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AISECT UNIVERSITY™

JHARKHAND, HAZARIBAG AN AISECT GROUP UNIVERSITY

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SCHEME OF EXAMINATION AND DETAILED SYLLABUS

Faculty of CS & IT

Bachelor of Science (B.Sc. IT)

(Duration- 3 Years)

(For 2019 Batch)

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BATCHLOR OF SCIENCE (INFORMATION TECHNOLOGY)

Duration: 36 Months (3Years) Eligibility: 12th with (PCM)

COURSE STRUCTURE OF B.SC (IT) SEMESTER I													
Course Details				**External Assessment**		**Internal Assessment**				**Credit Distribution**			**Allotted Credits**
Course Code	**Course Type**	**Course Title**	**Total Marks**	**Major**		**Minor**		**Sessional**		**L**	**T**	**P**	**Subject wise Distribution**
				Max Marks	**Min Marks**	**Max Marks**	**Min Marks**	**Max Marks**	**Min Marks**				
Theory Group													
3MBFE101	**Ability Enhancement**	Fundamental of Entrepreneurship	50	25	08	10	04	15	6	2	-	-	2
3IBIT 101	**Core Course**	Fundamentals of Computers & Information Technology	100	50	17	20	08	30	12	4	-	-	4
3IBIT 103	**Core Course**	Problem solving methodologies & programming in C	100	50	17	20	08	30	12	4	-	-	4
3IBEC 101	**Core Course**	Basic Electronics - I	100	50	17	20	08	30	12	4	-	-	4
3IBMA 101	**Core Course**	Advanced Calculus and Matrices	100	50	17	20	08	30	12	4	-	-	4
Practical Group				**Term End Practical Exam**				**Sessional**					
3IBIT101	**Practical**	Fundamentals of Computers & Information Technology	50	25	08	-	-	25	10	-	-	2	**2**
3IBIT103	**Practical**	C Programming	50	25	08	-	-	25	10	-	-	2	**2**
Grand Total			**550**	**-**		**-**		**-**	**-**	**-**	**-**	**-**	**22**

Minimum Passing Marks are equivalent to Grade D **L- Lectures T- Tutorials P- Practical**

Major- Term End Theory Exam/ Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

BATCHLOR OF SCIENCE (INFORMATION TECHNOLOGY)

Duration: 36 Months (3Years) Eligibility: 12th with (PCM)

COURSE STRUCTURE OF B.SC (IT) SEMESTER II													
Course Details				**External Assessment**		**Internal Assessment**				**Credit Distribution**			**Allotted Credits**
Course Code	**Course Type**	**Course Title**	**Total Marks**	**Major**		**Minor**		**Sessional**		**L**	**T**	**P**	**Subject wise Distribution**
				Max Marks	**Min Marks**	**Max Marks**	**Min Marks**	**Max Marks**	**Min Marks**				
Theory Group													
3HBHL101	**Ability Enhancement**	हिन्दी भाषा और संरचना	50	25	08	10	04	15	6	2	-	-	2
3IBIT 202	**Core Course**	Object Oriented Programming with c++	100	50	17	20	08	30	12	4	-	-	4
3IBIT201	**Core Course**	Data Base Management Systems	100	50	17	20	08	30	12	4	-	-	4
3IBMA201	**Core Course**	Discrete Structures	100	50	17	20	08	30	12	4	-	-	4
3IBEC201	**Core Course**	Basic Electronics & Instrumentation –II	100	50	17	20	08	30	12	4	-	-	4
Practical Group				**Term End Practical Exam**				**Sessional**					
3IBIT202	**Practical**	Programming with C++	50	25	08	-	-	25	10	-	-	2	2
3IBIT201	**Practical**	Data Base Management Systems	50	25	08	-	-	25	10	-	-	2	2
Skill Courses								**Sessional**					
3SCIT 201	**Skill Enhancement**	Skill Enhancement Elective Course I	50	-	-	-	-	50	20	1	-	1	2
Grand Total			**600**	**-**		**-**		**-**	**-**	**19**	**-**	**5**	**24**

Minimum Passing Marks are equivalent to Grade D **L- Lectures T- Tutorials P- Practical**

Major- Term End Theory Exam/ Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

Skill Elective I – Any other course being offered in this semester as per the list given at the end of course structure.

BATCHLOR OF SCIENCE (INFORMATION TECHNOLOGY)

Duration: 36 Months (3Years) Eligibility: 12th with (PCM)

COURSE STRUCTURE OF B.SC (IT) SEMESTER III													
Course Details				**External Assessment**		**Internal Assessment**				**Credit Distribution**			**Allotted Credits**
Course Code	**Course Type**	**Course Title**	**Total Marks**	**Major**		**Minor**		**Sessional**		**L**	**T**	**P**	**Subject wise Distribution**
				Max Marks	**Min Marks**	**Max Marks**	**Min Marks**	**Max Marks**	**Min Marks**				
Theory Group													
3HBEL401	**Ability Enhancement**	English Language and Scientific Temper	50	25	08	10	04	15	6	2	-	-	2
3IBIT 301	**Core Course**	Data structure	100	50	17	20	08	30	12	4	-	-	4
3IBIT 303	**Core Course**	Web Technology	100	50	17	20	08	30	12	4	-	-	4
3IBIT 304	**Core Course**	Introduction to Information Technology	100	50	17	20	08	30	12	4	-	-	4
3IBMA 301	**Core Course**	Counting Principles, Probability and Statistics	100	50	17	20	08	30	12	4	-	-	4
Practical Group				**Term End Practical Exam**				**Sessional**					
3IBIT301	**Practical**	Data Structure	50	25	08	-	-	25	10	-	-	2	2
3IBIT303	**Practical**	Web Technology	50	25	08	-	-	25	10	-	-	2	2
Skill Courses								**Sessional**					
3SCIT 301	**Skill Enhancement**	Skill Enhancement Elective Course II	50	-	-	-	-	50	20	1	-	1	2
Grand Total			**600**	**-**		**-**		**-**	**-**	**19**	**-**	**5**	**24**

Minimum Passing Marks are equivalent to Grade D

L- Lectures T- Tutorials P- Practical

Major- Term End Theory Exam/ Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

Skill Elective II – Any other course being offered in this semester as per the list given at the end of course structure.

BATCHLOR OF SCIENCE (INFORMATION TECHNOLOGY)

Duration: 36 Months (3Years) Eligibility: 12th with (PCM)

COURSE STRUCTURE OF B.SC (IT) SEMESTER IV													
Course Details				**External Assessment**		**Internal Assessment**				**Credit Distribution**			**Allotted Credits**
Course Code	**Course Type**	**Course Title**	**Total Marks**	**Major**		**Minor**		**Sessional**		**L**	**T**	**P**	**Subject wise Distribution**
				Max Marks	**Min Marks**	**Max Marks**	**Min Marks**	**Max Marks**	**Min Marks**				
Theory Group													
3HBEL501	**Ability Enhancement**	Introduction to soft skill & Team Building	50	25	08	10	04	15	6	2	-	-	2
3IBIT401	**Core Course**	Computer Networks	100	50	17	20	08	30	12	4	-	-	4
3IBIT402	**Core Course**	Operating System Concepts	100	50	17	20	08	30	12	4	-	-	4
3IBIT403	**Core Course**	E-Commerce and Governance	100	50	17	20	08	30	12	4	-	-	4
3IBEC 401	**Core Course**	Data Communication	100	50	17	20	08	30	12	4	-	-	4
Practical Group				**Term End Practical Exam**				**Sessional**					
3IBIT401	**Practical**	Computer communication & networks	50	25	08	-	-	25	10	-	-	2	**2**
3IBIT402	**Practical**	Operating System Concepts	50	25	08	-	-	25	10	-	-	2	**2**
Grand Total			**550**	**-**		**-**		**-**	**-**	**-**	**-**	**-**	**22**

Minimum Passing Marks are equivalent to Grade D

L- Lectures T- Tutorials P- Practical

Major- Term End Theory Exam/ Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

BATCHLOR OF SCIENCE (INFORMATION TECHNOLOGY)

Duration: 36 Months (3Years) Eligibility: 12th with (PCM)

COURSE STRUCTURE OF B.SC (IT) SEMESTER V													
Course Details				**External Assessment**		**Internal Assessment**				**Credit Distribution**			**Allotted Credits**
Course Code	**Course Type**	**Course Title**	**Total Marks**	**Major**		**Minor**		**Sessional**		**L**	**T**	**P**	**Subject wise Distribution**
				Max Marks	**Min Marks**	**Max Marks**	**Min Marks**	**Max Marks**	**Min Marks**				
Theory Group													
3HBHP401	**Ability Enhancement**	Human Values & Ethics	50	25	08	10	04	15	6	2	-	-	2
3IBIT501	**Core Course**	Professional Elective I	100	50	17	20	08	30	12	4	-	-	4
3IBIT502	**Core Course**	Professional Elective II	100	50	17	20	08	30	12	4	-	-	4
3IBIT503	**Core Course**	GUI Programming With Visual Basic.Net	100	50	17	20	08	30	12	4	-	-	4
3IBIT504	**Core Course**	Java Technology	100	50	17	20	08	30	12	4	-	-	4
Practical Group				**Term End Practical Exam**				**Sessional**					
3IBIT502	**Practical**	Vb.Net	50	25	08	-	-	25	10	-	-	2	2
3IBIT503	**Practical**	Java Technology	50	25	08	-	-	25	10	-	-	2	2
Skill Courses								**Sessional**					
3SCIT 501	**Skill Enhancement**	Skill Enhancement Elective Course III	50	-	-	-	-	50	20	1	-	1	2
Grand Total			**600**	-		-		-	-	**19**	-	**5**	**24**

Minimum Passing Marks are equivalent to Grade D **L- Lectures T- Tutorials P- Practical**
Major- Term End Theory Exam/ Practical Exam
Minor- Pre University Test
Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%
Professional Elective I-3IBIT501A Management Information System,3IBIT501B- Artificial Intelligence and Expert System
Professional Elective II-3IBIT502A Cyber Law & Forensic ,3IBITB 502B- Information Security

Skill Elective III – Any other course being offered in this semester as per the list given at the end of course structure.

BATCHLOR OF SCIENCE (INFORMATION TECHNOLOGY)

Duration: 36 Months (3Years) Eligibility: 12th with (PCM)

COURSE STRUCTURE OF B.SC (IT) SEMESTER VI													
Course Details				**External Assessment**		**Internal Assessment**				**Credit Distribution**			**Allotted Credits**
Course Code	**Course Type**	**Course Title**	**Total Marks**	**Major**		**Minor**		**Sessional**		**L**	**T**	**P**	**Subject wise Distribution**
				Max Marks	**Min Marks**	**Max Marks**	**Min Marks**	**Max Marks**	**Min Marks**				
Theory Group													
3IBIT 601	**Core Course**	Data Mining & Warehousing	100	50	17	20	08	30	12	4	-	-	4
3IBIT602	**Core Course**	Embedded Systems	100	50	17	20	08	30	12	4	-	-	4
3IBIT 603	**Core Course**	Programming With Asp.Net	100	50	17	20	08	30	12	4	-	-	4
3IBIT604	**Core Course**	Compiler Design	100	50	17	20	08	30	12	4	-	-	4
Practical Group				**Term End Practical Exam**				**Sessional**					
3IBIT603	**Practical**	Computer Lab XI:Asp.Net	50	25	08	-	-	25	10	-	-	2	2
3IBIT605	**Project/ Dissertation/ Internship & Viva Voce**	Major Project	100	50	17	-	-	50	20	-	-	4	4
Grand Total			**550**	-		-		-	-	-	-	-	**22**

Minimum Passing Marks are equivalent to Grade D

L- Lectures T- Tutorials P- Practical

Major- Term End Theory Exam/ Practical Exam

Minor- Pre University Test

Sessional weightage – Attendance 50%, Three Class Tests/Assignments 50%

SKILL ENHANCEMENT ELECTIVE COURSES

Non-Technical			
Elective No.	**Department/ Faculty Name**		
	Faculty of Information Technology		
I	SCIT 201	Data Entry Operation	2(1+0+1)
II	SCIT 301	Multimedia	2(1+0+1)
III	SCIT 501	Web Designing with HTML	2(1+0+1)
IV	SCMIT 201	Web Development	2(1+0+1)
V	SCMIT 301	LINUX	2(1+0+1)
	Faculty of Management		
I	SMGT 201	Briefing and Presentation Skills	2(1+0+1)
II	SMGT 301	Resolving Conflicts and Negotiation Skills	2(1+0+1)
III	SMGT 802	Entrepreneurship Development	2(1+0+1)
	Faculty of Commerce		
I	SCOM 201	Tally ERP 9	2(1+0+1)
II	SCOM 302	Multimedia	2(1+0+1)
III	SCOM 803	Data Analyst	2(1+0+1)
	Faculty of Humanities		
I	SHBA 301	Pursuing Happiness	2(1+0+1)
II	SHBA302	Communication Skill and Personality Development	2(1+0+1)
III	SHMA301	Tourism in M.P	2(1+0+1)
	Faculty of Science		
I	SSBI 301	Mushroom Cultivation	2(1+0+1)
II	SSPH 301	House Hold Wiring	2(1+0+1)
III	SSPH 301	Basic Instrumentation	2(1+0+1)
IV	SSPH 301	DTP Operator	2(1+0+1)
V	SSCH 301	Graphic Designing	2(1+0+1)
	Faculty of Education		
I	SCBE 403	Understanding of ICTC (Information Communication Technology)	2(1+0+1)
II	SCPE 201	Yoga Education	2(1+0+1)

COURSE CODE: 3MBFE 101

FUNDAMENTALS OF ENTREPRENEURSHIP

Course Code: 3MBFE 101

COURSE OBJECTIVE:

Understanding basic concepts of entrepreneurship and key steps in the elaboration of business ideas, Developing personal creativity and entrepreneurial initiative.

Syllabus:

UNIT – I

Entrepreneurship-Definition, Characteristics and importance, Types and functions of an entrepreneur, merits of a good entrepreneur motivational factors of entrepreneurship.

UNIT - II

Motivation to achieve targets and establishment of ideas. Setting targets and facing challenges. Resolving problems and creativity. Sequenced planning and guiding capacity, Development of self confidence. Communication skills, Capacity to influence, leadership.

UNIT - III

Project Report- Evaluation of selected process. Detailed project report - Preparation of main part of project report pointing out necessary and viability.

Selecting the form of Organization: Meaning and characteristics of sole Proprietorship, Partnership and cooperative committees, elements affecting selection of a form of an organization.

Economic management -Role of banks and financial institutions banking, financial plans, working capital-evaluation and management, Cost and Price determination, Calculation of Profits, keeping of accounts.

UNIT - IV

Production management - Methods of purchase. Management of movable assets/goods. Quality management. Employee management. Packing.

Marketing management Sales and the art of selling. Understanding the market and market policy. Consumer management. Time management.

UNIT - V

Role of regulatory institutions - district industry centre, pollution control board, food and drug administration, special study of electricity development and municipal corporation.

Role of development organizations, khadi & village Commission/ Board, State Finance Corporation, scheduled banks, MP Women's Economics Development Corporation.

Self-employment-oriented schemes, Prime Minister's Employment schemes, Golden Jubilee Urban environment scheme, Rani Durgavati Self-Employment scheme, Pt. Deendayal Self- employment scheme.

Various grant schemes - Cost-of-Capital grant, interest grant, exemption from entry tax, project report, reimbursement grant, etc. Special incentives for women entrepreneurs, prospects 8s possibilities.

Schemes of Tribal Finance Development Corporation, schemes of Antyavasai Corporation, schemes of Backward Class and Minorities Finance Development Corporation.

COURSE OUTCOME-

Understanding basic concepts in the area of entrepreneurship, understanding the stages of the entrepreneurial process, adopting of the key steps in the elaboration of business ideas, Developing personal creativity and entrepreneurial initiative.

