, Related Rates.

#### Unit 4: Applications of Derivatives (5 Hrs.)

Extreme values of functions, The Mean value theorem, Monotonic functions and the first derivative test, Concavity and Curve sketching, Indeterminate forms and L'Hôpital's rule, Applied optimization, Newton's method.

#### Unit 5: Integration (5 Hrs.)

Antiderivatives, Area and estimating with finite sums, Sigma notation and Limits of finite sums, The definite integral, The Fundamental theorem of calculus, Indefinite integrals and the substitution method, Substitution and Area between curves.

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**Unit 6: Applications of Definite Integrals (3 Hrs.)**

Volumes using cross-sections, Volumes using cylindrical Shells, Arc length, Areas of surfaces of revolution, Work and fluid forces, Moments and centers of mass

**Unit 7: Techniques of Integrations (5 Hrs.)**

Integration by parts, Trigonometric integrals, Trigonometric substitutions, Integration of rational functions by partial fractions, Integral tables and computer algebra systems, Numerical integration, Improper integrals.

**Unit 8: First Order Differential Equations (4 Hrs.)**

Solutions, Slope Fields, and Euler's method, First order linear equations, Applications, Graphical solutions of Autonomous equations, Systems of equations and phase planes.

**Unit 9: Infinite Sequence and Series (5 Hrs.)**

Sequences, Infinite series, The Integral test, Comparison tests, The Ratio and root tests, Alternating series, Absolute and Conditional convergence, Power series, Taylor and Maclaurin series, Convergence of Taylor series.

**Unit 10: Partial Derivatives (5 Hrs.)**

Functions of several variables, Limits and continuity in higher dimensions, Partial derivatives, The Chain rule, Directional derivatives and gradient vectors, Tangent planes and differentials, Extreme values and saddle points Lagrange multipliers, Taylor's formula for two variables, Partial derivatives with constrained variables.

**Text/Reference Book:**

Maurice D. Weir and Joel Hass, Thomas' Calculus, Early Transcendentals, 12<sup>th</sup> Edition, 2009.

**Course Contents:****Unit 1: Introduction (9 Hrs.)**

- What is sociology? Sociological viewpoint; the origins of sociology; perspectives within sociology; sociology and social concerns; sociology's four realms.
- Relationship between sociology and other social and natural sciences: focus on sociology and information technology; biology, chemistry, anthropology, psychology, management, education, law, etc.
- Traditional society and technological society
- Sociology and the twenty-first century

**Unit 2: The Fundamentals of Society (9 Hrs.)**

- Culture, culture and human intelligence; culture, nation and society
- The components of culture: symbols, language, values, norms, ritual and material culture; material culture and technology; new information technology and culture
- Development of culture and the world; cultural universals; globalization, diffusion, and technology

## Sociology

**Course Title:** Sociology

**Course No:** SCO105

**Nature of the Course:** Theory

**Semester:** I

**Full Marks:** 80 + 20

**Pass Marks:** 32 + 8

**Credit Hrs:** 3

### Course Description:

This course familiarizes students with the subject matter of sociology in terms of broader understanding of society in relation to information technology. It helps students understand the importance of sociology as its relationship to other sciences. More importantly, it enhances the capability of understanding and analyzing society so that they can apply information technology with better understanding of social structure, social system, social processes, and social institutions to bring social change using new information technology.

### Course Objectives:

At the end of this course, students will be able to:

- Describe sociology and discuss its relationship to other sciences (social sciences; history, psychology, anthropology, economics and political science including management and education as well as pure sciences; information technology, biology, and so on).
- Comprehend and explain the fundamental sociological concepts.
- Discuss social structure, social system, social processes, etc. in relation to information technology
- Analyze social structure, social system, cultural practices and develop a framework of applying new information technology in proper way.

