



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

SEMESTER- II

Name of Program: B.Sc.(Hons.) (Digital & Cyber Forensics)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BSFSN201	Compulsory	Forensic Psychology	60	20	20	30	20	4	0	2	5

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

*Teacher Assessment shall be based upon following components: Quiz / Assignment / Project / Participation in Class, given that no component shall exceed more than 10 marks

Course Objectives: The course aims to provide the students with-

1. The overview of forensic psychology and its applications.
2. The legal aspects of forensic psychology.
3. The significance of criminal profiling.
4. The importance of psychological assessment in gauging criminal behaviour.
5. The tools and techniques required for detection of deception.

Course Outcomes: After studying this course, the students will-

1. Be able to understand the concepts of forensic psychology.
2. Be able to distinguish the various psychological states of mind of a psychology patient.
3. Be familiar to criminal profiling
4. Be able to understand the various factors of crime.
5. Be able to know ethical and legal aspects of deception detection techniques.

Unit I: Basics of Forensic Psychology

Definition and fundamental concepts of forensic psychology and forensic psychiatry. Psychology and law. Ethical issues in forensic psychology, Assessment of mental competency, Mental disorders and forensic psychology.

Unit II: Psychology of evidence

Psychology of evidence—eyewitness testimony, confession evidence, Criminal profiling. Psychology in the courtroom, with special reference to Section 84 IPC.

Unit III: Psychology and Criminal Behaviour

Psychopathology and personality disorder, Psychological assessment and its importance, Serial murderers, Psychology of terrorism, Biological factors and crime— social learning theories, psycho-social factors, abuse, Juvenile delinquency— theories of offending(social cognition ,moral reasoning),Child abuse (physical, sexual, emotional),juvenile sex offenders, legal controversies.

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Unit IV: Detection of Deception

Tools for detection of deception—interviews, non-verbal detection, statement analysis, voice stress analyzer, hypnosis, Polygraphy—operational and question formulation techniques, ethical and legal aspects, the guilty knowledge test.

Unit V: Norco analysis and Brain Finger printing

Norco analysis and brain electrical oscillation signatures—principle and theory, ethical and legal issues, Brain Finger printing- Principle and technique, Legal standard of Brain fingerprinting. Case study.

List of practicals:

1. To cite a crime case where legal procedures pertaining to psychic behaviour had to be invoked.
2. To prepare a report on relationship between mental disorders and forensic psychology.
3. To study a criminal case in which hypnosis was used as a means to detect deception.
4. To prepare a case report on thematic appreciation test.
5. To prepare a case report on Minnesota multi phasic personality inventory test.
6. To prepare a case report on thematic appreciation test.
7. To prepare a case report on word association test.
8. To prepare a case report on Bhatia's battery of performance test of intelligence.

Suggested Readings:

1. A.A. Moenssens, J. Starrs, C.E. Henderson and F. E. Inbau, *Scientific Evidence in Civil and Criminal Case 4th* Edition, The Foundation Press, Inc., New York (1995).
2. R. Saferstein, *Criminalistics*, 8th Edition, Prentice Hall, New Jersey (2004).
3. J.C. DeLadurantey and D.R. Sullivan, *Criminal Investigation Standards*, Harper & Row, New York (1980).
4. J. Niehaus, *Investigative Forensic Hypnosis*, CRC Press, Boca Raton (1999).
5. E. Elaadin *Encyclopedia of Forensic Science, Volume 2*, J.A. Siegel, P.J. Sauko and
6. G.C. Knupfer (Eds.), Academic Press, London (2000).

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SEMESTER- II

Name of Program: B.Sc.(Hons.) (Digital & Cyber Forensics)

Course Code	Category	Course Name	Teaching & Evaluation Scheme								
			Theory			Practical		Th	T	P	Credits
			End Sem University	Two Term Exam	Teacher Assessment*	End Sem University exam	Teacher Assessment*				
BSDFN202	Compulsory	Criminal Justice Administration	60	20	20	0	0	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/ Participation in Class, given that no component shall exceed more than 10marks.

Course Objectives: The course aims to provide the students with-
To impart knowledge and develop skills relating to application of criminological and penological thoughts in the administration of criminal justice system.

Course Outcomes: After studying this course, the students will-

1. Be able to know the features of criminal justices system and legal approaches.
2. Be familiar to component of criminal justices system.
3. Be able to understand the organisational set up of police and its administration.

UNIT - I

Historical background of Criminal Justice System in India; Main features and problems and latest interventions.

