SWAMI DAYANANDA

COLLEGE OF ARTS & SCIENCE

Affiliated to Bharathidasan University, Tiruchirappalli.
Accredited by NAAC - 'B++' Grade (With CGPA 2.99) (I Cycle)
UGC Recognized u/s 2(f) & 12 (B)
Dayananda Campus, Manjakkudi – 612 610. Tamilnadu, India.

HAND BOOK

DEPARTMENT OF
COMPUTER SCIENCE – B.SC(CS)

INDEX

Profile of B.Sc., (Computer Science)

B.Sc in Computer Science is a three-year undergraduate degree course that deals with the principles and applications of the computer. The main agenda of the degree course is the technical implementation of computers and computer systems. Students in the three-year degree course undertake various term papers, practical sessions and learning theoretical foundations of the computer.

With the widespread of technological advancements, the demand for computer professionals is on the rise. In various institutes, this course is also available as a part-time, correspondence and dual degree course.

B.Sc in Computer Science makes students job ready to work with numerous IT and software companies as it focuses on computing methods, programming, and database. Students during the three-year programme study wide range of subjects such as operating system, number system and codes, control structures, arrays, and functions.

Career Options and Job Prospects

- Since the course is specifically aimed at computers and its uses, there are numerous career opportunities that one can take up after completing their graduation. Students can pursue higher studies such as M.Sc, MCA, MBA, M.C.M. to enhance their knowledge and get better job opportunities.
- The programme is designed in such a way that it makes students job ready for the career in IT & Software Industry.

Future Scope

The job profiles offered to a B.Sc Computer Science graduate are:

- IT Consultant
- Network Engineer
- IT Support Analyst
- Web Designer
- Technical Sales Representative
- Software Developer
- Systems Analyst

- Applications Analyst
- Quality Assurance Analyst
- System Administrator
- Strategic Information Planner
- Hardware Specialist
- Software Specialist
- Network Expert
- Information Architect
- Information Security Coordinator
- Computer Support Specialist

BHARATHIDASAN UNIVERSITY,  **TIRUCHIRAPPALLI – 620 024.**

B.Sc. Computer Science Course Structure under CBCS.

(For the Candidates admitted from the Academic year 2016-2017 onwards)

Semester	Part	Course	Title	Instru. Hours/ Week	Credit	Exam Hours	Marks		Total
							Int	Extn.	
I	I	Language Course – I (LC) – Tamil*/Other Languages ** #		6	3	3	25	75	100
	II	English Language Course - I (ELC)		6	3	3	25	75	100
	III	Core Course – I (CC)	Programming in C	6	5	3	25	75	100
		Core Practical - I (CP)	Programming in C Lab	3	2	3	40	60	100
		First Allied Course –I (AC)		4	4	3	25	75	100
		First Allied Course – II (AC)		3	-	-	-	-	-
	IV	Value Education	Value Education	2	2	3	25	75	100
	Total			**30**	**19**				**600**
II	I	Language Course – II (LC) - – Tamil*/Other Languages ** #		6	3	3	25	75	100
	II	English Language Course – II (ELC)		6	3	3	25	75	100
	III	Core Course – II (CC)	Programming in C++	6	6	3	25	75	100
		Core Practical - II (CP)	Programming in C++ Lab	3	2	3	40	60	100
		First Allied Course – II (AC)		3	3	3	25	75	100
		First Allied Course – III (AC)		4	2	3	25	75	100
	IV	Environmental Studies	Environmental Studies	2	2	3	25	75	100
	Total			**30**	**21**				**700**
III	I	Language Course – III (LC) – Tamil*/Other Languages ** #		6	3	3	25	75	100
	II	English Language Course - III (ELC)		6	3	3	25	75	100
	III	Core Course – III (CC)	Programming in Java	6	5	3	25	75	100
		Core Practical - III (CP)	Programming in Java Lab	3	2	3	40	60	100
		Second Allied Course – I (AC)		4	4	3	25	75	100
		Second Allied Practical (AP)		3	-	-	-	-	-
		Non Major Elective I - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Working Principles of Internet	2	2	3	25	75	100
	Total			**30**	**19**				**600**

BHARATHIDASAN UNIVERSITY  **TIRUCHIRAPPALLI - 620 024.**

B.Sc. COMPUTER SCIENCE

CHOICE BASED CREDIT SYSTEM –

LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)

(Applicable to the candidates admitted from the academic year 2022-2023 onwards)

Sem.	Part	Course	Title	Ins. Hrs	Credits	Exam Hours	Marks		Total
							Int.	Ext.	
I	I	Language Course – I Tamil $ / Other Languages + #		6	3	3	25	75	100
	II	English Course - I		6	3	3	25	75	100
	III	Core Course – I (CC)	Programming in C and Data Structures	5	5	3	25	75	100
		Core Practical – I (CP)	Programming in C Lab	4	4	3	40	60	100
		First Allied Course – I (AC)		4	4	3	25	75	100
		First Allied Course – II (AC)		3	-	-	-	-	-
	IV	Value Education		2	2	3	25	75	100
	TOTAL			**30**	**21**	**-**	**-**	**-**	**600**
II	I	Language Course - II Tamil $ / Other Languages + #		6	3	3	25	75	100
	II	English Course - II		6	3	3	25	75	100
	III	Core Course – II (CC)	Programming in Java	5	5	3	25	75	100
		Core Practical – II (CP)	Programming in Java Lab	4	4	3	40	60	100
		First Allied Course – II (AC)		3	2	3	25	75	100
		First Allied Course – III (AC)		4	4	3	25	75	100
		Add on Course – I ##	Professional English – I	6*	4	3	25	75	100
	IV	Environmental Studies		2	2	3	25	75	100
	VI	Naan Mudhalvan Scheme (NMS) @@	Language Proficiency for Employability - Effective English	-	2	3	25	75	100
	TOTAL			**30**	**29**	**-**	**-**	**-**	**900**