Reference Books:

Text Books:

1. Udhyamita Vikas : U.C Gupta (Kailash Prakashan)
2. Udhmita Vikas (H) : Entrepreneruship Development / by Tribhuvannath Shukl Bhopal : Madhya Pradesh Hindi Granth Academy,
3. Varshney, G.K. (2010).Fundamental Of Entrepreneurship, SahityaBhawan Publications
4. Agrawal and Mishra (2017) Fundamental Of Entrepreneurship, SahityaBhawan Publications.
5. Fundamentals of Entrepreneurship by G.K. Varshney Agra Sahitya Bhawan
6. Fundamentals of Entrepreneurship (H) by Avnish Kumar Mishra Agra Sahitya Bhawan
7. Fundamentals of Entrepreneurship by H. Nandan New Delhi PHI Learning
8. Fundamentals of Entrepreneurship and Small Business Management by Vasant Desai Mumbai
   Himalaya Publishing House
9. Fundamentas of Entrepreneurship : Principles, Policies and Programmes by K.K. Patra Mumbai
   Himalaya Publishing House
10. Fundamentals of Entrepreneruship by Sangram Keshari Mohanty New Delhi PHI Learning

Reference Books:

1. Entrepreneurial Development : Dr. S.S. Khanka (S. Chand)
2. Entrepreneurship Dvenelopment : D. Acharya (Himalya Publication House)
3. Entrepreneurship : New Venture Creation by David H. Holt New Delhi PHI Learning

FUNDAMENTALS OF COMPUTERS & INFORMATION TECHNOLOGY

Course Code: 3IBIT 101

COURSE OBJECTIVE:-

1. To understand the basic knowledge of computer
2. To understand the assembly-level programming
3. To understand the input output devices, storage media, memory .
4. To understand the concept of MIS, Networking devices.

Syllabus:

UNIT- I

Know the Computer -Introduction, What does computer stands for? Strengths of computers, Limitations of computers, Fundamental uses of computers, Development of computers, Types of Computers, Generations of Computers

Personal Computer - Introduction, Personal computer, Uses of personal computers, Components of personal computers, Evolution of PCs, Developments of processors, Architecture of Pentium IV, Configuration of PC

Number System - Introduction, Digital and Analog Operations, Binary Data, Binary Number System, Decimal Number System, Octal Number System, Hexadecimal Number System, Fractional Conversion, Coding System

Data Representation and Binary Arithmetic - Introduction, Bits, Nibbles, Bytes and Words, Data Representation, Coding system, Binary Arithmetic, Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division, Character Representation, Checking the Result of Binary Arithmetic.

UNIT- II

Input Devices - Introduction, Input Device, Typing Input Devices, Pointing Input Devices, Scanning Input Devices, Audio Visual Input Devices

Output Devices - Introduction, Output Devices, Soft Copy Vs Hard Copy Output, Monitor, Printers, Plotter, Electrostatic Technique, Special Purpose Output Equipments

Central Processing Unit - Introduction, What is Central Processing Unit, Arithmetic and Logic Unit, Control Unit, Registers, Instruction set, Processor Speed

Storage Devices - Introduction, Storage and its needs, Brain Vs Memory, Storage Evaluation Units, Data Access Methods, Primary Storage, Secondary Storage, Hard Disk Operations, Floppy Disk Drives, Winchester Disk, Optical Disk, VCD, CD-R, CD-RW, DVD, Zip Drive, Flash Drives, Blue Ray Disk, Memory Card, Driving Naming Conventions In a PC

Basics of Software- Introduction, What Does Software Stand For? Needs of software, Types of software, Open Source Software, Integrated Development Environment

Operating System - Introduction, Operating System, Why an Operating System, Functions of Operating System, The Booting Process, Types of Reboot, Booting From Different Operating System, Types of Operating System, Some Prominent Operating Systems

Disk Operating System - Introduction, What is DOS?, Functions of DOS, Versions of DOS, DOS Commands , Important Internal Commands of DOS, Important External Commands of dos, Executable Vs Non-Executable Files In Dos.

UNIT- III

Programming Languages , Introduction, Data, information And Knowledge, Characteristics of Information, Comparison between human language and , Computer Language, What is a program?, What is a Programming language?, Programming development cycle, Algorithm, Program Flowcharts, Pseudo code, Programming approaches, Programming Paradigms, Types of Programming Language, Third Generation Language, Fourth Generation Language

Computer Virus - Introduction, Virus, History, Mechanism of virus, How A Virus Spreads , How is virus named, A few Prominent Viruses, Types of Computer Virus, Related Concepts :, Anti Virus Programs, Norton Anti - Virus (NAV), Execution of Norton Anti-Virus

Communication and IT - Introduction, Computer Network, Communication Process, Communication Types, Transmission Media, Wireless Media, Communication Channels/Media, Modem, Characteristics of a Modem, Types of Modem.

UNIT- IV

Networks - Introduction, Internet Vs Intranet, Types of Network, Topology, Types of Connectivity, Network Devices

Internet - Introduction, What is Internet actually ?, Growth of Internet, Owner of the Internet, Internet Service Provider, Anatomy of Internet, ARPANET and Internet history of the World Wide Web, Services Available on Internet (Internet Tools), Basic internet terminologies, net etiquette, Application of internet.

UNIT- V

Applications of Computers and Information Technology - Introduction, Business And Computer, E-Mail, E-Commerce, Project management, Computers in Personnel Administration, Accounting, Computers in Cost and Budget Control, Marketing, Manufacturing, Materials management, Banking, Insurance And Stock broking, Purchasing, Computers in warehousing

COURSE OUTCOMES:-

After study this student will be able to know about terms and concepts of Fundamentals of Computers & Information Technology (hardware, software, networking, security, Internet/Web, and applications).

Practicals:

1. Introduction of Microsoft windows.
2. Creation of file and folder in MS Windows.
3. Introduction of MS Word.
4. Inserting Number, Bullets, Footer and Header.
5. Creating text, document and table in MS Word.
6. Write steps for mail merge.
7. Introduction of Microsoft excel.
8. Write steps to inserting formula in MS Excel.
9. Creating text, row and Column in MS Excel.

10. Introduction of Microsoft Power Point.
11. Write steps how to using graphics in power point.
12. Introduction and theory of Microsoft Outlook

Text books:

- **Computer Fundamental** PK Sinha (New Delhi BPB Publication)
- **Fundamentals of Information Technology** Alexis Leon (NOIDA)
- **Fundamental of computer** Rajaraman V. New Delhi PHI Learning

Reference Books:

- **Introduction to Computers and Information Technology** by Anurag Seetha, Ram Prasad & Sons, .Bhopal.
- **Computers Today** by S.K.Basandra, Galgotia Publications.
- **Fundamentals of Information Technology** by Alexis Leon & Mathews Leon, Vikas Publishing House, New Delhi.
- **DOS Quick Reference** by Rajeev Mathur, Galgotia Publications.

Chairperson
(Board of Studies)

Dean
(Academic Council)

(Registrar)
Seal

COURSE CODE: 3IBIT 103

PROBLEM SOLVING METHODOLOGIES AND PROGRAMMING IN C

Course Code: 3IBIT 103

COURSE OBJECTIVE:-

1. To understand the basic knowledge of programming concepts.
2 To understand the C language & its concepts.

Syllabus:

Theory:

UNIT- I

Principles of Programming, Introduction to Programming, Program Concept, Characteristics of Programming, Stages in Program Development, Tips for Program Designing, Programming Aids, Algorithms, Notations, Design, Flowcharts, Symbols, Rules.

Programming Techniques and Logic, Introduction, Introduction to programming techniques, Top-down approach or technique, Bottom-up approach or technique, Unstructured technique of programming, Structured technique of programming, Modular technique of programming, Comparative study of programming techniques, Cohesion , Coupling, Debugging , Syntax Errors, Logical Errors, Data Entry Errors, Linker Errors, Runtime Errors, Program Testing

UNIT- II

Turbo C IDE, Turbo C IDE (Integrated Development Environment), Main Menu Bar, File Options, Edit option, Run option, Compile option, Project option, Options option, Debug option, Break/watch option, Edit Window, Message Window, Status bar, Editing, Compiling and Running a C Program, Features of C language, C language standards, Standardization , Successors of C language.

Introduction to ‘C’, Introduction, Structure of a C program, ‘C’ Tokens, Keywords, Identifiers, ‘C’ Constants, Variables in C, Data Types, Derived Data Types : , Operators, Precedence and Associativity of operators, Hierarchy of operators at a glance, Expression & its Evolution, Type conversion in expressions , (Implicit and Explicit type conversion)

UNIT- III

Decision Making and Branching, Introduction, Sequential statements, Unformatted I/O functions, Formatted input using scanf () function, Formatted output using print(), Branching statements, The if-else statement, The nested if-statement, The switch statement.

Looping Statements, Introduction, for-statement, while-statement, do-while statement, Difference between while-loop and do-while loop, Nested loops, Jumps in loops.

UNIT- IV

Arrays, Introduction, Single-dimensional arrays, Reading and writing single dimensional arrays, Examples of Complex Programs, Searching, Sorting, Two-dimensional arrays (Multi-dimensional arrays), Reading-writing two-dimensional arrays, Manipulation in two-dimensional arrays,

Strings, Concepts of string, Strings in C language, String variable, Initializing strings, String input/output functions, Arrays of strings, String handling functions, Memory formatting

COURSE CODE: 3IBIT 103

User Defined Functions, Introduction, Elements of user-defined functions, Categories of functions, Passing parameters to functions, Programming Examples, Arrays in functions, Nesting of Functions, Recursion, Command Line Arguments , Storage Classes

UNIT- V

Structure and Union, Introduction to structures, Structure and its definition, Structure declaration, Tagged Structure, Structure variables, Type-Defined Structure, Structure initialization, Accessing structures, Nested structures, Array of structures, Structures and functions, Sending individual members, Sending the whole structure, Passing structures through pointers, Uses of structures, Union and its definition

Debugging, Common Programming Errors, Program Testing and Debugging, Types of Errors, Debugging C program

Pointers, Introduction, Pointer concepts, Pointer variable, Accessing variables through pointers, Pointer declaration and Definition, Initializing a pointer variable, Pointers to Pointers, Compatibility, Pointer applications, Pointers and other operators, Memory allocation functions, Memory map of C program, Memory management functions

File Handling, Introduction to file handling, File system basics, Standard streams in C, File structure, FILE pointer, Opening and closing a file, File handling functions, File types, Text and Binary, Input / Output operations on file, Reading a character using getc(), Writing a character using putc(), Using feof(), Working with string using fputs() and fgets(), Using fprintf() and fscanf(), Using fread() and fwrite(), Direct Access file, fseek().

COURSE OUTCOMES:-

- Illustrate the flowchart and design an algorithm for a given problem and to develop IC programs using operators
- Develop conditional and iterative statements to write C programs
- Exercise user defined functions to solve real time problems
- Exercise files concept to show input and output of files in C

Practicals:

1. Write a C Program to add two integer numbers.
2. Write a C Program to Check Whether a Number is Even or Odd.
3. Write a C Program to Check Whether a Number is Positive or Negative or Zero.
4. Write a C Program to Display Fibonacci Series.
5. Write a C Program to Reverse a Number.
6. Write a C Program to Check Whether a Number is Palindrome or Not.
7. Write a C Program to Make a Simple Calculator to Add, Subtract, Multiply or Divide Using switch...case.
8. Write a C Program to Calculate Factorial of a Number Using Recursion.
9. Write a C Program to Calculate Average Using Arrays.
10. Write a C Program to Add Two Matrix Using Multi-dimensional Arrays.
11. Write a C Program to Swap Numbers in Cyclic Order Using Call by Reference.

COURSE CODE: 3IBIT 103

Text Books

- Programming With C (Sos) by Byron Gottfried New Delhi
- Peter Juliff, " program design ", PHI Publications
- "C" Programming Course (H) by Hemant Kumar Goyal Meerut :Ravi Pocket

Reference Books:

- E. Balaguruswamy, "Programming In C ", TMH Publications
- Gottfried, Schaum's Outline Series, " Programming With C ", TMH Publications
- Mahapatra, " Thinking In C ", PHI Publications
- Anurag Seetha, "Introduction To Computers And Information Technology", Ram Prasad & Sons, Bhopal.
- S.K.Basandra, "Computers Today", Galgotia Publications.

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COURSE CODE: 3IBEC 101

BASIC ELECTRONICS-I

Course Code: 3IBEC 101

COURSE OBJECTIVE:-

1 To understand the overview of the principles, operation and application of the analog building blocks like diodes, BJT, FET etc for performing various functions.
2. To understand the overview of amplifiers, feedback amplifiers and oscillators.
3. To understand the knowledge on existing on future analog circuits.

Syllabus:

Theory:

UNIT-I

Type of resistance, Resistance symbol, Color code capacitors, Capacitors symbol, Code types, Mica & paper capacitor, Inductance, Conductor, Insulator, Band theory, Intrinsic & extrinsic semiconductors. Theory of p-n junction, Capacitance & Diffusion capacitance.

UNIT-II

Zener diode, Tunnel diode, Varactor diode, Power diode, Photo diode, LED, LCD, Point contract diode, Schottky diode, Halfwave & fullwave rectifier with & without filter,.

UNIT-III

BJT characteristics, CE, CB, CC configurations, FET metal oxide, Semiconductors (MOSFET), CMOS, Unijunction transistor & Photo transistor.

UNIT-IV

Single stage RC coupled amplifier frequency response class A, class B, class AB, class C, Push pull amplifier, Efficiency distortion in amplifier their merits & demerits, BJT & FET RC coupled amplifiers.

UNIT-V

Switching characteristic BJT & FET, Monostable, A stable Multivibrators, RC integrators & differentiators, Clipper clamber circuit.

Course Outcomes :– After study this student will be able to know about

Knowledge in the field of solid state materials.

1. To analyze the structure of different types of semiconductor crystal structures. Know the intrinsic property of semiconductor materials.
2. Idea about the equilibrium and non equilibrium states of semiconductors.
3. The complete internal structure of PN junction including different

COURSE CODE: 3IBEC 101

Text & Reference Books:

- Basic Electronics by B.L. Thareja.
- Basic Electronics by A.K. Sahani.
- Basic Electronics by V.K. Mehta.

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COURSE CODE: 3IBMA 101

ADVANCED CALCULUS AND MATRICES

COURSE OBJECTIVE:-

1. To deal with the skills of vector calculus operations which are needed for further study in mathematics?
2. To deal with the skills necessary to be able to give reasonable explanations.
3. To deal with the critical thinking skills required to solve problems in physics and in

Syllabus:-

Theory:

UNIT-I

- Definition of a function as a map between sets.
- Definition of a real valued function of a real variable.
- Graphical representation of a function as a curve in 2-dimensions.
- Equation of a straight line and of a curve.
- Tangent to a curve.
- Equations of tangent to a curve.
- Representation of real numbers on a computer.
- Graphical representation of a function on a computer screen.

UNIT-II

- Derivative as tangent to a curve.
- Continuity and differentiability.
- Definition of a limit, and derivative as a limit.
- Derivative as a linear map.
- Derivatives of products and composites: Leibniz rule and Chain rule.
- Applications to maxima and minima.
- Second derivative and its use for testing extreme.
- Applications to root finding.

UNIT-III

- Integral as anti-derivative.
- Relation to integral as area under a curve.
- Integral as a limit.
- Integration by parts.
- Change of variables formula.
- Elementary techniques of numerical quadrature.

UNIT-IV

- Higher derivatives.
- Statement of Taylor's theorem in one variable.
- Euler-Maclaurin expansion and its applications to numerical computing.

- Difficulties in numerical computation of derivatives as limits.
- Ordinary differential equations.
- Statement of Peano's existence theorem.
- Calculation of numerical solution by Euler's method.
- Basics of Runge -Kutta methods.

UNIT-V

- Matrix algebra: addition and multiplication of matrices.
- Inverse of a non -singular matrix.
- Determinant of a matrix.
- Testing non-singularity using determinants.
- Solution of systems of linear equations using matrices and determinants.

Course Outcomes: –

After study this student will be able to know about the vector calculus operations by applying addition, subtraction, scalar multiplication, dot product, and cross product. Students will be able to work with power series by applying the iterated derivatives.. Students will be able to take derivatives of multivariable functions by using appropriate rules. Students will be able to use the chain rule by applying necessary rules.