### Course Contents:

#### Unit 1: Introduction (9 Hrs.)

- a) What is sociology? Sociological viewpoint; the origins of sociology; perspectives within sociology; sociology and social concerns; sociology's four realms.
- b) Relationship between sociology and other social and natural sciences: focus on sociology and information technology; biology; chemistry; anthropology; psychology; management; education; law, etc.
- c) Traditional society and technological society
- d) Sociology and the twenty first century

#### Unit 2: The Fundamentals of Society (9 Hrs.)

- a) Culture: culture and human intelligence; culture, nation, and society
- b) The components of culture: symbols; language; values and beliefs; norms; ideal and real culture; material culture and technology; new information technology and culture
- c) Development of culture around the world: cultural universals; globalization, diffusion, and technology

### Unit 3: The Social Structure (12 Hrs.)

- a) The sustaining forces of codes and custom: the more and social control; the major forms of social codes; social codes and the individual life
- b) The major forms of social structure: types of social groups; the family; the community; city, country, and region; social class and caste; ethnic and racial groups; herd, crowd, and mass communication; associations and interests; the great association: political and economic; functional systems
- c) Information technology and social structure

### Unit 4: Social Institutions and Processes (9 Hrs.)

- a) Social structure, societies and civilizations
- b) Science, technology and society
- c) Economic institutions,
- d) Political institutions,
- e) The family and kinship
- f) Social differentiation and stratification

### Unit 5: Social Change (6 Hrs.)

- a) Change, development, progress
- b) Factors in social change
- c) Modernity
- d) Post-modernity
- e) Globalization and changing world

### Unit 6: Application of Sociology (3 Hrs.)

- a) Sociology, social policy and social planning,
- b) Social problems

### Required Readings:

#### Unit 1: Introduction

- Curry, Tim, Jiobu, Robert and Schwirian, Kent. 2008. *Sociology for the Twenty First Century*. Fifth Edition. Pp. 1-25. New Jersey: Pearson Prentice Hall.
- Schaefer, Richard T. 2006. *Sociology: A Brief Introduction*. Sixth Edition. Pp. 3-26. New Delhi: TATA MCGRAW-HILL.
- Inkeles, Alex. 2001. *What is sociology? An introduction to the discipline and profession*. Pp. 1-17; 18-24; 28-46. New Delhi: Prentice Hall of India pvt. Ltd.
- Macionis, John J. 1987. *Sociology*. Eighth Edition. Pp. 1-24. New Jersey: Prentice Hall of India.
- Haralambos, M. And Heald, R. M. 2009. *Sociology: Themes and Perspectives*. Thirty-fourth Impression. Pp. 1-23. New Delhi: Oxford University Press.
- MacIver, R.M. & Page, C.H. 2001. *Society: An Introductory Analysis*. Reprinted. Pp. 1-23. New Delhi: MACMILLAN.
- Rocher, Guy. 2004. *A General Introduction to Sociology: A Theoretical Perspective*. Pp. 2-5; 210-255. Calcutta, India: Academic Publishers.
- McQuail, Denis. 1985. Sociology of Mass Communication. *Annual Review of Sociology*, Vol. 11 (1985), pp. 93-111. Stable URL: <http://www.jstor.org/stable/2083287>; Accessed: 05-10-2017 07:12 UTC.

- Buttel, Frederick H. 1991 September. Beyond Deference and Demystification in the Sociology of Science and Technology: A Reply to Otero. *Sociological Forum*, Vol. 6, No. 3 (Sep., 1991), pp. 567-577. Stable URL: <http://www.jstor.org/stable/684519>; Accessed: 05-10-2017 07:18 UTC.
- Castells, Manuel. 2000, Sep. Toward a Sociology of the Network Society. *Contemporary Sociology*, Vol. 29, No. 5 (Sep., 2000), pp. 693-699. Stable URL: <http://www.jstor.org/stable/2655234>; Accessed: 05-10-2017 07:19 UTC.
- Wynn, Jonathan R. 2009 June. Digital Sociology: Emergent Technologies in the Field and the Classroom. *Sociological Forum*, Vol. 24, No. 2 (Jun., 2009), pp. 448-456. Stable URL: <http://www.jstor.org/stable/40210412>; Accessed: 05-10-2017 07:23 UTC.
- Woolgar, Steve. 1985 November. Why not a Sociology of Machines? The Case of Sociology and Artificial Intelligence. *Sociology*, Vol. 19, No. 4 (November 1985), pp. 557-572. Stable URL: <http://www.jstor.org/stable/42853468>; Accessed: 05-10-2017 07:22 UTC.
- Rafael, Erwin F. 2013 July-December. Technology as a Social System: A Systems Theoretical Conceptualization. *Philippine Sociological Review*, Vol. 61, No. 2, Classical Sociological Theory in Contemporary Practice. (July-December 2013), pp. 319-347. Stable URL: <http://www.jstor.org/stable/43486378>; Accessed: 05-10-2017 07:30 UTC.

## Unit 2: The Fundamentals of Society

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