III	I	Language Course – III Tamil $ / Other Languages + #		6	3	3	25	75	100
	II	English Course - III		6	3	3	25	75	100
	III	Core Course – III (CC)	Programming in Python	5	5	3	25	75	100
		Core Practical - III (CP)	Programming in Python Lab	4	4	3	40	60	100
		Second Allied Course – I (AC)		4	4	3	25	75	100
		Second Allied Practical (AP)		3	-	-	-	-	-
		Add on Course – II ##	Professional English - II	6*	4	3	25	75	100
	IV	Non-Major Elective - I @ Those who choose Tamil in Part I can choose a non-major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studied in school level or b) Special Tamil if Tamil language was studied up to 10^{th} & 12^{th} std.	Fundamentals of Information Technology	2	2	3	25	75	100
	TOTAL			**30**	**25**	**-**	**-**	**-**	**700**
IV	I	Language Course –IV Tamil $ / Other Languages + #		6	3	3	25	75	100
	II	English Course – IV		6	3	3	25	75	100
	III	Core Course - IV (CC)	Database Management Systems	5	5	3	25	75	100
		Core Practical - IV (CP)	Database Management Systems Lab	4	4	3	40	60	100
		Second Allied Practical (AP)		3	2	3	40	60	100
		Second Allied Course – II (AC)		4	4	3	25	75	100
	IV	Non-Major Elective II @ Those who choose Tamil in Part I can choose a non-major elective course offered by other departments. Those who do not choose Tamil in Part I must choose either a) Basic Tamil if Tamil language was not studied in school level or b) Special Tamil if Tamil language was studied up to 10^{th} & 12^{th} std.	Working Principles of Internet	2	2	3	25	75	100
	VI	Naan Mudhalvan Scheme (NMS) @@	Digital Skills for Employability	-	2	3	25	75	100
	TOTAL			**30**	**25**	**-**	**-**	**-**	**800**

V	III	Core Course - V (CC)	Fundamentals of Algorithms	5	5	3	25	75	100
		Core Course – VI (CC)	Computer Networks	5	5	3	25	75	100
		Core Course – VII (CC)	Digital Electronics and Microprocessor	5	5	3	25	75	100
		Core Practical -V (CP)	Digital Electronics and Microprocessor Lab	4	4	3	40	60	100
		Major Based Elective – I (Any one)	1. Artificial Intelligence and Expert Systems 2. Computer Graphics	5	4	3	25	75	100
	IV	Skill Based Elective I	Web Technology	4	2	3	25	75	100
		Soft Skills Development		2	2	3	25	75	100
	TOTAL			**30**	**27**	**-**	**-**	**-**	**700**
VI	III	Core Course - VIII (CC)	Operating Systems	6	5	3	25	75	100
		Core Course - IX (CC)	Programming in PHP	6	5	3	25	75	100
		Core Practical – VI (CP)	Programming in PHP Lab	4	4	3	40	60	100
		Major Based Elective - II (Any one)	1. Software Engineering 2. Big Data Analytics	5	4	3	25	75	100
		Project		4	3	-	40	60	100
	IV	Skill Based Elective – II	Mobile Application Development	4	2	3	25	75	100
	V	Gender Studies		1	1	3	25	75	100
		Extension Activities **		-	1	-	-	-	-
	VI	Naan Mudhalvan Scheme (NMS) @@		-	2	3	25	75	100
	TOTAL			**30**	**27**	**-**	**-**	**-**	**800**
GRAND TOTAL				**180**	**154**	**-**	**-**	**-**	**4500**

List of Allied Courses

First Allied Course	**Second Allied Course**
Mathematics	Applied Physics

$ For those who studied Tamil upto 10th +2 (Regular Stream).

+ Syllabus for other Languages should be on par with Tamil at degree level.

Those who studied Tamil upto 10th +2 but opt for other languages in degree level under Part- I should study special Tamil in Part – IV.

The Professional English – Four Streams Course is offered in the 2nd and 3rd Semester (only for 2022-2023 Batch) in all UG Courses. It will be taught apart from the Existing hours of teaching / additional hours of teaching (1 hour /day) as a 4 credit paper as an add on course on par with Major Paper and completion of the paper is must to continue his / her studies further. (As per G.O. No. 76, Higher Education (K2) Department dated: 18.07.2020).

* The Extra 6 hrs / cycle as per the G.O. 76/2020 will be utilized for the Add on Professional English Course.

@ NCC Course is one of the Choices in Non-Major Elective Course. Only the NCC cadets are eligible to choose this course. However, NCC Course is not a Compulsory Course for the NCC Cadets.

** Extension Activities shall be outside instruction hours.

@@ Naan Mudhalvan Scheme.

SUMMARY OF CURRICULUM STRUCTURE OF UG PROGRAMMES

Sl. No.	Part	Types of the Courses	No. of Courses	No. of Credits	Marks
1.	I	Language Courses	4	12	400
2.	II	English Courses	4	12	400
3.	III	Core Courses	9	45	900
4.		Core Practical	6	24	600
5.		Allied Courses I & II	4	16	400
6.		Allied Practical	2	4	200
7.		Major Based Elective Courses	2	8	200
8.		Add –on Course (Professional English I & II)	2	8	200
9.		Project	1	3	100
10.	IV	Non-Major Elective Courses	2	4	200
11.		Skill Based Elective Courses	2	4	200
12.		Soft Skills Development	1	2	100
13.		Value Education	1	2	100
14.		Environmental Studies	1	2	100
15.	V	Gender Studies	1	1	100
16.		Extension Activities	1	1	---
17.	VI	Naan Mudhalvan Scheme	3	6	300
	Total		**46**	**154**	**4500**

PROGRAMME OUTCOMES:

- Graduates will be able to comprehend the basic concepts learnt and apply inreal life situations with analytical skills.
- Graduates with acquired skills and enhanced knowledge will be employable / become entrepreneurs or will pursue higher Education.
- Graduates with acquired knowledge of modern software tools will be able tocontribute effectively as software engineers.
- Graduates will be able to comprehend the related concepts to Computer Science with Allied papers
- Graduates will be imbibed with ethical values and social concerns to ensurepeaceful society.