Text Books

- H.K Pathak ,Matrix and Calculus,Shiksha Sahita Prakashan.
- Gorakh Prasad – Differential Calculus ,Pothishala Privet Ltd. Allahabad
- Gorakh Prasad – Integral Calculus ,Pothishala Privet Ltd. Allahabad
- Basic Mathematics,S.Chand Prakashan

Reference Books :

- G.F.Simmons,Differential Equation, Tata McGraw Hill -1972
- Matrix, by Ray and Seth

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COURSE CODE- 3HBHL101

हिन्दी आधार/पाठ्यक्रम– हिन्दी भाषा और संरचना – 1
Course Code- 3HBHL101

पाठ्यक्रम के उद्देश्यः

1. विद्यार्थियों में राष्ट्र प्रेम की भावना का विकास करना।
2. हिन्दी के समृद्ध साहित्य को नयी पीढ़ी तक पहुँचाना ।
3. पत्र–लेखन, सार लेखन, भाव पल्लवन एवं साक्षात्कार के कौशल का विकास करना।
4. डायरी,संस्मरण, लेखन, पारिभाषिक, शब्दावली, तत्सम, तद्भव, देशज, विदेशी शब्दों इत्यादि के ज्ञान का परिमार्जन करना।

पाठ्यक्रम

इकाई-1

भारत वंदना (काव्य)	सूर्यकांत त्रिपाठी निराला
जाग तुझको दूर जाना	सुश्री महादेवी वर्मा
स्वतंत्रता पुकारती (काव्य)	जयशंकर प्रसाद
हम अनिकेतन (काव्य)	बालकृष्ण शर्मा नवीन
भाषा की महत्ता और उसके विविध रूप	
भाषा-कौशल	

इकाई-2

करूणा (निबंध)	आचार्य रामचन्द्र शुक्ल
समन्वय की प्रक्रिया (निबंध)	रामधारी सिंह दिनकरश
बिच्छी बुआ (कहानी)	डॉ. लक्ष्मण विष्ट बटरोहीश
अनुवाद	परिभाषा प्रकारए महत्वए विशेषताएं
हिन्दी की शब्द-संपदा	
परिभाषिक शब्दावली	

इकाई-3

विलायत पहुंच ही गया (आत्मकथांश)	महात्मा गांधी
अफसर)व्यंग्य(	शरद जोशी
तीर्थयात्रा (कहानी)	डॉ. मिथिलेष कुमार मिश्र
मकड़ी का जाला (व्यंग्य)	डॉ. रामप्रकाश सक्सेना
वाक्य- संरचना :तत्समए तद्भव देशज विदेशी	

इकाई-4

अप्प दीपो भव (वक्तृत्व कला)	स्वामी श्रद्धानंद
भारत का सामाजिक व्यक्तित्व (प्रस्तावना)	जवाहरलाल नेहरू

पत्र मैसूर के महाराजा को (पत्र-लेखन) स्वामी विवेकानंद
बनी रहेंगी किताबें (आलेख) डॉ. सुनीता रानी घोष
पत्र-लेखनःमहत्व और उसके विविध रूप
सड़क पर दौड़ते ईहा मृग (निबंध) डॉ. श्यामसुन्दर दुबे

इकाई-5

योग की शक्ति (डायरी) डॉ. हरिवंश राय बच्चन
कोश के अखाड़े में कोई पहलवान नहीं उतरता(साक्षात्कार) – भाषाविद् डॉ. हरिदेव
बाहरी से प्रो. त्रिभुवननाथ शुक्ल
नीग्रो सैनिक से भेंट (यात्रा-संस्मरण) डॉ. देवेन्द्र सत्यार्थी
यदि बा न होती तो शायद गांधी को यह ऊँचाई न मिलती (साक्षात्कार) कथाकार.
गिरिराज किशोर से सत्येन्द्र शर्मा
सार -लेखनए भाव-पल्लवन साक्षात्कार और कौशल

अपेक्षित परिणामः

1. विद्यार्थी भारत भूमि से प्रेम व स्नेह के भावों को बढ़ा सकेगें।
2. विद्यार्थियों की हिन्दी की शब्द संपदा में वृद्धि होगी।
3. पत्र–लेखन ,सार लेखन, भाव पल्लवन साक्षात्कार के कौशल का विकास होगा।
4. डायरी एवं संस्मरण लेखन विद्या का परिमार्जन होगा।
5. हिन्दी के समृद्ध साहित्य कोश से लाभान्वित होगें।

OBJECT ORIENTED PROGRAMMING WITH C++

Course Code: 3IBIT 202

COURSE OBJECTIVE:-

Student will be able

1. To understand the basic knowledge of opps with C++ language.
2 To understand the Structure & classes concepts, data member.
3 To understand the Array, Pointers operations.
4 To understand the Function overloading & Operator Overloading.
5 To understand the Inheritance & C++I/O system.

Syllabus:

Theory:

UNIT- I

Overview of C++ - Overview of C++, Software crisis, Object oriented programming paradigm, Basic concepts of OOP, Advantages/Benefits of OOP, Usage/applications of OOP

C++ Environment, Program development environment, The language and the C++ language standards, Introduction to various C++ compilers, The C++ standard library, Prototype of main () function, i/o operator, manipulator, comments, data types

Creating and Compiling C++ Programs - TURBO C++ IDE, Creating, compiling and running a C++ program using idea and through command line, Elements of C++ Language, Structure of a C++ program, C++ tokens, Type conversion in expressions.

Decision Making and Branching - Introduction, Sequential statements, Mathematical Functions, Branching statements, looping Statements, Nested loops, Programming examples.

UNIT-II

Arrays and Functions- Arrays, The meaning of an array, Single-dimensional arrays, Two-dimensional arrays (Multi-dimensional arrays), User Defined Functions, Elements of user-defined functions, Return values and their types, Function calls, Categories of functions, Passing parameters to functions, Recursion, Command Line Arguments, Storage Class Specifiers.

Classes and Objects - Classes, Structures and classes, Unions and classes, Friend function, Friend classes, Inline function, Scope resolution operator, Static class members, Static data members, Static member functions, Passing object to functions, Returning objects, Object assignment

Array, Pointers, References and the Dynamic Allocation Operators - Array of objects, Pointer to object, Type checking in C++, The this pointer, Pointer to Derived Types, Pointer to class members, References, C++'s Dynamic Allocation Operators.

Constructors and Destructors - Introduction, Constructors, Default Constructor, Parameterized constructors, Copy Constructors, Multiple Constructors in a class, Constructors with default arguments, Default Arguments, Special Characteristics of Constructor functions, Destructors.

UNIT-III

Polymorphism – Introduction to polymorphism, Types of polymorphism, Function overloading, Overloading Constructor Function, Finding the address of an overloaded function, Operator

Overloading, Creating a Member Operator Function, Creating Prefix and Postfix forms of the increment (++) and decrement (– –) operators (Overloading Unary Operator), Overloading the Shorthand Operators (i.e. +=, == etc), Operator Overloading Restriction (Rules), Operator Overloading using friend function, Overloading new and delete operator, Overloading some special operators, Overloading [ ]
(Subscripting) operator, Overloading() (Function Call) operator, Overloading Binary Arithmetic operators, Concatenating String, Overloading Comma (,) operator, Overloading the I/O operators.

UNIT-IV

Base class Access control, Inheritance & protected members, Protected base class inheritance, Inheriting multiple base classes, Constructors, destructors & Inheritance, When constructor & destructor function are executed, Passing parameters to base class constructors, Granting access, Virtual base classes.
Virtual function, Pure Virtual functions, early Vs. late binding.

UNIT- V

The C++ I/O System Basics - The C++ I/O System basics, C++ predefined streams, Formatting using the ios members, Clearing Format Flags, An Overloaded form of setf( ), Examining the Formatted Flags, Using width( ), Using precision( ), Using fill( ), Using Manipulators to format I/O, Creating your own Manipulators
Outcomes – After Study This Student Will Be Able To Know About And Concepts Of Oops with C++ Language, Classes. Student will be able to create Arrays its uses, Uses of function overloading, inheritance & C++I/O system.

Practicals:

1. WAP to add, subtract, multiply and divide two numbers using concepts of C++.
2. WAP to show swapping of two numbers using C++.
3. WAP to calculate volume of cube, cylinder, rectangular box using three times function overloading in C++.
4. WAP using virtual function.
5. WAP using copy constructor.
6. WAP to show multiple inheritances.
7. WAP to find mean value of two numbers using friend function.
8. WAP using inline function.
9. WAP to demonstrate the use of Local Object, Static Object & Global Object using C ++.
10. WAP in C++ to demonstrate the creation and the use of dynamic object.
11. Derive the two classes son and daughter and, demonstrate polymorphism in action.

Text Books

- Object Oriented Programming in C++ Robert Lofore New Delhi Pearson Education
- Object Oriented Programming with Ansi Turbo C++ Ashok New Delhi Pearson Education
- Mastering C++ K R Venugopal & Rajkumar Buyya New york. MC Graw Hill Co.

Reference Books:

- C++ by Balaguruswamy - TMH.
- Programming In C++ by M. Kumar Tata McGraw Hill
- Object Oriented Programming C++ by Kamal Prakashan

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COURSE CODE:3IBIT 201

DATA BASE MANAGEMENT SYSTEM (SQL/MS ACCESS)

Course Code: 3IBIT 201

COURSE OBJECTIVE:-

1. To understand the basic knowledge of DBMS Concepts.
2 To understand the Database Design.
3 To understand the RELATIONAL DATA MODEL.
4 To understand the RELATIONAL DATABASE DESIGN.
5 To understand the Indexing & Hashing-Basic Concepts & Recovery System.

Syllabus:

Theory:

UNIT- I

Introduction to DBMS, Operational Data, Introduction to database, Views of data, Three-Level Architecture proposal, Instances and Schemas, Purpose of database system, Advantages of DBMS, Disadvantages of DBMS, Structure of a DBMS, Data Models, Database Languages.

E-R Model, Entity-Relationship Model, Entity and Entity set, Attributes and Keys, Relationship and relationship set, Mapping constraints, Entity-Relationship diagram, Strong and Weak entities, Generalization, Specialization, Aggregation, Reducing ER diagram to tables.

UNIT- II

RDBMS Concept and Terminology, Set theory - concepts and fundamentals, Extension and Intention, Attributes and Domains, Relations, Tuple, Concepts of keys, Fundamental integrity rules.

Normalization, Functional dependencies, Universal Relation, Anomalies in a database, Decomposition, Normalization

Relational Algebra, Select Operation, Project Operation, Join Operation, Division Operation, Cross Product Operation, Set operations

Relational Calculus, Introduction, Tuple Relational Calculus, Operators used in TRC, Example queries using TRC, Domain Relational Calculus, Operators used in DRC, Example queries using DRC, Comparison of TRC, DRC, RA.

UNIT- III

Database Language, Structured Query Language (SQL), Integrity Constraints, Implementing SQL using MS Access, Functions, Indexing, View using MS Access

Database Administration, DBA - Role, Functionality and Importance, Failure classification, The storage hierarchy, RAID, Transaction model, File structure and Storage access, File organization, Organization of records in file, Data dictionary storage.

UNIT- IV

Indexing and hashing, B-tree index file, Advanced DBMS, Database system Architectures, Centralized System, Client-Server System, Parallel Database System, Distributed Database System, Overview of Database on Web, Concepts of ODBC, DSN

UNIT- V

Database Storage and Querying, Basic Concepts of Indexing and Hashing, Query Processing, Measures of Query Cost, Basics of Query Optimization, Choice of evaluation plan, Structure of Relational Database.

Transaction Management, Introduction, Transaction Concepts, Features of Database Transaction, Concurrency Control in Database -, Lock Base, Time-stamp Base, Validation Base, Database Recovery System.

COURSE OUTCOMES:-

After study this student will be able to know about and concepts & fundamentals of DBMS, Concept of keys, RELATIONAL DATA MODEL & design. Student will also able to create table and implement commands.

Practicals:

1. Write a query to implement Different types of DDL statements in SQL.
2. Write a query to implement Different types of DML statements in SQL.
3. Write a query to implement Different types of DQL statements in SQL.
4. Write a query to implement Different types of DCL statements in SQL.
5. Write a query to explore 'select' clause using where, order by, between, like, group-by, having etc.
6. Write a query to implement the concept of Joins in SQL.
7. Write a query to implement the concept of Indexes and views.
8. Write a query to implement the restrictions on the table.
9. Write a query to implement the concept of SubQuestionries.
10. Write a query to implement the structure of the table.

Text Books

- An Introduction To Database System by C. J. Date
- Database Management Systems by P.S. Gill New Delhi :I.K. International Publishing
- Database Systems : Concepts, Designs and Application by Shio Kumar Singh New Delhi Pearson Education

Reference Books:

- Database System Concepts by Henry F. Korth &Abraham Silberschatz.
- An Introduction To Database System by Bipin C. Desai.
- Database Management Systems by Leon & Leon, Vikas Publications.

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COURSE CODE: 3IBMA 201

DISCRETE STRUCTURES

Course Code:3IBMA 201

COURSE OBJECTIVE:-

This course introduces the applications of discrete mathematics in the field of computer science.

1. It covers sets, logic, proving techniques, combinatory, functions, relations, Graph theory and algebraic structures.
2. These basic concepts of sets, logic functions and graph theory are applied to Boolean algebra and logic networks while the advanced concepts of functions and algebraic structures are applied to finite state machines and coding theory.

Syllabus:

Theory:

UNIT- I

SET THEORY - Set and Subsets, Operations on Sets, Countable and Uncountable Sets, the Principle of Inc Inclusion-Exclusion, Derangements, Propositions.

UNIT- II

PERMUTATION, COMBINATIONS, DISCRETE PROBABILITIES - The rules of sum and product, Permutations, Combinations, Binomial and Multinomial Theorems, Combinations with Repetitions, Probability, Random Variables & Probability Distributions, Repeated Trials

RELATION AND FUNCTION- Cartesian (Cross) Product of Sets, Relation, Operation on Relations, Properties of Relation as Binary Relation on a Set, Two Important Relations, Partial Ordered Relation, Lattices, Functions - Mappings, Types of Functions, Cardinality of Set, Composition of Relation and Function, Composition of Function, Existence of Inverse Function (Mapping), Set Image/Preset Image of Function.

UNIT- III

Graph - Directed Graphs, Graphs, Isomorphism, Subgraphs, Operations on Graphs, Walks and their classification, Connected and Disconnected Graphs, Euler circuits Euler trails, Planar and non-planar graphs.

Recurrence relations - First-order Recurrence Relations, Second-order Homogeneous Recurrence Relations, Third and higher-order Homogeneous Recurrence Relations, Non-homogenous Recurrence Relations of second and higher orders, Method of Generating Functions.

UNIT- IV

Groups - Introduction, Necessary and sufficient Condition for any subset of a group to be subgroup, Partition of a Group, Characteristics of Cosets of a Subgroups, Normal Subgroups, Necessary and sufficient condition for any subgroup of group to be normal subgroup, Characteristics of Normal (Sub groups), Quotient groups, Concept of Homomorphism.

Rings, Some special types of Rings, Elementary Properties of Rings, Subrings, Results of Sub-rings of a ring, Standard Properties of ideals, Homomorphism of Rings, Properties of Homomorphism.

COURSE CODE: 3IBMA 201

UNIT- V

Discrete Numeric Functions and Generating Functions -Discrete Numeric Functions, Manipulation of Numeric Functions, Asymptotic Behavior of Numeric Functions, Binomial Coefficients.

COURSE OUTCOME:-

After study this student will be able to know about some fundamental mathematical concepts and terminology, how to use and analyze recursive definitions, how to count some different types of discrete structures, techniques for constructing mathematical proofs, illustrated by discrete mathematics examples.

Text Books:

- Schaum's Outline of Theory & Problems of Logic by John Gric Nolt, Dennis Rohatyn.
- Theory of Practical Calculus by JP. Trembly, R. Manohar McGraw Hill
- Discrete Structure by Dr.D.C Agarwal
- Discrete Structure by Dr.D.K Jain

Reference Books:

- Discrete Mathematical Structures by Bernard Kolman, Robert C. Busby, Sharon Ross.
- Engineering Mathematics by S. S. Sastry, Prentic Hall of India.

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COURSE CODE: 3 IBEC 201

BASIC ELECTRONICS & INSTRUMENTATION-II

Course Code: 3IBEC 201

COURSE OBJECTIVE:-

Student will be able

1. To understand the overview of the principles, operation and application of the analog building blocks for performing various functions.
2. To understand the overview of amplifiers, feedback amplifiers and oscillators.
3. To understand the knowledge on existing on future analog circuits.

Syllabus:-

Theory

UNIT-I

CRT - display, The screen characteristics, CRO-CRT Construction, electrostatic gamma and magnetic deflection system, Deflection sensitivity regulated power supply, Shunt & series regulator, Emitter follower regulator, current regulator.

UNIT-II

Dual Trace & dual beam CRO, Sampling & digital read out CRO, Feedback amplifier, Oscillator, Current voltage feedback, Multistage feedback, Crystal oscillators.

UNIT-III

Direct-coupled amplifiers using BJT, JFET, Darlington configuration, Boot strapping, Series & shunt chopper, Differential amplifier.