Legal Approaches: Accusatorial and Inquisitorial Substantive and Procedural Laws - Criminal Liability, Strict Liability; Indian Evidence Act, 1975.

UNIT - II

Components of Criminal Justice System: Police, Prosecution, Judiciary and Correction-their interlinkages. and coordination; Main issues in coordination and problems faced in dealing with them.

IPC - General Exceptions, Atrocities against SC/ST (Prevention) Act, 1989.

UNIT - III

The Organizational setup of Police; Administration of Police; Filing of Reports (FIR) Registration, Arrest, Powers.

Cr Pc, 1975 Cognizable and Non-cognizable offences; Bailable and Non-bailable offences. Compoundable and Non-compoundable offences Prevention of Corruption Act.

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UNIT - IV

History of Development of Police Administration, Police Duties, Responsibilities and Powers, Organization and Structure of Police in India Maintenance of Crime Records and Statistics, Discipline and Control in Police

UNIT-V

Police Training - its necessity, Problems of Police and Policing; Police - Public relationship Female Police; Perspectives on Police in Democratic Society.

Suggested Readings:

1. Das, S. : Crime and Punishment in Ancient India
2. Agarwal, K.M. : Kautilya, Crime and Punishment
3. Williams, J.H. : Criminology and Criminal Justice
4. Rao, Venugopal : Criminal Justice: Problems and Perspectives in India Bailey,
5. D.H. : Police and Political Development in India
6. Baxi, U. : The Crisis of Indian Legal System Khanna,
7. H.R. : The Judicial System Gandhi
8. J.S. : Law and Social Change Dutta,
9. N. K. : Origin and Developments of Criminal Justice in India

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			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment *	END SEM University Exam	Teachers Assessment *				
BTCS202N	DCC	Object Oriented Programming	60	20	20	30	20	2	0	2	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. To explain abstract data types, classes and different types of objects.
2. To analyze the public, protected and private modes of inheriting the classes.
3. To demonstrate the overloading of functions and operators to grant them a different meaning.
4. To provide complete knowledge of Object Oriented Programming through C++ and to enhance the programming skills of the students by giving practical assignments to be done in labs.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to:

1. Identify and describe the components of object-oriented technology and justify their relevance.
2. Implement inheritance for code reusability and polymorphism.
3. Implement object oriented approach for real world scenarios.
4. Use advance features like templates and exception to make programs supporting reusability and sophistication
5. Develop the applications using object oriented programming with C++.

Syllabus

Unit-I

10HRS

Concepts of OOP: Introduction OOP, Procedural vs. Object Oriented Programming, Principles of OOP, Benefits and applications of OOP. C++ Basic Overview, Program structure, namespace, identifiers, variables, constants, enum, operators, typecasting, control structures.

Unit-II

9HRS

C++ Functions: The Main Function, Function prototyping, Simple functions, Call and Return by reference, Inline functions, Macro Vs. Inline functions, Overloading of functions, default arguments.

Unit-III

8HRS

Objects and Classes: Basics of object and class in C++, Private and public members, static data and function members, constructors and their types, destructors, operator overloading, friend

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function.

Inheritance: Concept of Inheritance, types of inheritance, access modifiers, overriding, virtual base class.

Unit-IV

7HRS

Polymorphism: Polymorphism and its types, Pointers in C++, Pointers and Objects, this pointer, virtual and pure virtual functions, Implementing polymorphism, Abstract Methods and Classes. Exception Handling, Templates function and class in C++

Unit-V

8HRS

I/O and File management: Concept of Streams, Cin and Cout Objects, C++ Stream Classes, Unformatted and Formatted I/O, Manipulators, File Stream, C++ File Stream Classes, File Management Functions, File Modes, Binary and Random Files.

Text Books:

1. David Parsons; Object oriented programming with C++; Second edition; BPB publication; 1997.
2. Robert Lafore; Object oriented programming in C++ ; Fourth edition ; Pearson publication;2002 .
3. E Balagurusamy; Object oriented programming with C++; Seven edition; TMH; 2017.
4. Herbert Schildt ; Java Complete Reference;Seven edition; McGrawHill; 2006 .

References:

1. John R Hubbard; Programming in C++ (Schaum); Third edition; TMH; 2000.
2. Venugopal; Mastering C++ ; second edition ;TMH; 2006.
3. Steven Holzner; C++ Programming Black Book; First Edition; Coriolis Group,U.S;2001.
4. E Balagurusamy; Programming with java a primer; Fourth edition; TMH ; 2011.