PROGRAMME SPECIFIC OUTCOMES:

- Acquired the required knowledge in the Hardware and Software aspects of Computer Science domain and the art of programming.
- Understood the development methodologies of software systems and the ability to analyze design and develop computer applications for real life problems.
- Gained knowledge and skills to collaborate and communicate with peers in IT / ITES industries
- The ability to understand, adjust and adapt with the dynamic technical environment for the growth of IT industry.
- The capacity to transfer the skills gained, to provide innovative and novel solutions by maintaining ethical norms for the betterment of humane society.

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First Year **CORE COURSE I** **Semester I**

PROGRAMMING IN C AND DATA STRUCTURES

Code: **(Theory)** **Credit: 5**

COURSE OBJECTIVES:

- To know about the basics of C Programming, Control and Looping Structures and programming with it.
- To understand Arrays, Pointers and String Processing in C language
- To know about the basic concepts in Data Structures.

UNIT - I:

Basic of C: History of C and its importance – Structure of a C program – Data Types – Constants and Variables – Operators and Expressions – Order of Precedence, Evaluating of Arithmetic Expressions – Type Conversion- Decision Statements: if, if-else, and nested if statements.

UNIT - II:

Loops Structures: For Loop, While, Do-while loop – Arrays: - One Dimensional Array, Two-dimensional Arrays, Character Arrays and Strings – Functions: Function with arrays - Function with decision and looping statements - Recursion.

UNIT - III:

Pointers: Introduction – Pointer Expressions – Chain of Pointers – Pointers and Arrays – Array of Pointers – Pointers as function arguments – Functions returning Pointers – Pointers to Functions – Function pointer – Structures - declaration, initialization, Array of Structures – Pointer to structures, Structures and functions – Typed of Enumerated data types, Unions.

UNIT - IV:

Strings Processing, Standard string library functions – Files: introduction and files functions – Writing and reading in Text mode – Simple application: Display the contents of a file. Write data to a file. Append data to an existing file – File IO– Reading and writing structures.

UNIT - V:

Stack: LIFO concept, Stack operations, Array implementation of stack – Queue: FIFO concept, Queue operations, Array implementation of queue – Singly Linked List: concepts, operations – Doubly Linked List: concepts, operations – Trees: General trees, Binary trees.

UNIT – VI CURRENT CONTOURS (For continuous internal assessment only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. E. Balagurusamy, "Programming in ANSI C", Tata McGraw Hill, New Delhi, Seventh Edition, 2016.
2. E.Horowitz, S.Sahni and Susan Anderson Freed, "Fundamental Data Structures in C", 2ed, Orient BlackSwan Publisher, 2009.
3. Byron S. Gottfried, "Programming with C", Schaum's Outline Series, Tata- McGraw Hill Edition, New Delhi, 1991.
4. E. Karthikeyan, "A Textbook on C Fundamentals, Data Structures and Problem Solving", Prentice-Hall of India Private Limited, New Delhi, 2008.
5. Yashavant Kanetkar, "Let us C", BPB Publications, Tenth Edition, New Delhi, 2010.
6. Szuhay, Jeff, and Szuhay, Jeff, "Learn C Programming: A Beginner's Guide to Learning C Programming the Easy and Disciplined Way", Packt Publishing, 2020.
7. Jena, Sisir Kumar, and Jena, Sisir Kumar, "C Programming: Learn to Code", CRC Press, 2021.
8. https://www.tutorialspoint.com/cprogramming/index.htm
9. https://www.w3schools.in/data-structures/intro

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Summarize the basic knowledge to develop C programs
- Manipulate Looping, arrays and functions
- Apply and write programs for solving real world problems
- Create open, read, manipulate, write and close files.
- Understand the basic concepts in data structures.

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First Year **CORE PRACTICAL I** **Semester I**

PROGRAMMING IN C LAB

Code: **(Practical)** **Credit: 4**

COURSE OBJECTIVES:

- To understand the programming fundamentals of C language.
- To impart writing skill of C programming and data structures for a list ofproblems.
- To impart hands-on training for writing a C program using computers.

1. Write a Program
   (i) To convert temperature from degree Centigrade to Fahrenheit,
   (ii) Find whether given number is Even or Odd,
   (iii) Find the greatest of Three numbers.
2. Write a Program to display Monday to Sunday using switch statement
3. Write a Program to display first Ten Natural Numbers and their sum.
4. Write a Program to perform Multiplication of Two Matrices.
5. Write a Program
   (i) To find the maximum number in an Array using pointer.
   (ii) To reverse a number using pointer.
   (iii) To add two numbers using pointer.
6. Write a Program to solve Quadratic Equation using functions.
7. Write a Program to find factorial of a number using Recursion.
8. Write a Program to demonstrate Call by Value and Call by Reference.
9. Write a Program to create a file containing Student Details.
10. Write a program to implement a stack using singly linked list, Implement Queue using Linked List.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Relate the use of language constructs to solve simple programs
- Develop programs for various concepts in C language
- Understand and trace the execution of the list of programs
- Understand the usage of file handling in C programming
- Solve data problems related to data structures.

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First Year **CORE COURSE II** **Semester II**

PROGRAMMING IN JAVA

Code: **(Theory)** **Credit: 5**

COURSE OBJECTIVES:

- To acquire the programming skills with java.
- To implement the object-oriented concepts with java language
- To learn the art of GUI programming with Applet.

UNIT - I:

Foundation, Essentials, Control Statement and Classes & Objects, Stage of Java – origin of Java – challenges - features - Object-Oriented Programming; Java Essentials: Elements - API - variables - primitive data types – String Class - operators –combined assignment operators - conversion – scope – comments - keyboard input; Control Statements: if, if-else, nested if & if-else-if statements – logical operators – comparison – conditional operator – switch – increment and decrement – while, do-while & for loops – nested loops – break and continue; Classes and Objects: classes and objects -modifiers - passing arguments– constructors - package & import - static class members –method overloading– constructor overloading –returning objects – this variable – recursion – nested & inner classes – abstract classes & methods.