UNIT-IV

Classification of transducers, Strain gauge displacement transducer, LVDT Thermo couple, Photoelectric transducer, Photo sensitive device, Magnetic transducer

UNIT-V

Digital measurement V/S analog measurement, D/A conversion method, A/D conversion method, Simultaneous conversion method, Successive approximation method, LED, LCD, Seven segment display, Alphanumeric display, IC555 Timer.

COURSE OUTCOMES :–

After study this student will be able to know about

1. Knowledge in the field of solid state materials.
2 To analyze the structure of different types of semiconductor crystal structures. Know the intrinsic property of semiconductor materials.
3. Idea about the equilibrium and non equilibrium states of semiconductors.
4. The complete internal structure of PN junction including different

COURSE CODE: 3 IBEC 201

Text Books

- Basic Electronics by B.L. Thareja.
- Basic Electronics by A.K. Sahani

Reference Books: -

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- Basic Electronics by V.K. Mehta.

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COURSE CODE: SMGT 802

ENTREPRENEURSHIP DEVELOPMENT

COURSE OBJECTIVE:-

The content will be multidisciplinary with the view to cover a whole range of issues pertaining to entrepreneurship and small scale industry.

Syllabus:

UNIT- I **Entrepreneur and Entrepreneurship –**Meaning, definition, significance, need, characteristics, qualities, pre- requisites function, types.

UNIT- II **Industries and Business Organization-** Classification of industries, forms of business organization, procedures, lifecycle, motivation, environment factors, problems

UNIT- III **Institutional Assistance-** Infrastructural, information, guidance, training, technical, financial, marketing, quality control

UNIT- IV **Planning and growth-** Project report, feasibility study, factory location, demand analysis, market potential, project cost, working capital requirement, profit and tax planning.

UNIT- V **Govt. support & promotional agencies-** Regulatory institutions, development organization, self- employment- oriented schemes, grant schemes, special incentives for women, and scheme for backward class, govt. & non govt. project

Practicals:

1. To identify a project and conduct market survey of it.
2. Prepare a project report of yours choice.
3. To collect various formats used in industries/departments or institutions working in the field of entrepreneurship.
4. To collect details of various schemes run by the government for self-employment and entrepreneurship.
5. Develop logical and analytical approach of purchasing the raw material/finished goods.
6. Collect information about market rates, quality and quantity of goods of your choice.
7. Collect information about few small-scale industries situated in city, nearby industrial area.
8. Discuss the problems of small-scale industries.
9. To prepare chart to show various factors affecting entrepreneurship.
10. To prepare case study of successful entrepreneurs.

COURSE OUTCOME: -

After completion of this course the students would be able to understand the relevance of entrepreneurship as a means of management practice in the context of a fast changing organizational structure in a global environment.

COURSE CODE: SMGT 802

Text Books:

- Udhyamita Vikas : U.C Gupta (Kailash Prakashan)
- Udhmita Vikas (H) : Entrepreneruship Development / by Tribhuvannath Shukl Bhopal : Madhya Pradesh Hindi Granth Academy,
- Varshney, G.K. (2010).Fundamental Of Entrepreneurship, SahityaBhawan Publications
- Agrawal and Mishra (2017) Fundamental Of Entrepreneurship, SahityaBhawan Publications.
- Fundamentals of Entrepreneurship by G.K. Varshney Agra Sahitya Bhawan
- Fundamentals of Entrepreneurship (H) by Avnish Kumar Mishra Agra Sahitya Bhawan
- Fundamentals of Entrepreneurship by H. Nandan New Delhi PHI Learning
- Fundamentals of Entrepreneurship and Small Business Management by Vasant Desai Mumbai Himalaya Publishing House
- Fundamentals of Entrepreneurship : Principles, Policies and Programmes by K.K. Patra Mumbai Himalaya Publishing House
- Fundamentals of Entrepreneurship by Sangram Keshari Mohanty New Delhi PHI Learning

Reference Books:

- Entrepreneurial Development: Dr. S.S. Khanka (S. Chand)
- Entrepreneurship Development: D. Acharya (Himalaya Publication House)
- Entrepreneurship: New Venture Creation by David H. Holt New Delhi PHI Learning

COURSE CODE -3HBEL401

ENGLISH FC II
ENGLISH LANGUAGE AND SCIENTIFIC TEMPER
COURSE CODE -3HBEL401

COURSE OBJECTIVES:

- To Study the basic language skills (speaking, listening, reading, and writing) and grammar.
- Comprehensive study of different kinds of letters and applications.
- To study the different kinds of prose and poetry.

Syllabus:

UNIT – I

1. Tina Morries : Tree
2. Nissim Ezekiel : Night of the Scorpion
3. C.P. Snow : Ramanujan
4. Roger Rosenblatt : The Power of WE
5. George Orwell : What is Science?
6. C.Rajagopalachari : Three Questions
7. Desmond Morries : A short extract from the Naked Ape
8. A.G. Gardiner : On the rule of the road

UNIT – II Comprehension of an unseen passage.

UNIT – III Letter Writing: Formal Letters, Informal letters, Applications.

UNIT – IV Report Writing.

UNIT – V Language Skills

Correction of common errors in sentence structure : usage of pronouns, subject/ verb agreement word order, gender; compound nouns, collective nouns, possessives, articles and prepositions. (advanced)

COURSE OUTCOMES:

- Student will be able to understand correct use of grammar and language skills.
- Student will be familiar with different prose and poetry.
- Student should be able to write analytically in a variety of formats, including essays, report writing and application.

COURSE CODE -3HBEL401

Text Books

- Essentials of English Grammar and Composition by Rajendra Pal ,H.C Katyal
- Fundamental of English Grammar by N.C Sinha

Reference Books

- A Comprehensive English Grammar by Rajkumar Sharma,Bhushan Singh
- A Comprehensive Grammar of Current English

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(Board of Studies)	**(Academic Council)**	**Seal**

DATA STRUCTURE

Course Code: 3IBIT 301

COURSE OBJECTIVES:

Data structures play a central role in modern computer science. Data structures are essential building blocks in obtaining efficient algorithms.

1. The objective of the course is to teach students how to design, write, and analyze the performance of programs that handle structured data and perform more complex tasks, typical of larger software projects.
2. Students should acquire skills in using generic principles for data representation & manipulation with a view for efficiency, maintainability, and code reuse.
3. Another goal of the course is to teach advance data structures concepts, which allow one to store collections of data with fast updates and queries.

Syllabus:

Theory:

UNIT- I

Analysis of Algorithm-Introduction, Criteria of Algorithm, Time Complexity, Space Complexity, Asymptotic Notation: Big Oh (O) Notation: Big Omega (Ù) Notation: Big Theta (È) Notation.

Types of Data structures- Introduction, Types of Data structures, Linear Data Structures, Non Linear Data Structure, Array, SPARSE MATRICES, Garbage Collection, Benefits, Disadvantages.

UNIT- II

Stacks-Introduction, Push operation, Pop operation, Stack implementation using arrays, (static implementation of stacks), STACK as a Linked List, Stack as an abstract data structure, Applications of stack, Conversion of Expressions, Precedence and associativity of the operators, Evaluation of Postfix expression, Multiple stacks,

Recursion-Introduction, Working of recursion, Fibonacci series, Tower of Hanoi, Efficiency of recursion.

Queue-Introduction, Different types of queues, Queue (Linear queue), Queue as an abstract data structure, Circular queue, Double ended queue (Dequeue), Priority queue, QUEUE as a Linked List, Applications of Queue.

Linked Lists-Concept of list and array , Introduction to Data Structures, Arrays, Linked list, Singly or Linear linked list, Circular singly linked list, Doubly linked lists, Header Node, Applications of linked lists, Addition of two long positive numbers, Evaluation of a polynomial.

UNIT- III

Trees-Introduction, Representation of tree, Binary Tree , Representation of binary tree, Array representation of binary tree, Linked List representation of binary tree, Basic Operation on Binary Tree- Traversals, Binary Tree Traversal Algorithms (Recursive), Creation of Binary Search Tree:, Types of binary trees, Operations on Binary Search Tree (BST), Threaded binary trees, Application of Binary Tree:, B-Tree, Height Balanced Tree ,

Graph- Introduction to Graphs, Undirected Graph, Directed Graph or digraph, Graph Representation, Adjacency Matrix Representation, Adjacency List Representation, Graph Traversals, Breadth First

Traversal, Depth First Traversal , Searching in Graph, Minimal Spanning Tree, Kruskal's Algorithm, Prim's Algorithm , Shortest Path in Graph.

UNIT- IV

Sorting and Searching - Introduction, Bubble sort, Selection Sort, Merge Sort, Quick sort, Insertion Sort, Shell sort, Address calculation sort, Radix sort, Comparison of sorting methods, Hash Table, Collision Resolution Techniques, Linear Search (Sequential Search), Binary Search, Searching an ordered table, Indexed sequential search, Interpolation search.

UNIT- V

File Structure and Indexing- Introduction, Objectives, Terminology, File Organization, Sequential Files, Disadvantages, Direct File Organization, Indexed Sequential File Organization.

COURSE OUTCOME:-

After study this student will be able to know about the concepts of Data Structure Using C++ Language, List & Its Operations Concept of Tree, and Algorithm & Graphs Design. Students will also know about the sorting and searching.

Practicals:

1. Write a program to Traversal of an Array.
2. Write a program to Insert Item into Sorted Array.
3. Write a program to Delete Item from Array.
4. Write a program to Insert Item at the Specific Node.
5. Write a program to Implement Stack using Array.
6. Write a program to Implement Queue using Linked List.
7. Write a program to Traversing of binary tree (IN-Order, Pre-Order, Post-Order).
8. Write a program to Sort an Array using BUBBLE SORT.
9. Write a program to Sort an Array using SELECTION SORT.
10. Write a program to Sort an Array using INSERTION SORT.
11. Write a program to Traversal of graph (BFS, DFS).

Text Books :

- Data Structures Using C & C++ (H) by Nagendre Birthare and Sushil Agarwal Indore: Kamal Prakashan.,
- Data Structure by Seymour Lipschutz, New Delhi Tata Mc Graw Hill Publishing
- Fundamentals of Computer Algorithm: By Ellis Horowitz and Sartaj Sawhney

Reference Books:

- Fundamentals Of Data Structure, By S. Sawhney & E. Horowitz.
- Data Structure: By Trembley & Sorrenson.
- Data Structure: By lipschuists (Schaum's Outline Series McGraw Hill Publication).

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Web Technology
COURSE CODE-3IBIT303

COURSE OBJECTIVE:

The objective of this lab is to to develop an ability to design and implement static and dynamic website

UNIT- I

History of the internet, internetworking concepts, architecture, and protocol: switch, router, protocols for internetworking, internet address and domains. Introduction to World Wide Web (WWW), working of web browser and web server, Web server and its deployment, N-tier architecture, services of web server, Common gateway interface (CGI), Uniform Resource Locator (URL), format of the URL, Hyper Text Transfer Protocol (HTTP), feature of HTTP protocol HTTP request-response model, Hyper Text Transfer Protocol Secure (HTTPS).

UNIT- II

Introduction to Hyper Text Markup Language (HTML), HTML elements, XHTML syntax and Semantics, eXtensible Markup Language (XML), element, attributes, entity declarations, DTD files and basics of Cascading Style Sheet (CSS).Document object Model (DOM) history and levels, Document tree, DOM event handling.

UNIT- III

Introduction to Java Script, Basic concepts, variables and data types, functions, conditional statements, Loops, Operators, Arrays, Standard Objects and form processing in Java.

UNIT- IV

Evaluation of web applications, type of web documents, feature of web pages, multitier web applications, introduction to Apache web server, Security in application: authentication, authorization, auditing, security issues, security on the web, proxy server, Firewall. Middleware Concepts, CORBA, Java Remote Method Invocation (RMI), Message Oriented Middleware (MOM), EJB, Microsoft's Distributed Component Object Model(DCOM) Web Servers HTTP request types System Architecture Server side Scripting. Web server and its deployment, Web client, services of web server, mail server proxy server, multimedia server.

UNIT- V

Introduction to servlet, Overview Architecture Handling HTTP Request, Get and post request, redirecting request multi-tier applications, Introduction to JSP, basic JSP, Java Bean class and JSP. Setting up an Open Data Base Connectivity (ODBC) data source.

COURSE CODE-3IBIT303

COURSE OUTCOMES:

At the end of the course, students should be able to:

- Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's.
- Have a good grounding of Web Application Terminologies, Internet Tools, E – Commerce and other web services.
- Get introduced in the area of Online Game programming.

Text Books

- Web Technologies : TCP/IP, Web/Java Programming, and Cloud Computing by Achyut Godbole & Atul Kahate, New york.MC Graw Hill Co.
- Web Engineering : A Practitioner`s Approach by Roger S Pressman & David Lowe , New Delhi
  Tata Mc Graw Hill Publishing
- Web Technology : A Developer`s Perspective by N.P. Gopalan & J. Akilandeswari, New Delhi
  PHI Learning

References:-

1 .J. C. Jackson, Web Technologies: A computer science perspective, Pearson Education.
2. A. S. Godbole & A. Kahate, Web Technologies: TCP/IP Architecture, and Java Programming, TMH.
3. Paul S. Wang Sanda, S Katila, An Introduction to Web Design, Programming, CENGAGE Learning
. 4. N.P.Gopalan, J.Akilandeswari, Web Technology: A developer's Perspective, PHI Learning.

Practical List:

1. Html Is The Standard Markup Language For Creating Web Pages.
2. Introduction To Css
3. Dialogue Boxes In Javascript
4. Write A Program In Javascript To Perform Arithmetic Operation
5. Write A Javascript Function That Reverse A Number.
6. Write A Javascript Function That Checks Whether A Passestring Is Palindrome Or Not
7. Write A Javascript Function That Accept A Number As Parameter & Check The Number Prime Or Not.
8. Write A Program In Javascript To Print The Fibonacci Series Code.
9. Changing The Background Color Of A Web Page Using Javascript Dom.
10. Write A Program To Check A Number Whether It Is Even Or Odd Using Java

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COURSE CODE: 3IBIT304

INTRODUCTION TO INFORMATION TECHNOLOGY
Course Code: 3IBIT304

COURSE OBJECTIVE:-

1. To understand the principles and vocabulary of Information Technology.
2. To understand the mathematical principles underlying multimedia information technologies.
3. To understand the questions about the social, economic, and political contexts in which IT exists
4. To understand the cutting-edge technologies and trends such as those in the areas of wireless multimedia, computer security, digital audio, and high-performance computing.

Syllabus:

Theory:

UNIT-I

Introduction - Introduction, Parallel and Distributed Systems, Computer Networks Modern Business Management.

Distributed Systems -Distributed System, Managing Distributed Databases, Distributing the Processing and Storage Function, Transactions and Concurrency, Advantages and Disadvantages of DS , Flavors of Distributed Systems, Architectures of Distributed Systems, Security in Distributed Systems.

Modern Business Trends: E-Business & E-Commerce -INTRODUCTION, ONLINE SHOPPING, E-BUSINESS, E-Commerce, Buying and Paying Online, Electronic Payment System, Online Publishing.

Modern Business Management: E-SCM - Introduction, Supply Chain Management, E-Supply Chain Management, Components of Modern E-SCM, Major Trends in E-SCM, Example of E-SCM, Architecture of E-Supply Chain Models, E-SCM Process Integration, Supply chain management components integration, Globalization and E-SCM, E-Supply Chain Network, E-Supply Chain Management Framework.

Modern Business Management: E-CRM - Customer Relationship Management Concepts, How Technology can help in CRM, E-CRM Solutions, Advantages of E-CRM, E-CRM Capabilities, Data Mining and E-CRM, Example of E-CRM, Implementing an E-CRM System, E-CRM Framework, and Next Generation CRM.

UNIT-II

Virtual Reality - Introduction, History of Virtual Reality, Virtual Reality, Virtual Reality Application, Impact of VR , Simulated Reality, Virtual Reality : Hardware, Levels of VR Hardware Systems , VR Software Systems , Aspects of VR Program , World Space , World Database , Control Panels , Types of VR Systems , VR Challenges.

Artificial Intelligence - Introduction, Concept of AI, AI Applications, Intelligence, Artificial Intelligence, Intelligent Systems, Knowledge-based Systems, Knowledge-based Engineering

Expert Systems , Introduction, Background History, Concept of Expert Systems, Expert Systems Vs. Problem solving System, People involved in Expert Systems, The End User, The Knowledge Engineer, Features of Expert System, Building of the Expert System, Advantages and Disadvantages of ES, ES Applications, Expert System Problem domain, Benefits and Limitations of Expert Systems, Examples of Expert Systems.