List of Experiments:

1. Write a program to display the following output using a single cout statement.
Maths=90, Physics=74, Chemistry=76
2. Write a program to read 2 numbers from the keyboard and display the larger value on the screen.
3. Write a function using reference variables as arguments to swap the values of a pair of

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integers.

4. Write a macro that obtains the largest of 3 numbers.
5. Define a class to represent a bank account. Include the following members:

Data members

1. Name of the depositor
2. Account number
3. Type of account
4. Balance amount in the account

Member functions

1. To assign initial values
2. To deposit an amount
3. To withdraw an amount after checking the balance
4. To display name and balance

Write a main program to test the program.

6. Create two classes DM and DB which store the value of distances. DM stores distances in meters and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DB.

Use a friend function to carry out the addition operation. The object that stores the results may be a DM object or DB object, depending on the units in which the results are required. The display should be in the format of feet and inches or meters and centimeters depending on the object on display.

7. Design a constructor for bank account class.
8. A book shop maintains the inventory of books that are being sold at the shop. The list includes details such as author, title, price, publisher and stock position. Whenever a customer wants a book, the sales person inputs the title and author and the system searches the list and displays whether it is available or not. If it is not, an appropriate message is displayed. If it is, then the system displays the book details and requests for the number of copies required. If the requested copies are available, the total cost of the requested copies is displayed; otherwise the message "Required copies not in stock" is displayed.

Design a system using a class called books with suitable member functions and Constructors. Use new operator in constructors to allocate memory space required.

9. Improve the system design in exercise 8 to incorporate the following features:
 - (a) The price of the books should be updated as and when required. Use a private member function to implement this.
 - (b) The stock value of each book should be automatically updated as soon as a transaction is completed.
 - (c) The number of successful transactions should be recorded for the purpose of statistical analysis. Use static data members to keep count of transaction.
10. Design a C++ Class „Complex“ with data member“s for real and imaginary part. Provide default and parameterized constructors. Write a program to perform arithmetic operations of two complex numbers using operator overloading (using either member functions or friend functions).
11. Assume that a bank maintains two kinds of accounts for customers, one called as savings account and the other as current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is

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imposed. Create a class account that stores customer name, account number and type of account. From this derive the classes *curacct* and *savacct* to make them more specific to their requirements. Include necessary member functions in order to achieve the following tasks:

- a. Accept deposit from a customer and update the balance.
- b. Display the balance
- c. Compute and deposit interest.
- d. Permit withdrawal and update the balance.
- e. Check for the minimum balance, impose penalty, necessary and update balance.

12. Create a base class shape. Use this class to store two double type values that could be used to compute area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base a member function *getdata()* to initialize base class data member and another member function *display_area()* to compute and display the area of figures. Make *display_area ()* as a virtual function and redefine it in the derived class to suit their requirements.

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Name of Program B.Sc.(Hons) (Digital & Cyber Forensics)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME					L	T	P	CREDITS
			THEORY			PRACTICAL					
			END SEM University Exam	Two Term Exam	Teachers Assessment *	END SEM University Exam	Teachers Assessment *				
BTCS203N	DCC	Operating Systems	60	20	20	30	20	2	0	2	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

The student will have ability to:

1. To learn the fundamentals of Operating Systems.
2. To study the mechanisms of Operating System to handle processes and threads and their communication.
3. To gain knowledge of process management concepts that includes architecture, Mutual exclusion algorithms, deadlock detection and recovery algorithms.
4. To learn the mechanisms involved in memory management in Operating System.
5. To know the components and management aspects of disc scheduling.

Course Outcomes (COs):

After completion of this course the students are expected to be able to demonstrate following knowledge, skills and attitudes.

The students will be able to:

1. To describe the detail structure of Operating System.
2. To design and Implement Process management Techniques in Operating System.
3. To calculate CPU Scheduling criteria.
4. To understand The Memory Management of Operating System.
5. To elaborate Disc Scheduling.

Syllabus:

UNIT I

10HRS

Introduction to Operating System: Introduction and Need of operating system, Layered Architecture/Logical Structure of Operating system, Type of OS(Multiprogramming , Time Sharing, Real Time ,Networked, Distributed, Clustered, Hand Held), Operating system as Resource Manager and Virtual Machine, System Calls/Monitor Calls, Firmware- BIOS, Boot Strap Loader. Threads- processes versus threads, threading, concepts, models, kernel & user level threads, thread usage, benefits.