UNIT - II:

Arrays, String Handling, Inheritance, Interface and Packages, Introduction – processing array – passing arrays – returning arrays – String arrays – two Dimensional Arrays - Arrays with Three or More Dimensions; String Handling: String class – concatenation – comparison – substring – methods – other methods–String Buffer, String Builder & String Tokenizer classes; Inheritance: basics – inheriting and overriding superclass methods – calling superclass constructor – polymorphism – inherit from different classes – abstract classes – final Class; Interfaces: Basics – multiple Interfaces – multiple inheritance using interface – multilevel interface – Packages – Create and access packages in Net Beans IDE – static Import and package class – access specifiers.

UNIT - III:

Exception Handling, I/O and File Handling and Multithreading, Introduction - try and catch block - multiple catch block - nested try - finally Block – throw Statement – exception propagation – throw Clause - custom exception – built-in exception; Multithreading: Introduction – threads – thread creation – life cycle – joining a thread – scheduler &priority – synchronization – inter-thread communication – thread control – thread Pool – thread group – daemon thread; Files and I\O Streams: file Class – streams – byte streams – filtered byte streams – Random Access File class – character streams.

UNIT - IV:

Applet and GUI Part I, Fundamentals – applet class – life cycle – steps for applet program – passing values through parameters – graphics – event handling; GUI I:GUI – creating windows – dialog boxes – layout managers – AWT component classes – Swing component classes – applications of AWT controls.

UNIT - V:

GUI Part II and Java Database Connectivity, Event handling – AWT components – AWT graphics classes – Swing controls – application using Swing and AWT; Java Database Connectivity: types of drivers – JDBC architecture – JDBC classes &interfaces – steps in JDBC applications – creating a new Database and table with JDBC.

UNIT – VI CURRENT CONTOURS (For continuous internal assessment only)

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. S. Sagayaraj, R. Denis, P. Karthik & D. Gajalakshmi, "Constructive Java Programming", Universities Press, 2021.
2. E. Balagurusamy, "Programming with JAVA", Tata McGraw Hill, New Delhi, 2019.
3. C. Muthu, "Programming with JAVA", Vijay Nicole Imprints Private Limited, Chennai, Second Edition, 2011.
4. Bruce Eckel, Chuck Allison, "Thinking in Java", Prentice Hall Publications, 2006
5. Malina Pronto, "Java: How To Learn Java Programming: How To Improve Your Java Coding In 2020/2021: 5 Programming Languages To Learn For Beginners In Tech", Independently Published, 2020.
6. Nick Samoylov, "Learn Java 12 Programming: A Step-by-step Guide to Learning Essential Concepts in Java", Packt Publishing, 2019.
7. https://www.javatpoint.com/java-tutorial

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand the concept of OOP as well as the purpose and usage principles ofinheritance, polymorphism, encapsulation and method overloading.
- Identify members of a class and to implement them
- Create Java application programs using sound OOP practices (e.g., interfaces andAPIs) and proper program structuring (e.g., by using access control identifies, andcreate user define package for specific task,(reusability concepts) error exception handling)
- Develop programs using the Java standard class library.
- Develop software using Java programming language, (using applet, AWT controls,and JDBC).

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First Year **CORE PRACTICAL II** **Semester II**

PROGRAMMING IN JAVA LAB

Code: **(Practical)** **Credit: 4**

COURSE OBJECTIVES:

- To understand the basics of JAVA programs and their execution.
- To learn concepts like inheritance, packages and interfaces.
- To understand the life cycle of the applets, database connectivity and their functionality.

1. Write a program to sort the given numbers using arrays.
2. Write a program to implement the FIND and REPLACE operations in the given text.
3. Write a program to implement a calculator to perform basic arithmetic Operations, doing with constructers
4. Write a program to find the student's percentage and grade using command line arguments.
5. Write a program to draw circle or triangle or square using polymorphism and inheritance.
6. Implement multiple inheritance concepts in java using interface, you can choose your own example of a company or education institution or a general concept which requires the use of interface to solve a particular problem.
7. Write a program to create threads and perform operations like start, stop, suspend, resume
8. Write a program to develop an applet to play multiple audio clips using multithreading.
9. Write a program to retrieve employee data from a file
10. Write a program to retrieve student data from a Database

Course Outcomes:

Upon successful completion of this course the students would be able to:

- Develop java programs to understand the OOP concepts.
- Write java programs for classes and objects.
- Develop simple programs with multiple threads.
- Write java programs using Applets.
- Develop java programs to connect databases and files.

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BHARATHIDASAN UNIVERSITY **TIRUCHIRAPPALLI - 620 024**

PART-IV VALUE EDUCATION COURSE

FOR ALL UG ARTS, SCIENCE, COMMERCE AND MANAGEMENT
CHOICE BASED CREDIT SYSTEM – LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)
(Applicable to the candidates admitted from the academic year 2022-2023 onwards)

First Year	**PART-IV**	**Semester-I**
	VALUE EDUCATION	
Code:	**(Theory)**	**Credit: 2**

OBJECTIVES:

- To understand the philosophy of life and values through Thirukural
- To analyse the components of values education to attain the sense of citizenship
- To understand different types of values towards National Integration and international understanding
- To learn yoga as value education to promote mental and emotional health
- To understand human rights, women rights and other rights to promote peace and harmony

UNIT I : PHILOSOPHY OF LIFE AND SOCIAL VALUES:

Human Life on Earth (Kural 629) -Purpose of Life (Kural 46) -Meaning and Philosophy of Life (Kural 131, 226) -Family (Kural 45), Peace in Family (Kural 1025) Society (Kural 446), The Law of Life (Kural 952), Brotherhood (Kural 807) Five responsibilities / duties of Man (a) to himself (b) to his family (c) to his environment (d) to his society, (e) to the Universe in his lives (Kural 43, 981).