UNIT-III

Introduction to Big Data, Big data features and challenges, Problems with Traditional Large-Scale System, Sources of Big Data, Types of Data, HDFS Design & Goals, Understand Blocks and Configuration of block size, Block replication and replication factor. History of Hadoop, Available version Hadoop, Available Distributions of Hadoop (Cloudera, Hortonworks) , Architecture of Hadoop & Planning for cluster. Introduction to IOT, key features, advantages and disadvantages.IOT hardware and software, Technology and protocol of IOT.

UNIT-IV

Mobile Commerce , Mobile Commerce , Technology for Mobile Commerce, Wireless Communications and its Generations, Wireless Application Protocol (Wap), Other Wireless Technologies , GSM/CDMA Security Issues, Growth and Success Stories of M-Commerce, M-commerce in India.

Geographic Information Systems , Introduction, Geographic Information System , Components of a GIS, Working of GIS, Data for GIS, GIS and Related Technologies, Spatial Data Infrastructures, Maps and Map Data Handling , Traditional maps Vs. GIS, Functions of GIS , Planning for GIS , Implications of GIS , Virtual Globe, GIS Software.

UNIT-V

Introduction and Basic Concepts of Modern Communication and Telephony Technology, Introduction, Code Division Multiple Access, Wireless Local Loop, GSM (Global System for Mobile Communication), Voice Over IP, Bluetooth, Wi-Fi, ISDN.

Electronic Data Interchange, Introduction, Electronic Data Interchange, The Structure of EDI Systems, EDI Standards, Features of EDI, EDI Technology, Advantages of EDI, Barriers in adopting EDI, Drawbacks of EDI, New Trends in EDI.

COURSE OUTCOMES:-

After study this student will be able to know the

1.Familiarity with the foundations of basic information technologies.
2. The social, political and economic implications of IT.
3. Understand the difference between analog and digital technologies.
4. Understand how audio and images are digitized.

Text Books:

- Essentials of Infromation Technology (H) by A. Mansoor Meerut Pragati
- Internet Web Technology E-Commerce by Nitin K. Naik Indore Kamal Prakashan

Reference Books:

- Fundamentals of Information Technology by Alexis Leon Chennai :Leon Press,
- Information Technology by S.P. Gupta & Anant Kr. Srivastava, Agra Sahitya Bhawan

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COURSE CODE: 3IBMA301

COUNTING PRINCIPLES, PROBABILITY AND STATISTICS

COURSE OBJECTIVE: –

Student will be able to

1. Learn the language and core concepts of probability theory.
2. Understand basic principles of statistical inference.
3. Use software and simulation to do statistics (R).
4. Become an informed consumer of statistical information.
5. Prepare for further coursework or on-the-job study.

Syllabus:-

Theory

UNIT-I

ELEMENTARY COUNTING PRINCIPLE: Product rule, Binomial and multinomial theorem, Stirling's formula, Principle of inclusion and exclusion, Permutations and combinations, Dearrangements, Marriage problem.

UNIT-II

RECURRENCES: Recurrences and generating functions, Solution of recurrences using generating functions

UNIT-III

DISCRETE PROBABILITY: Discrete probability, Applications of counting principles to calculate discrete probability.

UNIT-IV

PROBABILITY DISTRIBUTIONS: Definition of a random variable, Probability distribution and density function, Mathematical Expectation.

mean, median, mode. Skewness and Kurtosis, Higher moments, Various probability distributions, Normal, Binomial, Poisson, and Cauchy distributions, and their properties.

UNIT-V

CORRELATION AND STATISTICAL INDEPENDENCE: Correlation and statistical independence, Conditional probability, Numerical generation of random variables with a given distribution, Statement of the central limit theorem, and numerical test of the central limit theorem.

UNIT-VI

Basics of sampling theory, Sample mean and variance, sampling biases, with special reference to Internet sampling, Stratified sampling.

COURSE CODE: 3IBMA301

UNIT-VII

Introduction to Monte Carlo methods

COURSE OUTCOMES:-

At the end of the course the students will be known to use basic counting techniques (multiplication rule, combinations, permutations) to compute probability and odds. Create and interpret scatter plots and histograms. Compute the covariance and correlation between jointly distributed variables. Find credible intervals for parameter estimates.

Texts & Reference Books:

- Discrete Mathematics For Computer Science and Mathematicians by Joe. L. Mott, Abraham Kandel , T.P. Baker.
- Engineering Mathematics by S.S. Sastry.
- Fundamentals Of Mathematics-II by Kamal Prakashan

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Corse Code: 3SCIT 201

DATA ENTRY OPERATIONS

Course Objective:-

1 To understand the basic knowledge of computer
2 To understand the assembly-level programming
3 To understand the input output devices, storage media, and memory

Syllabus:

Theory :

UNIT-1

Basics of Computer: Computer Organization, Input and Output Devices, System Software and Application Software, Computer Language, Compiler and Assembler.
Operating System: Elements of Windows XP, Desktop Elements, Locating Files and Folders, Changing System Setting, File Management in Windows, Installation of Software and Hardware.

UNIT-2

Basics of Word Processing: Starting Word Program, Word Screen Layout ,Typing Screen Objects, Managing Documents, Protecting and Finding Documents, Printing Documents
Formatting Documents: Working with text, Formatting Text, Formatting Paragraphs, Bulleted and Numbered Lists, Copying and Moving Text, Spelling and Grammar, Page Formatting, Creating Tables, Mail Merge.

UNIT-3

Types of document in Mail merge: Creating data Source, Creating Mailing Labels, Creating Mailing Labels, Merging Data into Main Document.
Basics of Spreadsheet: Selecting, Adding and Renaming Worksheets, Modifying a Worksheet, Resizing Rows and Columns, Workbook Protection.

UNIT-4

Formatting Worksheets: Formatting Toolbar, Formatting Cells, Formatting Rows and Columns, Formatting Worksheets Using Styles, Protect and Unprotect Worksheets.
Formulas, Functions and Charts: Formulas and Functions, Copying a Formula, Types of Functions, Types of Charts, Auto Shapes and Smart art.

UNIT-5

Creating Presentation: Creating Slides, Slide Sorter View, Changing Slide Layouts, Moving Between Slides.
Introduction to Internet: Getting Connected to Internet, Types of Internet Connections, Internet Terminology, Understanding Internet Address, Web Browser and Internet Services.

Course Outcomes:-

Practicals

After studying this student will be able to know about terms and concepts of Microsoft suite completely.(like MS-word, power-point-excel sheets, outlook express)

1.To study the features of MS-Office 2007 such as MS-Word, MS-Excel, MS-Power point and MS-Access
2. To create a document using mail merge in MS-Word.
3. To create a document for type the mathematical equation in MS-Word.
4. To create a employees work detail list using MS-Excel
5. To calculate student mark details using MS-Excel.
6. To Import External Data, Sort and Filter using MS-Excel.
7. To create a database using MS-Access.
8. To generate report using MS-Access.
9. To create a presentation text and images with effects using MS-Power point.
10. To create a presentation with effects using animation and sound effects.
11. To create a document using mail merge in MS-Word.

Reference Books:

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COURSE CODE - 3HBEL501

INTRODUCTION TO SOFT SKILL & TEAM BUILDING
COURSE CODE - 3HBEL501

COURSE OBJECTIVES:-

By the end of the soft skills training program, the students should be able to:

- Develop effective communication skills (spoken and written).
- Develop effective presentation skills.
- Conduct effective business correspondence and prepare business reports which produce results.
- Become self-confident individuals by mastering inter-personal skills, team management skills, and leadership skills.
- Develop all-round personalities with a mature outlook to function effectively in different circumstances.
- Develop broad career plans, evaluate the employment market, identify the organizations to get good placement, match the job requirements and skill sets.
- Take part effectively in various selection procedures adopted by the recruiters.

Teaching Methods:

The teaching methods in the soft skills training include lectures, projects, role plays, quizzes, and various other participatory sessions. The emphasis will be on learning by doing.

Since the method of training is experiential and highly interactive, the students imbibe the skills and attributes in a gradual and subtle way over the duration of the program. The students will not only learn the skills and attributes but also internalize them over a period of time.

Internalization ensures that the skills and attributes become part of the students' nature. Subtle changes are bound to occur in their behavior and outlook, and these will make them more self-assured and confident. Moreover, the behavior changes will be gradual and natural and will not appear artificial or put on. Thus, the changes in them will be genuine and positive.

Evaluation:

The Soft Skills training program is a credit course and the evaluation of the students takes place on a continuous basis. Active participation in activities, interest displayed by the students in acquiring the necessary attributes and skills and the commitment shown by them to improve in terms of attitudes are the main criteria for evaluation.

Introduction, Communication Skills, Presentation Skills, Body Language, Resume writing, Interview

Skills, Corporate Etiquettes

COURSE CODE - 3HBEL501

Module 1: Introduction

General Introduction of self by students, Importance of the Training sessions, Importance of Presentation

Skills, Public Speaking

Module 2: Basic English Grammar

Vocabulary, Kinds of Sentences, Verb, Adverb, Tenses, Preposition, Conjunction, Formation of Sentences, Sentence Making, Translation

Module 3: Communication Skills

Communication meaning, Function, Process, Types of communication, Barriers of communication, Guidelines for effective communication, Purpose of Good communication, Importance of right Pronunciation

Module 4: Listening and Writing Skills

Importance of effective listening, Importance of effective writing skills, Conversation Practice, Guidelines for

Effective writing

Module 5: Body Language

Gestures, Voice Modulation, Eye Contact, Facial Expression, Posture, Dressing Sense, Attire, Hand, movements, General Etiquette, Mannerism, Smiling Gestures, Confidence building, Exit walk

Module 6: Behavioral skills

Team Management, Time Management, Stress Management, Decision Making, Positive Thinking Attitude, self actualization, Working style

Module 7: Email Skills

Email Etiquette, Email Drafting

Module 8: Creating a Resume/ Resume writing tips

Format and Content of Resume, Fresher's Resume, Helpful Tips For Resume Writing, Things to avoid in Resume

Module 9: Group Discussion

Introduction "what is GD", Ability to Influence, Importance of Active Listening, Key Steps to succeed in GD

Do's and Don'ts of GD.

Module 10: Interview Skills/ Tips

Groundwork before the Interview, Greeting Etiquettes, Self Introduction, Tips to answer "questions"

Do's and Don'ts of Interview, Preparing a day before the interview, Things to remember during the Interview.

Module 11: Telephonic Interview and Video Conferencing Interview Tips

Treat the Interview like a face to face Interview, Telephone Etiquette, Flow of Conversation

Module 12: Corporate Etiquette

Professional Attitude at work, Punctuality, Meeting etiquettes, Professional Dressing sense, Cordial Relation with Fellow workers

COURSE CODE:3IBIT 401

COMPUTER NETWORKS

Course Code:3IBIT 401

COURSE OBJECTIVE:-

1. To understand the fundamental concepts of computer networking.
2. To understand the basic taxonomy and terminology of the computer networking area.
3. To understand the advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
4. To understand the various transition method.

Syllabus:

Theory:

UNIT-I

Introduction To Networking, Introduction to Network, Network, Computer Networks, Need of Network , Uses of Computer Network, Applications of networks, Network Criteria, Network Hardware and Software, network types : client, server & peers, Various Types of Servers.

Transmission Technology, Transmission technology, Data can be analog or digital, Analog and Digital Transmission, Asynchronous & synchronous transmission, Types of Communication Modes, Baseband and Broadband Transmission, Comparison of Baseband and Broadband Signaling.

Transmission Media , Transmission Media, Classification of Transmission Media, Comparison of Guided and Unguided Media, Twisted Pair (TP) Cable, Coaxial Cable, Fiber Optic Cable (FOC), Unguided Media, Radio Frequency Characteristics, Microwave Transmission, Applications of Infrared Transmission.

UNIT-II

Network Topology, Network Topology, Types of Network, Local Area Network (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN), Satellite Networks, Wireless LAN.

Network Adapters, Network adapters, Network interface cards (NIC), Multiple Access Protocol, ALOHA, Carrier Sense Multiple Access (CSMA), CSMA/CD [Carrier Sense Multiple Access/Collision Detection], Collision Free Protocols , Limited Contention Protocol, Controlled Access , Channelisation, Code Division Multiple Access (CDMA).

The Theoretical Network Model - OSI, OSI Model, open system interconnection model (OSI) Layered Architecture of the OSI Reference Model, Functions of the ISO/OSI Layers, Summary of OSI Layer functions.

Real World Networks, real world network : Ethernet, Fast Ethernet , FDDI (Fiber Distributed Data Interface), Network Operation, ATM (Asynchronous Transfer Mode), ATM Service Categories, ARCNET , AppleTalk.

UNIT-III

IEEE 802 Standards , IEEE 802 standards, IEEE 802.3 (CSMA/CD) , IEEE 802.4 (Token Bus), IEEE 802.5 [Token Ring] , IEEE 802.5 cable standards, Comparison between IEEE 802.3,802.4 and 802.5, Compare Token Passing with CSMA/CD.

Connectivity Devices, Networking scaling, Connectivity Devices , Modems, Transceiver , Repeaters, Hubs, Bridges, Routers .

UNIT-IV

TCP/IP Reference Model, Overview of tcp/ip reference model, Introduction to TCP/IP :, TCP/IP Protocols, User Datagram Protocol, The Internet Control Message Protocol (ICMP), The Address resolution Protocol (ARP), Reverse Address Resolution Protocol (RARP), Simple Mail Transfer Protocol (SMTP), File Transfer Protocol, Dynamic Host Configuration Protocol (DHCP), Remote Login (rlogin), The Network File System (NFS).

IP Addressing & Subnet, Introduction to IP, Domain Name System (DNS), URL (Uniform Resource Locator), Electronic Mail, E-mail address, Subnet & Subnet masks.

Network Security, Network Security, The Need for Security, common threats, security barriers in network pathways, Attacks, Classification of Attacks, Specific Attacks.

UNIT-V

Approaches to Network Security, Levels of Security, Approaches to network security, Security Services.

Viruses & Security Threats, Virus & Threats, Malicious Programs, Types of Viruses, Virus Countermeasures, Antivirus Approach, Advanced Antivirus Techniques, Distributed Denial of Service Attacks, DDoS Attack Description.

Firewalls, Firewalls, Firewall Design Principles, Types of Firewalls, Firewall Configurations, Demilitarized Zone (DMZ) Networks, VLAN.

Encryption & Decryption, Encryption & Decryption - Cryptography, Terminology, Classification of Cryptography, Substitution Ciphers, Security of algorithms, Steganography, Steganography vs Cryptography, Public key encryption , Comparison of Symmetric and Asymmetric Key Cryptography , Public Key Cryptanalysis.

Digital Signature, Digital Signature , Requirements of Digital Signature, Direct Digital Signature, Arbitrated Digital Signature, Authentication Protocols, Symmetric Encryption Approach, Public-Key Encryption Approach, Digital Signature Standard, RSA and Digital Signature, DSS Approach, The Digital Signature Algorithm,

COURSE OUTCOMES:-

After study this student will be able to know about

1. Independently understand basic computer network technology.
2. Understand and explain Data Communications System and its components.
3. Identify the different types of network topologies and protocols.
4. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.

Text Books :

- Data Communications and Networking by Behrouz A. Forouzan, New york.MC Graw Hill Co.
- Computer Networks by Andrew S. Tanenbaum & David J. Wetherall, New Delhi Pearson Education

CORSE CODE:3IBIT 401

Reference books:

- Computer Networks and Internets with Internet Applications with CD by Douglas E. Comer & M.S. Narayanan, New Delhi Pearson Education
- Computer Networking & Data Communications (H) by Nitin K. Naik Indore Kamal Prakashan

Practical list:

1. Study of different types of Network cables and Practically implement the cross-wired cable and straight through cable using clamping tool.
2. Study of Network Devices in Detail.
3. Study of network IP.
4. Connect the computers in Local Area Network.
5. Study of basic network command and Network configuration commands.
6. Performing an Initial Switch Configuration
7. Performing an Initial Router Configuration
8. Configuring and Troubleshooting a Switched Network
9. Connecting a Switch 10 Configuring WEP on a Wireless Router
10. Examining WAN Connections

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COURSE CODE: 3IBIT 402

OPERATING SYSTEM CONCEPTS

Course Code: 3IBIT 402

COURSE OBJECTIVE: –

Student will be able

1. To develop the understanding of functioning of Operating System.
2 To understand the Process Concepts, process state & process control
3 To understand the Critical Section Problem

Syllabus:-

Theory

UNIT–I

Definitions, functions and types of operating system, System components, Operating system Services, System Calls, System programs, System structure.