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UNIT II

9HRS

Process Management: Process Model, Creation, Termination, States & Transitions, Context Switching, Process Control Block, CPU and I/O bound, CPU scheduler- short, medium, long-term, dispatcher, scheduling:- preemptive and non-preemptive, Static and Dynamic Priority

Criteria/Goals/Performance Metrics, scheduling algorithms- FCFS, SJFS, shortest remaining time, Round robin, Priority scheduling, multilevel queue scheduling, multilevel feedback queue scheduling

UNIT III

8HRS

Interprocess Communication: Introduction to Message Passing, Race Condition, Critical Section Problem, Peterson's Solution, Semaphore, Classical Problems of Synchronization Classical IPC Problems: Reader's & Writer Problem, Dining Philosopher Problem.

Deadlock- System model, Resource types, Deadlock Problem, Deadlock Characterization, Methods for Deadlock Handling, Deadlock Prevention, Deadlock Avoidance: Banker's algorithm, Deadlock Detection, Recovery from Deadlock.

UNIT IV

7HRS

Memory Management: concepts, functions, logical and physical address space, address binding, degree of multiprogramming, swapping, static & dynamic loading- creating a load module, loading, static & dynamic linking, memory allocation schemes- first fit, next fit, best fit, worst fit and quick fit.

Virtual Memory- concept, virtual address space, paging scheme, pure segmentation and segmentation with paging scheme hardware support and implementation details, memory fragmentation, demand paging, working set model, page fault frequency, thrashing, page replacement algorithms- optimal, FIFO, LRU; Bledy's anomaly; TLB (translation look aside buffer).

UNIT V

8HRS

File Management: Concepts, Naming, Attributes, Operations, Types, Structure, File Organization & Access (Sequential, Direct, Index Sequential) Methods, Memory Mapped Files, Directory Structures One Level, Two Level, Hierarchical/Tree, Acyclic Graph, General Graph, File System Mounting, File Sharing, Path Name, Directory Operations, Overview Of File System in Linux & Windows.

Input/output Subsystems- Concepts, Functions/Goals, Input/Output devices- Block And Character, Spooling, Disk Structure & Operation, Disk Attachment, Disk Storage Capacity, Disk Scheduling Algorithm- FCFS, SSTF, Scan Scheduling, C-Scan Schedule.

Text books:

1. Abraham Silberschatz, "Operating system concepts", 10th Edition, John Wiley & Sons. INC, 2018
2. Andrew S. Tannenbaum, "Modern operating system", 4th Edition, Pearson Education, 2014
3. Dhananjay M. Dhamdhare, "Operating Systems: A concept Based Approach", 3rd Edition TMH, 2017,
4. Sibsankar Haldar, Alex Alagarsamy Aravind, "Operating System", 8th Edition, Pearson Education India., 2010

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Reference Books:

1. Achyut S Godbole, "Operating System", 3rd TMH, 2017.
2. William Stallings, "operating system" 8th, Pearson Education, ,2014.
3. Vijay Shukla, "Operating System", 3rd, Kataria&Sons ,2013.
4. Singhal&Shivratri, "Advanced Concept in Operating Systems", 1st ·TataMc-Graw Hill Education, edition 2017.

List of Practical:

1. Implement and update the BIOS settings of your PC.
2. If there are 5 printers are connected in a system each process to print will take different time to complete, and CPU will give a fixed time to each process after that deadline next process will enter in CPU. If a problem not completed in a given slot then that process will be re enter as per the FCFS, on rotation basis? Apply the scheduling on this?
3. Implement Non Preemptive Priority CPU Scheduling.
4. Implement Non Preemptive Shortest Job first CPU Scheduling.
5. If there are 5 different resources like 3 printer, 2 scanner are connected to a system each taking different time to complete the task. Which scheduling is best and gives best performance of CPU?
6. Implement the scheduling for that where CPU give chance to complete those process first which comes first?
7. Implement Round-Robin CPU scheduling.
8. Write a program to implement Semaphore.
9. Find the solution for the situation where 5 faculties are sitting in a round table. There are 4 ball pens are placed on this table. At a time only one pen can be picked by one faculty to writing work. What will happen if all picked the pen for writing simultaneously?
10. Find the solution for dentist checkup clinic where only one chair and one dentist is available for treatment. And having n chairs to waiting for patient.
 - If there is no patient, then the doctor sleeps in his own chair.
 - When a patient arrives, he has to wake up the doctor.
 - If there are many patients and the doctor is doing treatment of him, then the remaining patients either wait if there are empty chairs in the waiting room or they leave if no chairs are empty.
12. Write a program for Memory Management Algorithms e.g. First Fit, Best Fit, Worst Fit.
13. Demonstrate Virtual memory Techniques like, LRU, FIFO etc.
14. Implement Shortest Seek Time First Disk Scheduling Algorithm.
15. Implement Scan Scheduling Disk Scheduling Algorithm.
16. Implement Circular Scan Disk Scheduling Algorithm.
17. Implement Look Disk Scheduling Algorithm.