UNIT-II – HUMAN VALUES AND CITIZENSHIP

Aim of education and value education: Evolution of value oriented education, Concept of Human values: types of Values- Character Formation – Components of Value education- A P J Kalam's ten points for enlightened citizenship- The role of media in value building

UNIT-III VALUE EDUCATION TOWARDS NATIONAL AND GLOBAL DEVELOPMENT:

Constitutional or national values: Democracy, socialism, secularism, equality, Justice, liberty, freedom and fraternity - Social Values: Pity and probity, self-control, universal brotherhood - Professional Values - Knowledge thirst, sincerity in profession, regularity, punctuality and faith -Religious Values: Tolerance, wisdom, character - Aesthetic Values- Love and appreciation of literature and fine arts and respect for the same- National Integration and International Understanding.

UNIT IV : YOGA AND HEALTH:

Definition, Meaning, Scope of Yoga - Aims and objectives of Yoga - Yoga Education with modern context - Different traditions and schools of Yoga - Yoga practices: Asanas, Pranayama and Meditation.

UNIT V : HUMAN RIGHTS:

Concept of Human Rights: Indian and international perspectives- Evolution of Human Rights- definitions under Indian and International documents -Broad classification of Human Rights and Relevant Constitutional Provisions: Right to Life, liberty ad Dignity- Right to equality- Right against exploitation- Cultural and Educational Right- Economic Rights- Political Rights- Social Rights - Human Rights of Women and Children – Peace and harmony.

UNIT - VI: CURRENT CONTOURS: (for continuous internal assessment only):

BOOKS FOR REFERENCES:

1. Thirukkural with English Translation of Rev. Dr. G.U. Pope, Uma Publication, 156, Serfoji Nagar, Medical College Road, Thanjavur 613 004
2. திருக்குறள் - ஜி.யு.போப் - ஆங்கில மொழியாக்கத்துடன் உமா நூல், வெளியீட்டகம், தஞ்சாவூர்,
3. Leah Levin, Human Rights, NBT, 1998
4. V.R. Krishna Iyer, Dialetics and Dynamics of Human Rights in India, Tagore Law Lectures.
5. Yogic Thearpy - Swami Kuvalayananda and Dr.S.L.Vinekar, Government of India, Ministry of Health, New Delhi.
6. SOUND HEALTH THROUGH YOGA - Dr.K.Chandrasekaran, Prem Kalyan Publications, Sedaptti, 1999.
7. Grose. D. N – "A text book of Value Education' New Delhi (2005)
8. Gawande . EN – "Value Oriented Education" – Vision for better living. New Delhi (2002) Saruptsons
9. Brain Trust Aliyar- "Value Education for Health, Happiness and Harmony" Erode (2004) Vethathiri publications

COURSE OUTCOMES: After completion of the course, the student will be able to:

- Apply the values in thirukural to be peaceful, dutiful and responsible in family and society
- Develop character formation and sense of citizenship
- Be secular, self-control, sincere, respectful and moral.
- Master yoga, asana and meditation to promote mental health
- Be attitudinal to follow the constitutional rights

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BHARATHIDASAN UNIVERSITY **TIRUCHIRAPPALLI - 620 024**

PART-IV ENVIRONMENTAL STUDIES COURSE

FOR ALL UG ARTS, SCIENCE, COMMERCE AND MANAGEMENT
CHOICE BASED CREDIT SYSTEM – LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (CBCS - LOCF)
(Applicable to the candidates admitted from the academic year 2022-2023 onwards)

First Year	**PART-IV**	**Semester-II**
	ENVIRONMENTAL STUDIES	
Code:	**(Theory)**	**Credit: 2**

COURSE OBJECTIVES:

- To appreciate the scope of Environmental Studies, Community ecology and the interdisciplinary nature of environmental issues
- To have a basic knowledge of Natural resources its classification, concepts, and natural resources of India.
- The course designed to gain knowledge on values of biodiversity and conservation on global, national, and local scales
- To study about sources and effects of environmental pollution like air, water, soil, thermal, marine, nuclear and noise
- To understand the concerns related to Sustainable Development on environment and health
- To introduce the students in the field of Law and Policies and Acts both at the national and international level relating to environment.

UNIT-1: The Multidisciplinary nature of environmental studies
Definition, scope and importance. (2 lectures)
Need for public awareness

UNIT-2: Natural Resources:
Renewable and non-renewable resources:
Natural resources and associated problems.

a) Forest resources: use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.

c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.

f) Land resources: Land as a resources, land degradation, man induced Landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

(8 lectures)

Unit: 3 Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession.
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:-
- a. Forest ecosystem
- b. Grassland ecosystem
- c. Desert ecosystem
- d. Aquatic ecosystems, (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

Unit: 4 Biodiversity and its conservation

- Introduction – Definition : Genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Biological Diversity Act 2002/ BD Rules, 2004

(8 lectures)

Unit: 5 Environmental Pollution

Definition

Causes, effects and control measures of :

a. Air Pollution
b. Water Pollution
c. Soil Pollution
d. Marine Pollution
e. Noise pollution
f. Thermal Pollution
g. Nuclear hazards

- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides.
- Ill-Effects of Fireworks: Firework and Celebrations, Health Hazards, Types of Fire, Firework and Safety

(8 lectures)

Unit: 6 Social Issues and the Environment

- From Unsustainable to Sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people; its problems and concerns.

Case studies

- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.
- Issues involved in enforcement of environmental legislation
- Public awareness.

(7 lectures)

Unit: 7 Human Population and the Environment

- Population growth, variation among nations.
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights - Value Education

- HIV/ AIDS - Women and Child Welfare
- Role of Information Technology in Environment and human health
- Case studies.