UNIT–II

Process Concepts, process state & process control block, Process Scheduling, Scheduling Criteria, Scheduling Algorithms, Multiple-Processor Scheduling Real-Time Scheduling, Threads, Threads in Linux.

UNIT–III

Critical Section Problem , Semaphores, Classical Problem Of Synchronization, , Deadlock Characterizations, Method for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Process Scheduling in Linux.

UNIT–IV

Logical versus physical address space, Swapping, Contiguous Allocating, Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement, Page Replacement Algorithms, Memory Management in Linux.

UNIT–V

Disk Scheduling, Disk Management, Swap Space Management, Disk reliability, Stable Storage Implementation.
File Concepts Directory structure, Protection, File system in Linux.

COURSE CODE: 3IBIT 402

COURSE OUTCOMES :–

After Study This Student Will Be Able to Know About functioning of Operating System. To make students able to learn different types of operating systems along with concept of file systems and CPU scheduling algorithms used in operating system.
To provide students knowledge of memory management and deadlock handling algorithms. At the end of the course, students will be able to implement various algorithms required for management, scheduling, allocation and communication used in operating system

Text Books:

- Operating System (H) by Ashish Tiwari, Indore ,Kamal Prakashan
- Operating Systems by Achyut S. Goodbole & Atul Kahate, New york.MC Graw Hill Co.
- Operating Systems : A Concept-Based Approach by Dhananjay M. Dhamdhere, New york.MC Graw Hill Co.

References Books:

- Operating System Concepts by Silberschatz & Galvin, Addison Wesley Publication 6th Edition.
- Operating System Concepts & Design by Milan Milen Kovic, TMH Publication

Practical List :

1. Basics of UNIX commands.
2. Shell programming
3. Implementation of CPU scheduling. a) Round Robin b) SJF c) FCFS d) Priority
4. Implement all file allocation strategies
5. Implement Semaphores
6. Implement ll File Organization Techniques a
7. Implement Bankers algorithm for Dead Lock Avoidance
8. Implement an Algorithm for Dead Lock Detection
9. Implement the all page replacement algorithms a) FIFO b) LRU c) LFU
10. Implement Shared memory and IPC 11. Implement Paging Technique f memory management.
12. Implement Threading & Synchronization Applications

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COURSE CODE: 3IBIT 403

E-COMMERCE AND GOVERNANCE

Course Code: 3IBIT 403

COURSE OBJECTIVE:

1.The strategic objective of e-governance, or in this case G2G is to support and simplify governance for government, citizens, and businesses.

2 .The use of ICT can connect all parties and support processes and activities.

3 .To make government administration more transparent, speedy and accountable while addressing the society's needs and expectations through efficient public services and effective interaction between the people, businesses, and government.

Unit I: Introduction to e-commerce: History of e-commerce, e-business models B2B, B2C, C2C, C2B, legal; environment of e-commerce, ethical issues, electronic data interchange, value chain and supply chain, advantages and disadvantages of e-commerce.

Unit II: Electronic Payment Systems: Credit cards, debit cards, smart cards, e-credit accounts, e-money, Marketing on the web, marketing strategies, advertising on the web, customer service and support, introduction to m-commerce, case study: e-commerce in passenger air transport.

Unit III: E-Government, theoretical background of e-governance, issues in e-governance applications, evolution of e-governance, its scope and content, benefits and reasons for the introduction of e-governance, e-governance models- broadcasting, critical flow, comparative analysis, mobilization and lobbying, interactive services / G2C2G.

Unit IV: E-readiness, e-government readiness, E- Framework, step & issues, application of data warehousing and data mining in e-government, Case studies: NICNET-role of nation wide networking in egovernance, e-seva.

Unit V: E-Government systems security: Challenges and approach to e-government security, security concern in e-commerce, security for server computers, communication channel security, security for client computers.

Outcomes: On completion of this course, students should have gained a good understanding of the concept of government administration and society's needs and expectations through efficient public services and effective interaction between the people, businesses, and government.

Text books

- Gary P. Schneider, “E-commerce”, Cengage Learning India. C.S.R. Prabhu,
- “E-governence: concept and case study”, PHI Learning Private Limited. V. Rajaraman,
- “Essentials of E-Commerce Technology”, PHI Learning Private Limited. David Whiteley,

COURSE CODE: 3IBIT 403

Reference Books :-

- "E-commerce study , technology and applications", TMH. J. Satyanarayan,
- "E-government: The science of the possible", PHI Learning Private Limited. P.T. Joseph,
- "E-Commerce An Indian Perspective", PHI Learning Private Limited. Hanson and Kalyanam,
- "E-Commerce and Web Market

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COURSE CODE: 3IBEC 401

DATA COMMUNICATION
Course Code: 3IBEC 401

COURSE OBJECTIVE

1.The purpose of this subject is to cover the underlying concepts and techniques used in Data Communication.
2. Discussion about various principles, standards for communication over different type of Communication Media
3.. General idea about the analog and digital communication.

UNIT- I

Introduction to data communication: Components , data representation ,data flow and basic model ,data representation ,Serial & Parallel transmission , Modes of data transmission, Encoding:Unipolar,Polar ,Bipolar line & block codes ,Data compression ,Frequency dependant codes, Run length encoding ,Relative encoding ,LZ Compression ,Image and multimedia compression. Review of analog & digital transmission methods, Nyquist Theorem .

UNIT- II

Multiplexing: FDM, TDM, WDM, Synchronous & Statistical TDM, North American digital multiplexing hierarchy, European TDM, Spread spectrum: Frequency Hopping & Direct Sequence spread spectrum. Terminal handling & polling. Switched Communication Networks: Circuit, Message, Packet & Hybrid Switching, Softswitch Architecture with their comparative study, X.25, ISDN.

Physical Layer: Introduction, Interface, Standards, EIA-232-D, RJ-45, RJ-11, BNC connector & EIA-449 digital Interface: Connection, specifications & configuration, X.21 Modem: Types, features, signal constellation, block schematic, limited distance, dial up, baseband,line driver, Group Band and Null modems etc., ITU-T V-series modem standards Connecting Devices: Active and Passive Hubs, Repeaters, Bridges, Two & Three layer switches & Gateway. Study of various types of topology and their comparative study and introduction to queing theory.

UNIT- IV

Transmission Media: Transmission line characterestics, distortions, Crosstalk, Guided Media: Twisted Pair, Baseband & Broadband Coaxial.Optical Fibre : Physics and velocity of propagation of light , Advantages & Disadvantages ,Block diagram ,Nodes and classification ,Comparision,losses , light source and detectors , Construction, Unguided media : Electromagnetic polarization ,Rays and wavesfront ,electromagnetic spectrum and radiation ,spherical wavefront and inverse square law , wave attenuation and absorption, optical properties of Radio waves , Terestrial Propagation of electromagnetic waves , skip distance , free – space path loss ,Radio waves , Microwave , Infrared &

COURSE CODE: 3IBEC 401

Satellite Communication system . Telephone Network: Components, LATAs, signaling and Services, Digital Subscriber Line: ADSL,

HDSL, SDSL, VDSL, Cable TV network for data transfer.

UNIT- V

Transmission Errors : Content Error , flow integrity error , methods of error control ,Error detection ,Error correction ,Bit error rate , Error detection methods: Parity checking , Checksum Error Detection ,Cyclic Redudancy Check ,Hamming code , Interleaved codes , Block Parity , Convolution code, Hardware Implementation, Checksum .

COURSE OUTCOMES:

Explain important networking concepts, such as bandwidth, routing, routers, and the client/server model.Describe wireless and mobile technologies and networks.Discuss the importance of wireless security and the techniques used.Summarize the convergence phenomenon and its applications for business and personal use

Text Books :

- Gupta Prakash C.,"Data communication", PHI Learning
- Tomasi,"Introduction to Data Communication & Networking, Pearson Education
- Forouzan, "Data communication", TATA McGraw

References:

- Godbole,"Data Communication & Network" , TMH
- Miller,"Data Network and Comunication",Cengage Delmar Learning
- William Stallings ,"Data & Computer Communication", Pearson Education
- A.S Tanenbum,"Computer Network",Pearson Education.

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COURSE CODE: 3HBHP 401

HUMAN VALUES & ETHICS

Course Code: 3HBHP 401

COURSE OBJECTIVES:

This introductory course input is intended

1. To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings
2. To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way
3. To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behaviour and mutually enriching interaction with Nature

   Thus, this course is intended to provide a much needed orientation input in value education to the young enquiring minds

   Thus, this course is intended to provide a much needed orientation input in value education to the young enquiring minds.

Syllabus:

Theory:

UNIT- I

Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Understanding the need, basic guidelines, content and process for Value Education
2. Self Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self exploration
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current Scenario
6. Method to fulfill the above human aspirations: understanding and living in harmony at Various levels

UNIT- II

Understanding Harmony in the Human Being - Harmony in Myself!

1. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
2. Understanding the needs of Self ('I') and 'Body' - *Sukh* and *Suvidha*
3. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)
4. Understanding the characteristics and activities of 'I' and harmony in 'I'

5. Understanding the harmony of I with the Body: *Sanyam* and *Swasthya*; correct, appraisal of Physical needs, meaning of Prosperity in detail
6. Programs to ensure *Sanyam* and *Swasth,* Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT- III
Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

1. *Understanding Harmony in the family – the basic unit of human interaction*
2. Understanding values in human-human relationship; meaning of *Nyaya* and program for its fulfillment to ensure *Ubhay-tripti*; Trust (*Vishwas)* and Respect (*Samman)* as the foundational values of relationship
3. Understanding the meaning of *Vishwas*; Difference between intention and competence
4. Understanding the meaning of *Samman,* Difference between respect and differentiation; the other salient values in relationship
5. Understanding the harmony in the society (society being an extension of family): *Samadhan, Samridhi, Abhay, Sah-astitva* as comprehensive Human Goals
6. Visualizing a universal harmonious order in society- Undivided Society (*Akhand Samaj),* Universal Order (*Sarvabhaum Vyawastha)*- from family to world family!

Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT- IV
Understanding Harmony in the Nature and Existence - Whole existence as Co-existence

7. Understanding the harmony in the Nature
8. Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature
9. Understanding Existence as Co-existence (*Sah-astitva*) of mutually interacting units in all-pervasive space
10. Holistic perception of harony at all levels of existence

Practice Exercises and Case Studies will be taken up in Practice Sessions.

UNIT- V
Implications of the above Holistic Understanding of Harmony on Professional Ethics and Gender justice

1. Natural acceptance of human values
2. Definitiveness of Ethical Human Conduct
3. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
4. Competence in professional ethics:

A) Ability to utilize the professional competence for augmenting universal human order
B) Ability to identify the scope and characteristics of people-friendly and eco-friendly, production systems,
C) Ability to identify and develop appropriate technologies and management patterns for

above production systems.

5. Case studies of typical holistic technologies, management models and production systems
6. Strategy for transition from the present state to Universal Human Order:

A) At the level of individual: as socially and ecologically responsible engineers, Technologists and managers

B) At the level of society: as mutually enriching institutions and organizations

Gender justice : What is Gender justice, Notions of sex and gender, Deconstructing 'Man', 'Woman', 'Other' Private-public dichotomy, Women in ancient, medieval and modern India: An overview Current status of women Indicators of status: Difference in - likelihood of survival; female foeticide, assigned human worth; and control over property, valued goods and services, working conditions, knowledge and information, political processes, symbolic representation, one's body, daily lifestyles, reproductive processes Gender Justice in India: An overview

COURSE OUTCOME:-

1. The students are able to see that verification on the basis of natural acceptance and experiential validation through living is the only way to verify right or wrong, and referring to any external source like text or instrument or any other person cannot enable them to verify with authenticity; it will only develop assumptions.
2. The students are able to see that their practice in living is not in harmony with their natural acceptance most of the time, and all they need to do is to refer to their natural acceptance to remove this disharmony.
3. The students are able to see that lack of right understanding leading to lack of relationship is the major cause of problems in their family and not the lack of physical facilities in most of the cases, while they have given higher priority to earning of physical facilities in their life ignoring relationships and not being aware that right understanding is the most important requirement for any human being.
4. The students feel confident that they can understand the whole existence; nothing is a mystery in this existence. They are also able to see the interconnectedness in the nature, and point out how different courses of study relate to the different units and levels. Also they are able to make out how these courses can be made appropriate and holistic.
5. The students are able to grasp the right utilization of their knowledge in their streams of Technology/Engineering/ Management to ensure mutually enriching and recyclable productions systems.
6. The students are able to sincerely evaluate the course and share with their friends. They are also able to suggest measures to make the course more effective and relevant. They are also able to make use of their understanding in the course for a happy and prosperous society.

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COURSE CODE: 3IBIT 501 A

PROFESSIONAL ELECTIVE-I
MANAGEMENT INFORMATION SYSTEM
Course Code: 3IBIT 501 A

COURSE OBJECTIVE:-

1. To understand why information systems are so important today for business and management
2. To understand the role of the major types of information systems in a business environment and their relationship to each other.
3. To understand the impact of the Internet and Internet technology on business electronic commerce and electronic business.
4. To understand the major management challenges to building and using information systems and learn how to find appropriate solutions to those challenges.

Syllabus:

Theory:

UNIT-I

Fundamentals of Information Systems, Introduction, Data, Information and Knowledge, Concept of System, Characteristics of A System, Elements of A System, , types of a system, Management Information System , Introduction, Management Information System (MIS), Elements Of MIS, Objectives Of MIS, Characteristics of MIS, Views Of MIS, Role of MIS in Management.
Information, Introduction, What is Information, Need of Information, Levels of Information.

UNIT- II

System Development Life Cycle, Introduction, System development Life cycle, The problems of a system mean, Different Phases of System Development Life Cycle, Considerations for candidate systems , political consideration, prototyping.
PLANNING, Introduction, Meaning and Definition of Planning, Nature / Features of Planning, Objective of Planning, Levels of Planning, Types of planning, Advantages of Planning, Limitations of Planning.
System Planning and Initial Investigation , Introduction, System planning, Why system planning ?, Strategic MIS planning, Managerial and operational Mis planning, Strategies for determining information requirements, Getting information from the existing information system, Prototyping, Initial investigation, , Activities in initial investigation, Background analysis, Fact-Finding techniques, Data collection, Correspondence and questionnaires, Personal interview, Observation, Research.

UNIT- III

Structured Analysis and Feasibility Study , Introduction, What is Structured Analysis ?, Why Structured Analysis ?, Charts, Data Flow Diagram, Data Dictionary, Data Dictionary Decision Trees, Structured English, Why Feasibility Study ?, Steps In Feasibility Study, Cost Benefit Analysis.
System Design, Introduction, Design Process, Phases of Design, Methodologies of Designing, Structured Design, Functional Decomposition, Module Coupling and Cohesion, Prototyping,

Input, Output And Form Design, Introduction, Input Design, Input Design Considerations, Input Devices, Output Design, Form Design, Types of Forms, Layout Considerations, Print Forms in Reasonable Quantities, Automated Form Design, Forms Control.

UNIT- IV

File Organization And Database Design, Introduction, File Structure, File Organization, Methods of Organizing Files, Objectives of Database, Data Structure, Types of Relationship Amidst Data, Types of Data structure, Entities and Attributes, Normalization, Why is Normalization Necessary ?, Role of Database Administrator, Managing Data Activities, Managing Database Structure, Managing Database Management System.

Implementation And Software Maintenance , Introduction, What is System Implementation ?, What is System Conversion ?, Types of Implementation, Conversion, Conversion Activities, User Training, Combating Resistance to Change, Post Implementation Review, Software Maintenance, Maintenance or Enhancement ?, Primary Activities of Maintenance Procedure, Reducing Maintenance Costs.

UNIT- V

System Security And Disaster Recovery Planning , Introduction, System Security, , Threats to System Security, Personal, Risk Analysis, Control Measures, Recovery/Restart Requirements, System Failures and Recovery, Disaster/Recovery Planning, Plans, Team, Planning Task,

Information System for Business Operations, E-Business, Components of E-Business Model, E-Business Trends, Information system for strategic advantage, Information System for Managerial Decision Support, Management Information systems, Decision Support System (DSS), Other Information systems.

COURSE OUTCOMES:-

After study this student will be able to know about

1. The basic concepts and technologies used in the field of management information systems.
2. Have the knowledge of the different types of management information systems.
3. Develop an understanding of how various information systems work together to accomplish the information objectives of an organization.