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SUBJECT CODE	Category	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTEI401		Microprocessor and Microcontroller	60	20	20	30	20	2	1	2	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):

1. To gain knowledge of basics of Microprocessor & microcontroller & Learn development of assembly language programs.
2. To learn the programming skills of 8086 microprocessor & 8051 microcontroller.
3. To learn the interfacing of external devices (LED, LCD, ADC, DAC) with the microcontroller 8051.

Course Outcomes (COs):

The students will be able to

1. Apply the concept of buses, microprocessor & microcontroller architecture and interrupts.
2. Interface memory and I/O devices with 8051 microcontroller
3. Program assembly language / C programming of 8051 & 8086.
4. Design microcontroller based small system
5. Interface 8051 with LED, LCD, ADC, DAC etc.

Syllabus

UNIT I

08hr.

Introduction to 8086 Microprocessor

Overview of 8086 microprocessor. Architecture of 8086, Signals and pins of 8086 microprocessor, Concept of Memory Segmentation in 8086. Maximum Mode, Minimum Mode, Timing diagram, Comparative study of Salient features of 8086, 80286 & 80386.

UNIT II

10hr.

Microprocessor 8086 programming

8086 Instructions set. Addressing mode of 8086, Assembly directives. Stack, Interrupts of 8086, Assembly language programs of 8086.

Input-Output interfacing: Peripherals I/O. PPI 8255 Architecture and modes of operation, Interfacing to 16-bit microprocessor and programming, DMA controller (8257) Architecture, Programmable interval timer 8254, USART 8251.



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UNIT III

08hr.

Introduction to 8051 Microcontroller

Introduction, Difference between Microprocessors and Microcontrollers. Overview of 8051 Microcontroller family, Architecture of 8051 Microcontroller, The program counter and ROM space in the 8051, registers, 8051 register banks

UNIT IV

10hr.

8051 Assembly Language Programming

Introduction to 8051 assembly programming, Structure of Assembly language, Assembling and running an 8051 program, 8051 data types and directives, interrupts

8051 Addressing Modes & Instruction set

Addressing modes, Accessing memory using various Addressing modes, Bit addresses for I/O and RAM, Arithmetic instructions, Signed number concepts and arithmetic operations, Logic and compare instructions, Rotate instruction, Jump, Loop, And Call Instructions, Call instructions time delay for various 8051 chips.

UNIT V

10hr.

8051 Programming in C

Data types and time delay in 8051 C, I/O programming in 8051 C, Logic operations in 8051 C, Data conversion programs in 8051 C, Accessing code ROM space in 8051 C, Interfacing with LEDs, LCDs ADCs, DACs.

Text Books:

1. A.K. Ray & K.M.Bhurchandi, Advanced Microprocessors and peripheral-Architecture, Programming and Interfacing, Tata McGraw –Hill, 2012(Third Edition)
2. The 8051 Microcontroller and Embedded Systems Using Assembly and C, 2/e by Muhammad Ali Mazidi, Janice Gillispie Mazidi and Rolin , McKinlay,2008(SecondEdition,PearsonEducation)
3. The 8051 Microcontroller & Embedded Systems using Assembly and C By Kenneth J. Ayala, Dhananjay V. Gadre, 2008 (Cengage Learning , India Edition).

Reference Books:

1. Hall Douglas V.,Microprocessor and interfacing, Revised second edition 2006, Macmillan, McGraw Hill.
2. Using the MCS-51 Microcontrollers By Han Way Huang Oxford Uni Press,2000.
3. Programming and Customizing the 8051 Microcontroller by Myke Predko Tata McGraw Hill,1999.
4. Microcontrollers Architecture, programming, interfacing and system design by Rajkamal Pearson education,2009.