Unit: 8 Field Work

- Visit to a local area to document environmental assets-river / forest/ grassland/ hill / mountain

References:

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Public Ltd Bikaner.
2. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt ltd, Ahamedabad – 380013, India, E-mail: mapin@icenet.net(R)
3. Brunner R.C. 1989, Hazardous Waste Incineration, McGraw Hill Inc 480 p
4. Clark R.S. Marine Pollution, Clanderson Press Oxford (TB)
5. Cunningham, W.P.Cooper, T.H.Gorhani E & Hepworth, M.T. 2001.
6. De A.K. Environmental Chemistry, Wiley Eastern Ltd
7. Down to Earth, Centre for Science and Environment (R)
8. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford University, Press 473p.
9. Hawkins, R.E. Encyclopedia of India Natural History, Bombay Natural History Society, Bombay (R)
10. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge University Press 1140 p.
11. Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws Himalaya Pub. House, Delhi 284 p.
12. Mckinney, M.L. & Schoch R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition 639 p.
13. Mhaskar A.K. Matter Hazardous, Techno-Science Publications (TB)
14. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
15. Odum, E.P. 1971 Fundamentals of Ecology. W.B. Saunders Co. USA. 574 p
16. Rao MN & Datta, A.K. 1987 Waste Water treatment, Oxford & IBH Publication Co. Pvt Ltd 345 p.
17. Sharma B.K. 2001 Environmental chemistry Goel Publ House, Meerut.
18. Survey of the Environment, The Hindu (M).
19. Townsend C. Harper, J and Michael Begon, Essentials of Ecology, Blackwell science (TB)
20. Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro Media (R).
21. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science Publications (TB).
22. Wagner K.D. 1998 Environmental Management. W.B. Saunders Co. Philadelphia USA 499 p

    (M) Magazine (R) Reference (TB) Textbook

23. http://nbaindia.org/uploaded/Biodiversityindia/Legal/33%20Biological%20Diversity%20

Rules,%202004.pdf.

COURSE OUTCOMES:

- Understand the environmental importance including interactions across local to global scales.
- The learners to update and analyze environmental relationships and interactions of environmental components
- The student to gain knowledge on importance of natural resources in a systematic way.

- The course content is introduce the concept of renewable and non-renewable energy resources and its scenario in India and at global level
- The students will know the relationship between biodiversity and ecosystem functions, direct and indirect values of biodiversity resources and their bioprospecting opportunities.
- The learners can gain awareness related on environmental pollution, causes and pollution control with case studies.
- Student to obtain the environmental ethics and gain knowledge about the sustainable development.
- Learners should realize the environmental legislation and policies of national and international regime and know the regulations applicable to industries and other organizations with significant Environmental aspects

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PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES-I

OBJECTIVES:

- To develop the language skills of students by offering adequate practice in professional contexts.
- To enhance the lexical, grammatical and socio-linguistic and communicative competence of first year physical sciences students
- To focus on developing students' knowledge of domain specific registers and the required language skills.
- To develop strategic competence that will help in efficient communication
- To sharpen students' critical thinking skills and make students culturally aware of the target situation.

LEARNING OUTCOMES:

- Recognise their own ability to improve their own competence in using the language
- Use language for speaking with confidence in an intelligible and acceptable manner
- Understand the importance of reading for life
- Read independently unfamiliar texts with comprehension
- Understand the importance of writing in academic life
- Write simple sentences without committing error of spelling or grammar

(Outcomes based on guidelines in UGC LOCF – Generic Elective)

UNIT 1: COMMUNICATION

1. **Listening**: Listening to instructions

2. **Speaking**: Telephone etiquette and Official phone conversations

3. **Reading** short passages (3 passages, one from each – Physics, Chemistry, Mathematics/Computer Science)

5. **Writing:** Letters and Emails in professional context

6. **Grammar in Context:**
   - Wh and yes or no,
   - Q tags
   - Imperatives

7, **Vocabulary in Context:** Word formation - .
   i) Creating antonyms using Prefixes
   ii) Intensifying prefixes (E. g inflammable)

Changing words using suffixes

A) Noun Endings
B) Adjective Endings
C) Verb Endings

UNIT 2: DESCRIPTION

Listening – Listening to process description

Speaking - Role play

Formal: With faculty and mentors in academic environment, workplace communication

Informal: With peers in academic environment, workplace communication

Reading –Reading passages on products, equipment and gadgets

Writing – Writing sentence definitions (e.g. computer) and extended definitions (e.g. artificial intelligence)

Picture Description – Description of Natural Phenomena

Grammar in Context: Connectives and linkers.

Vocabulary – Synonyms (register) - Compare & contrast expressions.

UNIT 3: NEGOTIATION STRATEGIES

Listening - Listening to interviews of specialists / inventors in fields (Subject specific)

Speaking – Brainstorming. (mind mapping). Small group discussions (subject-specific)

Reading – longer Reading text. (Comprehensive passages)

Writing – Essay Writing (250 word essay on topics related to subject area, like pollution, use of pesticides in cultivation, merits and demerits of devices like mobile phones, merits and demerits of technology in development)

Grammar in Context: Active voice & Passive voice – If conditional - Collocations –Phrasal verbs

UNIT 4: PRESENTATION SKILLS

Listening - Listening to presentation. Listening to lectures. Watching – documentaries (discovery / history channel)

Speaking –Short speech

- Making formal presentations (PPT)

Reading – Reading a written speech by eminent personalities in the relevant field /Short poems / Short biography.

Writing - Writing Recommendations

Interpreting visuals - charts / tables/flow diagrams/charts

Grammar in Context – Modals

Vocabulary (register) - Single word substitution

UNIT 5: CRITICAL THINKING SKILLS

Listening - Listening to advertisements/news and brief documentary films (with subtitles)

Speaking – Simple problems and suggesting solutions.

Reading: Motivational stories on Professional Competence, Professional Ethics and Life Skills (subject-specific)

Writing Studying problem and finding solutions- (Essay in 200 words)

Grammar-Make simple sentences

Vocabulary -Fixed expressions

SUGGESTED ACTIVITIES

UNIT 1

Listening: Links for formal conversation can be given - Gap filling exercises – Multiple Choice questions – Making notes.

Speaking - Role play activity

Reading – Note making. Note-Taking.

Writing: Guided Writing (developing hints)

Email

Grammar: Vocabulary – Worksheets – Games.

UNIT 2

Listening-

Process Descriptions (Processes of Condensation and Evaporation./Process of Measuring the thickness of a wire using a Screw -Gauge./process of Exaction of sugar from sugarcane)

Speaking – Role Play

Reading – Multiple choice questions - Evaluative answers – Classifying and labeling

Writing - Picture description – Description of natural phenomena (rainbow, earthquake, volcanic eruption, erosion, natural disasters in 150 to 200 words).