Text Books

- Management Information System:Jawadekar, W.S 4th ed TMH
- Management Information systems:The Manage view Schultheis ,R/summer.M 4th ed TMH
- Management Information Systems: concise study :Kelkar,S.A PHI

Reference Books:

- Management Information Systems: Conceptual Foundations, Structure and Development by Gordon B. Davis & Margrethe H. Olson New york.MC Graw Hill Co.
- Management Information System Course by Madhur Kumar Tailang, New Delhi BPB Publication

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COURSE CODE: 3IBIT 501 B

PROFESSIONAL ELECTIVE-I
ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM
Course Code: 3IBIT 501 B

COURSE OBJECTIVE :–

Student will be able-

1. To understanding the importance of AI and puzzle problem.
2. To understanding the Search Techniques.
3. To understanding the Symbolic and Statistical Reasoning.
4. To understanding the frames and Structural Knowledge Representation.
5. To understanding the expert system life cycle.

Pattern:

The question paper will consist of five questions. Each question carry 10 marks each, one from each of the five units of the syllabus and may have internal choice. These five questions will have two parts A & B, prefererably one theoretical and other numerical/short notes. Questions should test the concepts, knowledge & applications. Candidates are required to answer all questions.

Syllabus:-

THEORY:

UNIT-I

Introduction to Artificial Intelligence, Overview and definition of AI, Importance of AI, Early work in AI, General issues in AI, Problems of AI, AI Techniques, Scope and Application areas of AI

Problem Solving and Search, State Space Search for problem solving, Production System, Search and Control Strategies, Breadth First Search, Depth First Search, Heuristic Search, Production System Characteristics, Problem characteristics, Some other Control Strategies, Uniform cost search, Depth-limited search, Iterative deepening search, Adversarial Search, Two agent Games, The Minimax procedure, Example Problems, -Puzzle Problem and Playing Chess, Traveling Salesman Problem, Tic-Tac-Toc Problem, Water Jug Problem

UNIT-II

Heuristic Search Techniques, Introduction, A General Graph Searching Algorithm, Generate and Test, Hill Climbing Search, Best First Search and A* algorithm, Admissibility of A*, Monotone or Consistency Condition, Problem Reduction, AND-OR TREE, Constraint Satisfaction, Cryptarithmetic Problem

Knowledge Representation and Logic, Introduction and Importance of Knowledge, Characteristics of Knowledge, Explicit and Implicit Knowledge, Declarative or Procedural knowledge, Internal vs. External Knowledge, Mappings and Knowledge representation Methods, Issues in Knowledge representation, Important Attributes, Relationship among attributes, Granularity of representation, Representing set of objects, Finding the Suitable structure

COURSE CODE: 3IBIT 501 B

UNIT-III

First order logic or predicate calculus, Introduction, Syntax and Semantix, Extentions and Notational Variations, Representing Simple facts in Predicate Logic, Representing Instance and ISA Relationships, Inference in First Order Logic, Inference Rules Involving Quantifiers, Generalized Modus Ponens, Canonical Form, Unification, Forward and Backward Chaining, A Complete Inference Procedure: Resolution, The Resolution Inference Rule, Canonical Form for Resolution, Resolution Proofs, Conversion to Normal Form (Skolimization), Conversion to Clause Form, Resolution control strategies, Unit Preference, Set of support, Linear Input Resolution, Subsumption, Natural Deduction and Question Answering

Knowledge Representation Using Rules, Representing Knowledge Using Rules, Procedural V/S Declarative Knowledge, Logic Programming, Forward and Backward Reasoning, Matching, Indexing, Matching with Variable, Complex and Approximate Matching, Conflict Resolution, Control Knowledge

Symbolic and Statistical Reasoning, Symbolic Reasoning under Uncertainty, Introduction to Reasoning, Nonmonotonic Reasoning and its Logics, Implementation Issues, Implementation: Depth – First Search, Implementation: Breadth – First Search, Statistical Reasoning, Symbolic Verses Statistical Reasoning

UNIT-IV

Structural Knowledge Representation, Weak Slot and filter structures, Semantic nets, Intersection search, Non-binary predicates Representation, Essential distinctions, Partitioned semantic nets, Semantic nets to Frames, Frames, Frames as sets and instances, Additional ways of relating classes to each other, Slots and full-fledged objects, Property Inheritance algorithm, Languages for Frame, Strong slot and filter structures, Conceptual Dependency, Scripts, CYC

NLP : Natural Language Processing, Introduction, Computational linguistics, Problems of NLP, NLP Steps, Syntactic processing, Grammars, parsers, One or many Interpretations, Parsing techniques, Transition networks and augmented transition net, Unification Grammar, Semantic analysis, Semantic grammars, Case grammars, Conceptual parsing, Semantic interpretation, Discourse & pragmatic processing, Focus use in understanding, Modeling beliefs, Use of goals and plans for understanding, Acts of speech, Postulates of conversation

UNIT-V

Expert system, Introduction, Need and Justification, Benefits of using ES, Characteristics, Applications, Building blocks of Expert system, Knowledge Base, Inference Engine, User Interface, Expert System Life Cycle, Representing and Using Domain Knowledge, Knowledge Engineering and Acquisition, Expert System Tools, Expert System Shells, Case Study: Mycin & Dendral, Rule Based Systems, Learning Procedure

PROLOG: AI Programming Language, Introduction, Data Types & Structures: Atom, Variables, Lists, Prolog Syntax and Programming, Prolog Objects and Methods, Objects & Relationships using Trees and Lists, Facts, rules, Relationships and queries, 'IS' Operator & Singleton Variable, 'CUT' Operator

COURSE CODE: 3IBIT 501 B

COURSE OUTCOMES:-

After study this student will be able to know about the AI with search algorithm and expert system with life cycle.

Texts Books

Artificial Intelligence, Rich E and Knight K, TMH, New Delhi
Artificial Intelligence:A modern Approach ,Russel,S/Norvig,P.Pearson Edu.

Reference Books:

Artificial Intelligence:A new Synthsis ,Nilsson ,Nils ,J.Harcourt Asia PTE Ltd.
Introduction to Artificial Intelligence and Expert Systems,Patterson,Dan W.PHI

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COURSE CODE-3IBIT502 A

Professional Elective-II
Course: Cyber Law & Forensic
Course code-3IBIT502 A

COURSE OBJECTIVE:-

1. To provide an understanding Computer forensics fundamentals
2. To analyze various computer forensics technologies
3. To provide computer forensics systems
4. To identify methods for data recovery.
5. To apply the methods for preservation of digital evidence.

UNIT- I

Cyber world: an overview, internet and online resources, security of information, digital signature, intellectual property (IP), historical background of IP, IPR governance, National patent offices, the world intellectual property organization (WIPO).

UNIT- II

Introduction about the cyber space, cyber law, regulation of cyber space, scope of cyber laws: e-commerce; online contracts; IPRs (copyright, trademarks and software patenting), e-taxation; e-governance and cyber crimes, cyber law in India with special reference to Information Technology Act, 2000.

UNIT- III

Introduction to computer and cyber crimes. Cyber crimes and related concepts, distinction between cyber crimes and conventional crimes, Cyber criminals and their objectives. Kinds of cyber crimes cyber stalking; cyber pornography, forgery and fraud, crime related to IPRs, cyber terrorism; computer vandalism etc. Cyber forensics, computer forensics and the law, forensic evidence, computer forensic tools.

UNIT- IV

Regulation of cyber crimes, Issues relating to investigation, issues relating to jurisdiction, issues relating to evidence, relevant provisions under Information Technology Act 2000, Indian penal code, pornography Act and evidence Act etc.

Unit V: Copyright issues in cyberspace: linking, framing, protection of content on web site, international treaties, trademark issues in cyberspace: domain name dispute, cyber squatting, uniform dispute resolution policy, computer software and related IPR issues.

Outcomes: Understand the definition of computer forensics fundamentals. Describe the types of computer forensics technology. Analyze various computer forensics systems. Illustrate the methods

for data recovery, evidence collection and data seizure. Summarize duplication and preservation of digital evidence

Text Books:-

- Nelson, Phillips, "Computer Forensics and Investigations", Cengage Learning India.
- Vinod V. Sople, "Managing Intellectual Property" PHI Learning Private Limited.
- Dr.R.K.Tiwari P.K.Sastri,K.V. Ravikumar, "Computer crime and Computer Forensics", First Edition 2002, Select publishers.

References Books:-

- NUT, Understanding Forensics in IT, PHI Learning.
- IT Act 2000 Details www.mit.gov.in
- Simpson, "Ethical Hacking and Network Defense", Cengage Learning India

COURSE CODE-3IBIT502 B

PROFESSIONAL ELECTIVE-II
INFORMATION SECURITY
Course code-3IBIT502 B

COURSE OBJECTIVE:-

Student will be able

1. Develop a basic understanding of cryptography, how it has evolved, and some key encryption techniques used today.

2. Develop an understanding of security policies (such as authentication, integrity and confidentiality), as well as protocols to implement such policies in the form of message exchanges.

UNIT- I

Basic of Cryptography, secret key cryptography, Types of attack, Substitution ciphers, Transposition ciphers, block ciphers and steam ciphers, Confusion and Diffusion, Data encryption standard, round function, modes of operation, cryptanalysis, brute force attack, Security Goals (Confidentiality, Integrity, Availability).

UNIT- II

Public key Cryptography, Modulo arithmetic, Greatest common divisor, Euclidean algorithm, RSA algorithm, hash function, attack on collision resistance, Diffie hellman key exchange, Digital signature standard, elliptic curve cryptography.

UNIT- III

Authentication: One way Authentication, password based, certificate based, Mutual Authentication ,shared secret based, Asymmetric based, Authentication and key agreement, centralized Authentication, eavesdropping, Kerberos, IP security overview:- security association & Encapsulating security payload ,tunnel and transfer modes, internet key exchange protocol, Secure Socket Layer(SSL), Transport Layer Security (TLS).

UNIT- IV

Software vulnerabilities: Phishing Attacks, buffer overflow vulnerability, Format String attack, Cross Site Scripting, SQL injection Attacks, Email security:- Security services of E-mail ,Establishing keys, Privacy Authentication of the source, Message integrity ,Non-Repudiation, Viruses, Worms, Malware.

UNIT- V

Web Issue: Introduction, Uniform Resource Locator/uniform resource identify, HTTP, Cookies, Web security problem, Penetration Testing, Firewalls:- functionality, Polices and Access Control, Packet filters, Application level gateway, Encrypted tunnel, Security architecture, Introduction to intrusion detection system.

COURSE CODE-3IBIT502 B

COURSE OUTCOMES:-

On completion of this course, students should have gained a good understanding of the concepts and foundations of computer security, and identify vulnerabilities of IT systems. The students can use basic security tools to enhance system security and can develop basic security enhancements in stand-alone applications.

Text Books:

- Forouzan, "Cryptography & Network Security", TMH
- Atual Kahate, " Cryptography and Network Security", TMH.

Reference Books :-

- Bernard Menezes, " Network Security and Cryptography", CENGAGE Learning.
- Charlie Kaufman, " Network Security", PHI.
- Randy Weaver, " Network Infrastructure Security", Cengage Learning.

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COURSE CODE: 3IBIT 503

GUI PROGRAMMING WITH VISUAL BASIC .NET
Course Code: 3IBIT 503

COURSE OBJECTIVE: –

Student will be able-

1. The aim of the course is for the student to aim knowledge in the basic concepts of object-oriented programming and build skills to develop modern software programs using the language Visual Basic. The course is also suitable for students with prior programming experience who wish to strengthen their knowledge in the area of object-oriented design and programming with Windows.
2. Analyze program requirements
3. Design/develop programs with GUI interfaces
4. Code programs and develop interface using Visual Basic .Net
5. Perform tests, resolve defects and revise existing code

Syllabus:-
Theory

UNIT–I

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL, Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser.

The environment: Editor tab, format tab, general tab, docking tab. visual development & event drive Programming -Methods and events.

UNIT–II

The VB.NET Language- Variables -Declaring variables, Data Type of variables, Forcing variables declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable Number of Argument Optional Argument, Returning value from function.

Control flow statements: conditional statement, loop statement. Msgbox & Inputbox.

UNIT – III

Working with Forms: Loading, showing and hiding forms, controlling One form within another.

GUI Programming with Windows Form: Textbox, Label, Button, Listbox, Combobox, Checkbox, PictureBox, RadioButton, Panel, scroll bar, Timer, ListView, TreeView, toolbar, StatusBar.There Properties, Methods and events. OpenFileDilog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog. Link Label.

Designing menus : Context Menu, access & shortcut keys.

UNIT–IV

Object oriented Programming: Classes & objects, fields Properties, Methods & Events, constructor, inheritance. Access Specifier: Public Private, Projected. Overloading, My Base & My class keywords.

Overview of OLE, Accessing the WIN32 API from VB.NET & Interfacing with MS office, COM technology, advantages of COM+, COM & .NET, Create User control, register User Control, access com components in .net application.

UNIT–V

Database programming with ADO.NET – Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid.

Generate Reports Using Crystal Report Viewer.

COURSE OUTCOMES:–

After the completion of the course, students are expected to:

- have gained a good understanding of the basic concepts of object orientation
- have a good understanding of the Visual Basic language structure and language syntax
- have developed the ability to design and develop interactive applications using the object-oriented principals, encapsulation, inheritance and to some extents polymorphism
- be able to effectively develop applications with full functionality and a graphical user interface using the language Visual Basic
- have the capability of analysing and finding suitable and effective solutions to Windows based applications using classes and objects

Practicals:

1. Working with call backs and delegates in VB.
2. Program to display the first 10 natural numbers and their sum using console application.
3. Program to display the addition using the windows application.
4. Create your own Web browser application, which you can customize with shortcuts to your favorite Web sites.
5. Write a program to simple calculator using windows application.
6. Code access security with VB.
7. Creating a COM+ component with C#.
8. Creating a Windows Service with C#
9. Using Reflection in C#
10. Sending Mail and SMTP Mail and C#
11. Write a program working with Page using VB.Net.

Text Books

- VB.NET Programming Black Book by steven holzner –dreamtech publications
- Mastering VB.NET by Evangelos petroutsos- BPB publications
- Introduction to .NET framework-Worx publication

Reference Books

- Visual Basic .NET Programming Black Book by Steven Holzner
- msdn.microsoft.com/net/
- www.gotdotnet.com

COURSE CODE: 3IBIT 504

JAVA TECHNOLOGY
Course Code: 3IBIT 504

COURSE OBJECTIVE:-

1. To introduce and understand students to programming concepts and techniques using the Java language and programming environment, class, objects , also learn about lifetime, scope and the initialization mechanism of variables and improve the ability general problem solving abilities in programming.
2. Be able to use the Java SDK environment to create, debug and run simple Java program.

Syllabus:

Theory:

UNIT-I

OVERVIEW OF JAVA - Introduction, Programming paradigm, OOPS Concepts, Evolution of Java, Features of Java, C++ Vs Java, Java and Internet, Java and WWW, Java support systems, Java Environment.

Key Features of Java - Introduction, Java Program Structure, Simple Java Program, Tokens, Java Statements, Java Virtual Machine, Constants and Variables, Declaration of Variables, Scope of Variables, Data types, Symbolic Constants, Type Casting, Command line arguments.

UNIT-II

OPERATORS - Operators, Arithmetic Operators, Relational Operators, Logical Operators, Bitwise Operators, Increment and Decrement, Conditional Operators, Special Operators, Assignment Operators, Expression & its evaluation.

CONTROL STATEMENTS - Introduction, Control Statements, Sequence Control Statement, Decision Control Statement, Case Control Statement, Iteration Control Statement, Jump in loops, Labeled Loops.

ARRAYS AND STRINGS - Introduction, Array, Need of Array, Types of Array, One dimensional Array, Two-Dimensional Array, Multidimensional Array, Strings, Concatenation of Strings, Methods for String Comparison, Methods for searching Strings, Changing the case of characters, String Buffer.

UNIT-III

CLASSES - Introduction, Defining a Class, Adding Variables, Adding Methods, Creating Objects, Accessing Class members, Call by value and call by reference, Recursion, Access Control, Constructors, Method overloading, Constructor Overloading, Garbage Collection, finalize( ) method, this keyword, Static Members, Nesting of Methods

INHERITANCE - Inheritance, Single Inheritance, Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance, Using Super, Constructor -Order of Execution in Inheritance, Overriding

methods, Final variables and methods, Final Classes, Abstract methods and Classes, Containership, Visibility Control.