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List of Experiment:

1. Introduction to 8086 & 8051 kit, hardware features & modes of operation and Technique of programming & basic commands of kit.
2. Design programs for Arithmetic Operations.
3. Develop a program to find 1's complement and then 2's complement of a 16-bit numbers.
4. Develop a program to find larger of two numbers.
5. Write a program to shift an 8-bit number left by 2-bits.
6. Write a program to generate a square wave of 2 KHz Frequency on input pin.
7. Introduction to IDE and Assembler directives.
8. Develop 8051 Assembly language programs using Arithmetic/ Logical instructions.
9. 8051 Assembly language programming for block data transfer between internal and external memory including overlapping blocks.
10. 8051 Assembly language programming for
 - a. code conversions
 - b. Timers in different modes.
 - c. I/O port programming in embedded C.
 - d. Programming of LCD in embedded C.



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SEMESTER- II

Name of Program B.Sc.(Hons) (Digital & Cyber Forensics)

SUBJECT CODE	CATEGORY	SUBJECT NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment *				
ML-307	Compulsory	Environmental Management and Sustainability	60	20	20	0	0	4	0	0	4

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

***Teacher's Assessment** shall be based upon following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives

1. To create awareness towards various environmental problems.
2. To create awareness among students towards issues of sustainable development.
3. To expose students towards environment friendly practices of organizations.
4. To sensitize students to act responsibly towards environment.

Examination Scheme

The internal assessment of the students' performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 36 Marks and consist of five questions, out of which student will be required to attempt any three questions. Section B will comprise of one or more cases / problems worth 24 marks.

Course Outcomes

1. The course will give students an overview of various environmental concerns and practical challenges in environmental management and sustainability.
2. Emphasis is given to make students practice environment friendly behavior in day -to-day activities.

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Board of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
Faculty of Studies
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
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COURSE CONTENT

Unit I: Introduction to Environment Pollution and Control

1. Pollution and its types (Air, Water, and Soil): Causes, Effects and Control measures
2. Municipal Solid Waste: Definition, Composition, Effects
3. Electronic Waste: Definition, Composition, Effects
4. Plastic Pollution: Causes, Effects and Control Measures

Unit II: Climate Change and Environmental Challenges

1. Global Warming and Green House Effect
2. Depletion of the Ozone Layer
3. Acid Rain
4. Nuclear Hazards

Unit III: Environmental Management and Sustainable Development

1. Environmental Management and Sustainable Development: An overview
2. Sustainable Development Goals (17 SDGs)
3. Significance of Sustainable Development
4. Environment Friendly Practices At Workplace and Home (Three Rs' of Waste Management, Water Conservation, Energy Conservation)

Unit IV: Environmental Acts

1. The Water (Prevention and Control of Pollution) Act, 1974: Objectives, Definition of Pollution under this act, Powers and Functions of Boards
2. The Air (Prevention and Control of Pollution) Act, 1981: Objectives, Definition of Pollution under this act, Powers and Functions of Boards
3. The Environment (Protection) Act, 1986: Objectives, Definition of important terms used in this Act, Details about the act.
4. Environmental Impact Assessment: Concept and Benefits

Unit V: Role of Individuals, Corporate and Society

1. Environmental Values
2. Positive and Adverse Impact of Technological Developments on Society and Environment
3. Role of an individual/ Corporate/ Society in environmental conservation
4. Case Studies: The Bhopal Gas Tragedy, New Delhi's Air Pollution, Arsenic Pollution in Ground Water (West Bengal), Narmada Valley Project, Cauvery Water Dispute, Fukushima Daiichi Disaster (Japan), Ozone Hole over Antarctica, Ganga Pollution, Deterioration of Taj Mahal, Uttarakhand flash floods



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Suggested Readings:

1. Rogers, P.P., Jalal, K.F. , Boyd, J.A.(Latest Edition) . **An Introduction to Sustainable Development.** Earthscan
2. Kalam, A.P.J. (Latest Edition) . **Target 3 Billon: Innovative Solutions Towards Sustainable Development.** Penguin Books
3. Kaushik , A. and Kaushik (Latest Edition). **Perspectives in Environmental Studies.** New Delhi:New Age International Publishers.
4. Dhameja, S.K. (Latest Edition). **Environmental Studies.** S.K. Kataria and Sons.New Delhi
5. Bharucha, E. (Latest Edition). **Environmental Studies for Undergraduate Courses.** NewDelhi: University Grants Commission.
6. Wright, R. T. (Latest Edition). **Environmental Science: towards a sustainable future .**New Delhi: PHL Learning Private Ltd.
7. Rajagopalan, R. (Latest Edition). **Environmental Studies.** New York: Oxford UniversityPress.