Vocabulary: Expansion of compound nouns

UNIT 3

Listening- Gap fill exercises – Listening comprehension

Speaking -Debates

Reading -Reading comprehension

Writing – Essay Writing

Grammar - Vocabulary, Activities, Worksheets & Games.

UNIT 4

Listening - Note taking (of listening & viewing items) - Filling a table based on the listening item.

Speaking – JAM, Presentations. (PPT-TECHNICAL)

Reading-Reading comprehension

Writing– Difference between recommendations and instructions

Questions/MCQs based on graphs/flow diagrams/charts

Grammar: Vocabulary – Activities, Worksheets & Games.

UNIT 5

Listening – Radio News/ TV-News telecast /

Speaking - Watch or listen to documentaries and ask questions

Reading - Reading motivational stories (success stories in subject area)

Writing - Essay writing.

Grammar -Vocabulary –Activities, Worksheets & Games

Second Year **CORE COURSE III** **Semester III**

PROGRAMMING IN PYTHON

Code: **(Theory)** **Credit: 5**

COURSE OBJECTIVES:

- To develop programs using functions and pass arguments in Python.
- To write programs using loops and decision statements in Python.
- To design and program Python applications.

UNIT - I:

Introduction to Python: Features of Python - How to Run Python - Identifiers - Reserved Keywords - Variables - Comments in Python - Indentation in Python - Multi-Line Statements - Multiple Statement Group (Suite) - Quotes in Python - Input, Output and Import Functions - Operators. Data Types and Operations: Numbers – Strings – List – Tuple – Set – Dictionary – Data type conversion.

UNIT - II:

Flow Control: Decision Making – Loops – Nested Loops – Types of Loops. Functions: Function Definition – Function Calling - Function Arguments - Recursive Functions - Function with more than one return value.

Unit - III:

Modules and Packages: Built-in Modules - Creating Modules - import Statement - Locating Modules - Namespaces and Scope - The dir() function - The reload() function - Packages in Python - Date and Time Modules. File Handling- Directories in Python.

UNIT - IV:

Object-Oriented Programming: Class Definition - Creating Objects - Built-in Attribute Methods - Built-in Class Attributes- Destructors in Python – Encapsulation - Data Hiding – Inheritance - Method Overriding- Polymorphism.

UNIT - V:

Exception Handling: Built-in Exceptions-Handling Exceptions-Exception with Arguments - Raising Exception - User-defined Exception - Assertions in Python. Regular Expressions: The match() function - The search() function - Search and Replace - Regular Expression Modifiers: Option Flags-Regular Expression Patterns-Character Classes-Special Character Classes - Repetition Cases - findall() method - compile() method.

UNIT – VI CURRENT CONTOURS (For continuous internal assessment only):

An Introduction to Interactive Programming in Python - Study on Julia – an high level language approach.

REFERENCES:

1. Jeeva Jose and P. Sojan Lal, "Introduction to Computing and Problem Solving with PYTHON", Khanna Book Publishing Co, 2016.
2. Mark Summerfield. — Programming in Python 3: A Complete introduction to the Python Language, Addison-Wesley Professional, 2009.
3. Martin C. Brown, —PYTHON: The Complete Reference‖, McGraw-Hill, 2001
4. Wesley J. Chun, "Core Python Programming", Prentice Hall Publication, 2006.
5. Timothy A Budd, "Exploring Python", Tata McGraw Hill, New Delhi, 2011
6. Jake Vander Plas, "Python Data Science Handbook: Essential Tools for Working with Data", O'Reilly Media, 2016.
7. Allen B. Downey, ``Think Python: How to Think Like a Computer Scientist, 2nd edition, Updated for Python 3, Shroff/O Reilly Publishers, 2016
8. Guido van Rossum and Fred L. Drake Jr, —An Introduction to Python –Revised and updated for Python 3.2, Network Theory Ltd., 2011.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able:

- To recall and understand the features of python programming language
- To illustrate various programming mechanism used in python
- To apply various language construct to write simple programs in python
- To examine the application of object oriented concept in python
- To distinguish the various constructs used in python.

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Second Year	**CORE PRACTICAL III**	**Semester III**
	PROGRAMMING IN PYTHON LAB	
Code	**(Practical)**	**Credit: 4**

COURSE OBJECTIVES:

- To write, test, and debug simple Python programs.
- To implement Python programs with conditionals and loops.
- To represent compound data using Python lists, tuples, and dictionaries.

1. Flow controls, Functions and String Manipulation
2. Operations on Tuples and Lists
3. Operation on sets
4. Operations on Dictionary
5. Simple OOP– Constructors – create a class for representing a car
6. Method Overloading – create classes for vehicle and Bus and demonstrate method overloading
7. Files – Reading and Writing – perform the basic operation of reading and writing with student file
8. Regular Expressions
9. Modules
10. Packages
11. Exception Handling

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Write simple programs using control structures, functions and strings
- Develop programs using tuples, lists, sets and dictionary
- Write simple programs using Constructors, Method overloading and inheritance
- Develop programs using files and regular expressions
- Write simple programs using packages and exception handling

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Second Year	NON MAJOR ELECTIVE I FUNDAMENTALS OF INFORMATION TECHNOLOGY	Semester III
Code	(Theory)	Credit: 2

COURSE OBJECTIVES:

- To familiarize the students with the world of IT and IT-enabled services.
- To provide an in-depth knowledge about internet and internet tools.
- To enable the students to understand about Computer Security

UNIT - I:

Introduction to Computers - Generation of Computers - Classification of Digital Computer - Anatomy of Digital Computer.

UNIT-II:

CPU and Memory - Secondary Story Devices - Input Devices - Output Devices.

UNIT-III:

Introduction to Computer Software - Programming Language - Operating Systems - Introduction to Database Management System.