UNIT-IV

WRAPPER CLASSES AND VECTORS - Introduction, Wrapper Classes, Number Class, Byte class, Short class, Integer class, Long class, Converting Numbers to and from Strings, Float class, Double class, Character class, Boolean class, Vectors, Creating a vector

INTERFACE & PACKAGES - Introduction, Interfaces, Defining interface, Implementing interface, Accessing interface method, Accessing interface variable, Extending interfaces, Packages, System packages, Using system packages, User defined packages, Adding class to a package, Accessing and using package.

EXCEPTION HANDLING - Introduction, Exceptions, Using try & catch, Multiple catch clauses, Finally, Throw, Throws

MULTITHREADING - Introduction, The Main Thread, Creating Threads, Life cycle of Thread, Using Threads Methods, Thread Priorities, Stopping and Blocking a thread, Thread Exceptions, Using is Alive( ) and join( ), Synchronization.

UNIT-V

APPLETS - Introduction, Local & remote applets, Applet vs applications, Writing applets, Life cycle of an applet, Creating source code of applet, Creating an executable applet, Creating applet tag, Adding applet tag to html, Running the applet, Detailed form of applet tag, Passing parameters to applet, Aligning the display, Html tags, Getting input from user

INPUT-OUTPUT STREAMS AND FILE MANAGEMENT - Introduction, Stream, Stream Classes, Byte Stream Classes, Character Stream Classes, System Class, Reading Console Input, Writing Console Output, Using the File Class, Random Access File

GRAPHICS PROGRAMMING - Introduction, The Graphics Class, Drawing Lines and Rectangles, Using draw Oval() and fill Oval() method, Drawing arcs, Drawing Polygon, Line Graphs, Drawing Bar Charts.

COURSE OUTCOMES:-

Students will complete software projects comprised of an object-oriented design, implementation, and test plan.

1. Designs will demonstrate the use of good object-oriented design principles including encapsulation and information hiding.
2. The implementation will demonstrate the use of a variety of basic control structures including selection and repetition; classes and objects in a tiered architecture (user interface, controller, and application logic layers); primitive and reference data types including composition; basic AWT components; file-based I/O; and one-dimensional arrays.
3. Test plans will include test cases demonstrating both black box and glass box testing strategies.

COURSE CODE: 3IBIT 504

Practicals:

1. Write a Java Program to Display message on computer screen.
2. Write a Java Program to develop a class for Rational numbers
3. Design a Date class in Java
4. Write a Java Program to design an interface for Stack ADT and implement Stack ADT using both Array and Linked List.
5. To develop a vehicle class hierarchy in Java to demonstrate the concept of polymorphism
6. Design a Date class in Java.
7. To write a Java Program to randomly generate objects and write them into a file using concept of Object Serialization
8. Develop a scientific calculator using even-driven programming paradigm of Java.
9. To write a multi-threaded Java program to print all numbers below 100,000 that is both prime and Fibonacci number
10. To develop a Java Program that supports multithreaded echo server and a GUI client.
11. To implement a calculator using GUI Environment with the help of javax.swing package.

Text Books

- Java How to Program by Paul Deitel & Harvey Deitel, New Delhi,Pearson Education
- Core Java:Volume I-fundamentals,Horstmann,C.S/Cornell,G.8th ed Pearson
- Beginning Java Server Pages .Chopra,Vivek/Others Willey –Dreamtech India

Reference Books:

- OCA/OCP Java SE 7 Programmer I & II Study Guide by Kathy Sierra & Bert Bates, New york.
  MC Graw Hill Co.
- Java 2:Complete Reference Schildt,Herbert 5th ed TMH
- Programming:Black book ,Holzner,Steven 5th ed Dreamtech

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Corse Code: SHBA302

Communication Skill & Personality Development

Objective: To make the students understand the basics of personality, public speaking, language, Listening, conversation & writing skills, along with the communication process Syllabus

THEORY –

Unit- I:

Basics of Personality, Do's and Dont's in Personality, Salutations and Greetings, Presenting Yourself, Proper Introduction of Oneself.

Unit- II:

Administration- your work style, Overcoming Phobias, Public Speaking, General Etiquettes and Mannerism, Time Management, Attire, Attitude, Self Actualization, Magic of Positive Thinking.

Unit- III :

Tips of Preparing CV, Interviews tips.

Unit-IV:

Language Skill, Writing Skill, Speaking Skill, Listening Skill, Conversation Practice, Mysticism of Body Language, Basics of Grammar.

Unit- V :

Communication- Meaning, Functions, Channels, Process, Barriers and Interpersonal Skills.

PRACTICAL –

1. To present self introduction of yours.
2. Mock interview.
3. Group discussions.
4. SWOT analysis of self.
5. Extempore.
6. Debate.
7. Preparation of CV.
8. Role play.
9. Present a speech.
10. Make a power point presentation of communication.

Reference Books:

1. Business Communication, Universal Pub. Agra – Dr. Ramesh Mangal
2. English Grammar- Wren & Martin
3. Putting your best foot forward- Lt. Co. (Dr.) Pramod Deogirikar

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Outcome- After the completion of this subject the learners will understand the basics of personality, public speaking, language, Listening, conversation & writing skills, along with the communication process.

COURSE CODE:3IBIT 601

DATA MINING & WAREHOUSING

Course Code: 3IBIT 601

COURSE OBJECTIVE:-

1. To understand the scope and necessity of Data Mining & Warehousing for the society.
2. To understand the designing of Data Warehousing so that it can be able to solve the root problems.
3. To understand various tools of Data Mining and their techniques to solve the real time problems. 4. To develop ability to design various algorithms based on data mining tools.

Syllabus:

Theory:

UNIT-I

Strategic Information Management - Need for strategic information, Decision support system, Knowledge discovery & decision making, Need for data warehouse, Definitions of Data warehousing and data mining, Common characteristics of Data warehouse, Data Marts, Metadata, Operational versus analytical databases, Trends and planning of Data warehousing.

UNIT-II

Data Modeling Strategy - Defining business requirements, Data modeling strategy, Fact tables, Dimensions, Star schema and other schemas, Multi dimensional data models, Data Cube presentation of fact tables, Using the Data warehouse, Designing tools for Data warehouse, OLAP models and operations

UNIT-III

Data Warehouse Architecture Components and, Implementation Options - Architectural components, Infrastructure: Operational & Physical, Extraction, Transformation and Loading, Components of an Oracle Data warehouse, Data Transformation Functions, DBA responsibilities, Capacity Planning.

UNIT-IV

Data Warehouse Implementation -Implementation of Data warehouse, Physical design: steps, considerations, physical storage, indexing, Performance Optimization, Data warehouse deployment activities, Data security, Backup and recovery concepts, Data warehouse Maintenance. Data cube computation, Indexing OLAP data, Efficient processing of OLAP query, OLAP server architectures.

UNIT-V

Data Mining - Basics of data mining, Related concepts, Data mining techniques, Data Mining Algorithms , Classification, Clustering and Association rules, Knowledge Discovery in databases (KDD) Process, Introduction to Web Mining

COURSE CODE: 3IBIT 601

COURSE OUTCOMES:-

After study this student will be able to know about the

1. Process raw data to make it suitable for various data mining algorithms.
2. Discover and measure interesting patterns from different kinds of databases.
3. Apply the techniques of clustering, classification, association finding, feature selection and visualization to real world data.

Text Books:

- "Data Mining and Warehousing" by S Prabhu
- "Data Mining and Warehousing" by Khushboo and Sandeep
- "Data Warehousing and Data Mining" by Singh M

Reference Books:

- Data Mining: Concepts and Techniques 2nd or 3rd edition, Jiawei Han and Micheline Kamber
- "Data Warehousing: OLAP and Data Mining" by Nagabhushana S

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COURSE CODE: 3IBIT602

EMBEDDED SYSTEMS

Course Code: 3IBIT602

COURSE OBJECTIVE:-

- Students have knowledge about the basic functions of embedded systems.
- Students have knowledge about the basic structure of embedded systems
- Students have knowledge about the basic concepts of embedded systems
- Students have knowledge about the applications of embedded systems

Syllabus:

Theory

UNIT– I

Introduction to Embedded systems Embedded Systems Vs General Computing Systems, Classification of Embedded Systems, Major application areas of Embedded Systems, Purpose of Embedded systems ,Core of the Embedded system, Memory, Sensors and Actuators, Communication Interface, Embedded firmware, PCB and Passive Components, Characteristics and Quality attributes of a Embedded System .

UNIT – II

Design of Embedded Systems with 8bit Microcontrollers-8051 Factors for considering in selecting a Controller, Designing with 8051 microcontroller Different addressing modes supported by 8051, Instruction set for 8051 microcontroller. Fundamental issues in Hardware Software Co-Design, Computational models in Embedded Design.

UNIT – III

Embedded Hardware & Firmware Design and Development Analog &Digital Electronic components, VLSI & Integrated circuit design, Electronic Design Automation tools, PCB layout Design and its fabrication .Embedded firmware design approaches, Embedded firmware Development Languages, Programming in Embedded C. Integration and testing of Embedded Hardware and Firmware , Safe & robust Design, Reliability, Faults, errors & Failure, Functional Design, Architecture Design, Prototyping.

UNIT -IV

Embedded System Development Environment Integrated Development Environment (IDE), Types of files Generated on Cross-Compilation, Disassemble / Decompile, Simulators, Emulators and Debugging, Boundary Scan.

UNIT– V

Embedded Product Development Lifecycle (EDLC) and Trends in Embedded Industry What is EDLC, Objectives of EDLC, Different phases of EDLC, EDLC Approaches-Linear or waterfall

model, Iterative Model, Prototyping/Evolutionary Model, and Spiral Model. Processor trends in Industry, Embedded OS Trends, Development Language trends Open Standards, Frameworks and Alliances, Bottlenecks.

COURSE OUTCOME:-

After completion of course students will be able to understand -

To design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

Text Books

- Embedded Systems:Architecture,Programming and Design Raj Kamal
- Introduction to Embedded systems K.V Shibu

Reference Books:

Embedded /Real-Time Systems: Concepts,Design & Programming Black book, Dr.K.V.K.K Prasad Dreamtech

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COURSE CODE: 3IBIT 603

PROGRAMMING WITH ASP.NET AND C#

Course Code: 3IBIT 603

COURSE OBJECTIVE:-

1. To understand networking and the World Wide Web.
2. Building multi-tier enterprise applications.
3. .NET framework.
4. .NET Interoperation services.
5. Client side programming: HTTP, CGI, Cookies, JavaScript, HTML, XML.
6. Server side programming: Web Forms, ASP.NET Web Services, ADO.NET Data Access
7. Client/Server Programming, 3-tier architecture.
8. ASP.NET Web services and web service security.
9. Simple Object Access Protocol (SOAP) and Web Services.

Syllabus:

Theory:

UNIT – I

Overview of ASP.NET framework, Understanding ASP.NET Controls, Applications
Web servers, installation of IIS.
Web forms, web form controls -server controls, client controls, web forms & HTML, Adding controls to a web form ,Buttons, Text Box , Labels, Checkbox, Radio Buttons, List Box, etc.
Running a web Application, creating a multiform web project.

UNIT-II

Form Validation: Client side validation, server Side validation, Validation Controls: Required Field Comparison Range. Calendar control, Ad rotator Control, Internet Explorer Control.
State management- View state, Session state, Application state,

UNIT-III

Architecture of ADO.NET, Connected and Disconnected Database, Create Connection using ADO.NET Object Model, Connection Class, Command Class, Data Adapter Class, Dataset Class. Display data on data bound Controls and Data Grid.
Database Accessing on web applications: Data Binding concept with web, creating data grid, Binding standard web server controls. Display data on web form using Data bound controls.

UNIT-IV

Writing datasets to XML, Reading datasets with XML.
Web services: Introduction, Remote method call using XML, SOAP, web service description language, building & consuming a web service, Web Application deployment.

UNIT-V

Overview of C#, C# and .NET, similarities & differences from JAVA, Structure of C# program.
Language features: Type system, boxing and unboxing, flow controls, classes, interfaces, Serialization, Delegates, and Reflection.

COURSE CODE: 3IBIT 603

COURSE OUTCOMES:-

After succefully completing these course students shall be able:

1. Successful students will able to design web applications using ASP.NET
2. Successful students will be able to use ASP.NET controls in web applications.
3. Successful students will be able to debug and deploy ASP.NET web applications
4. Successful students will be able to create database driven ASP.NET web applications and web services

Practicals:

1. Working with call backs and delegates in C#.
2. Program to display the addition using the windows application.
3. Creating a Windows Service with C#
4. Using Reflection in C#
5. Sending Mail and SMTP Mail and C#
6. Write a program working with Page using ASP.Net.
7. Write a program working with forms using ASP.NET.
8. Write a program using RequiredFieldValidator in ASP.NET.
9. Write a program using Login Form in ASP.NET.
10. Write a program using Checkbox List in ASP.NET .

Text Books:

- Beginning Asp.Net 4.5 in C# and VB by Imar Spaanjaars New Delhi Wiley India Ltd
- Learning ASP.Net and C# .Net by Ramesh Bangia

Reference Books:

- ASP.NET 4.0 (Covers C# 2010 and VB 2010 Codes) Black Book With CD by Kognet Learning Solution Inc. New Delhi,Dreamtech Press
- The complete reference ASP.NET,Matthew Mac Donald

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COURSE CODE : 3IBIT 604

COMPLILER DESIGN
Course code : 3IBIT 604

COURSE OBJECTIVE:–

Student will be able-

1. To introduce the major concept areas of language translation and compiler design.
2. To enrich the knowledge in various phases of compiler ant its use, code optimization techniques, machine code generation, and use of symbol table.
3. To extend the knowledge of parser by parsing LL parser and LR parser.
4. To provide practical programming skills necessary for constructing a compiler.

Pattern:

The question paper will consist of five questions. Each question carry 10 marks each, one from each of the five units of the syllabus and may have internal choice. These five questions will have two parts A & B, prefererably one theoretical and other numerical/short notes. Questions should test the concepts, knowledge & applications. Candidates are required to answer all questions.

Syllabus:-

THEORY:

UNIT-I

LEXICAL ANALYSIS

Introduction to Compiling- Compilers-Analysis of the source program-The phases-Cousins-The grouping of phases-Compiler construction tools. The role of the lexical analyzer- Input buffering-Specification of tokens-Recognition of tokens-A language for specifying lexical analyzer.

UNIT-II

SYNTAX ANALYSIS AND RUN-TIME ENVIRONMENTS

Syntax Analysis- The role of the parser-Context-free grammars-Writing a grammar-Top down parsing-Bottom-up Parsing-LR parsers-Constructing and SLR (1) parsing table.

Type Checking- Type Systems-Specification of a simple type checker. Run-Time Environments-Source language issues-Storage organization-Storage-allocation strategies.

UNIT-III

INTERMEDIATE CODE GENERATION

Intermediate languages-Declarations-Assignment statements - Boolean expressions-Case statements-Back patching-Procedure calls

UNIT-IV

CODE GENERATION

Issues in the design of a code generator- The target machine-Run-time storage management-Basic blocks and flow graphs- Next-use information-A simple code generator-Register allocation and assignment-The dag representation of basic blocks -Generating code from dags.

COURSE CODE : 3IBIT 604

UNIT-V

CODE OPTIMIZATION

Introduction-The principle sources of optimization-Peephole optimization- Optimization of basic blocks-Loops in flow graphs- Introduction to global data-flow analysis-Code improving transformations.

COURSE OUTCOME:-

1. To apply the knowledge of lex tool & yacc tool to devleop a scanner & parser.
2. To design & conduct experiments for Intermediate Code Generation in compiler.
3. To design & implement a software system for backend of the compiler.
4. To deal with different translators.
5. To develop program to solve complex problems in compiler
6. To learn the new code optimization techniques to improve the performance of a program in terms of speed & space.
7. To acquire the knowledge of modern compiler & its features.
8. To learn & use the new tools and technologies used for designing a compiler

Text Books:-

- David Galles, "Modern Compiler Design", Pearson Education Asia, 2007
- Steven S. Muchnick, "Advanced Compiler Design & Implementation", Morgan Kaufmann Publishers, 2000.

Reference Books:-

- C. N. Fisher and R. J. LeBlanc "Crafting a Compiler with C", Pearson Education, 2000.
- Alfred V. Aho, Ravi Sethi Jeffrey D. Ullman, "Compilers- Principles, Techniques, and Tools", Pearson Education Asia, 2007.

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