UNIT - IV:

Computer Networks - WWW and Internet - Email - Web Design

UNIT - V:

Computers at Home, Education, Entertainment, Science, Medicine and Engineering - Introduction to Computer Security - Computer Viruses, Bombs, Worms.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Alexis Leon and Mathews Leon, Fundamentals of Information Technology, Vikas Publishing House Pvt. Ltd, 2009
2. Fundamentals of Computers and Information Technology, M.N Doja,2005
3. Ramesh Bangia,"Computer Fundamentals and Information Technology", Laxmi Publications Pvt Limited, 2008.
4. Bharihoke, "Fundamentals of Information Technology", Excel Books, 2009.
5. Ralph Stair, George Reynolds, "Fundamentals of Information Systems" Cengage Learning, 2015.

6. Shun-Ping Chen, "Fundamentals of Information and Communication Technologies", Cambridge Scholars Publisher, 2020.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand basic concepts and terminologies in IT and IT-enabled services.
- Understanding personal computers and their operations.
- Understand about operating systems and database management
- Comprehend about WWW, internet, email and web design concepts
- Respond to computer security issues.

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Second Year **CORE COURSE IV** **Semester IV**

DATABASE MANAGEMENT SYSTEMS

Code **(Theory)** **Credit: 5**

COURSE OBJECTIVES:

- To impart the basic database concepts, applications, data models, schemas and instances.
- To familiarize Entity Relationship model for a database.
- To Demonstrate the use of constraints and relational algebra operations.

UNIT - I:

Introduction: Database-System Applications- Purpose of Database Systems - View of Data -Database Languages - Relational Databases - Database Design -Data Storage and Querying Transaction Management -Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

UNIT - II:

Relational Model: Structure of Relational Databases -Database Schema - Keys – Schema Diagrams - Relational Query Languages - Relational Operations Fundamental Relational-Algebra Operations Additional Relational-Algebra Operations- Extended Relational-Algebra Operations - Null Values - Modification of the Database.

UNIT - III:

SQL Overview of the SQL Query - Language - SQL Data Definition - Basic Structure of SQL Queries - Additional Basic Operations - Set Operations - Null Values Aggregate Functions - Nested Subqueries - Modification of the Database -Join Expressions - Views - Transactions - Integrity Constraints - SQL Data Types and Schemas – Authorization.

UNIT - IV:

Relational Languages: The Tuple Relational Calculus - The Domain Relational Calculus Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - Reduction to Relational Schemas - Entity-Relationship Design Issues - Extended E-R Features - Alternative Notations for Modeling Data - Other Aspects of Database Design

UNIT - V:

Relational Database Design: Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Decomposition Using Functional Dependencies - Decomposition Using Multivalued Dependencies-More Normal Forms - Database-Design Process

UNIT - VI: CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. Database System Concepts, Sixth edition, Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill-2010.

2. Jagdish Chandra Patni, Hitesh Kumar Sharma, Ravi Tomar, Avita Katal., "Database Management System: An Evolutionary Approach", CRC Press, 2022.
3. Abraham Silberschatz, Hendry F. Korth, S Sudharshan," Database System Concepts", 6th Edition, McGraw Hill International, 2019.
4. Blokdyk, Gerardus, and Blokdyk, Gerardus, "RDBMS Relational Database Management System a Complete Guide", 2020 Edition, Emereo Pty Limited, 2019.
5. Wilfried Lemahieu, Seppevanden Broucke, Bart Baesens, "Principles of Database Management: The Practical Guide to Storing, Managing and Analyzing Big and Small Data", Cambridge University Press, 2018.
6. C.J. Date, "An Introduction to Database Systems" Addison Wesley, 2000.
7. https://tutorialspoint.dev/computer-science/dbms

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand the basic concepts of Database Systems
- Know about SQL queries to interact with Database
- Design a Database using ER Modelling
- Apply normalization on database design to eliminate anomalies
- Analyze database transactions and to control them by applying ACID properties.

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Second Year	CORE PRACTICAL IV DATABASE MANAGEMENT SYSTEMS LAB	Semester IV
Code	(Practical)	Credit: 4

COURSE OBJECTIVES:

- To understand the basic concepts and the applications of database systems using MYSQL.
- To create and perform basic operation with MYSQL.
- To interact with MYSQL by using nested queries, set of aggregate operations and views.

1. Create a table and perform the following basic mysql operations
   a. Set the primary key
   b. Alter the structure of the table
   c. Insert values
   d. Delete values based on constraints
   e. Display values using various forms of select clause
   f. Drop the table

2. Develop mysql queries to implement the following set operations
   a. Union
   b. Union all
   c. Intersect
   d. Intersect all

3. Develop mysql queries to implement the following aggregate functions
   a. Sum
   b. Count
   c. Average
   d. Maximum
   e. Minimum
   f. Group by clause & having clause

4. Develop mysql queries to implement following join operations
   a. Natural join
   b. Inner join
   c. Outer join-left outer, right outer, full outer
   d. Using join conditions

5. Develop mysql queries to implement nested subqueries
   a. Set membership (int, not int)
   b. Set comparison (some, all)
   c. Empty relation (exists, not exists)
   d. Check for existence of Duplicate tuples(unique, not unique)

6. Develop mysql queries to create a views and expand it.

7. Develop mysql queries to implement
   a. String operations using %
   b. String operations using '_'

c. Sort the element using asc,desc
[*create necessary reletions with requires attribute]

8. Consider the following database for a banking enterprise
BRANCH(branch-name:string, branch-city:string, assets:real)
ACCOUNT(accno:int, branch-name:string, balance:real)
DEPOSITOR(customer-name:string, accno:int)
CUSTOMER(customer-name:string, customer-street:string, customercity:
string)
LOAN(loan-number:int, branch-name:string, amount:real)
BORROWER(customer-name:string, loan-number:int)
   i. Create the above tables by properly specifying the primary keys and the
   ii. foreign keys
   iii. Enter at least five tuples for each relation
   iv. Find all the customers who have at least two accounts at the Main Branch.
   v. Find all the customers who have an account at all the branches located
   vi. In a specific city.
   vii. Demonstrate how you delete all account tuples at every branch located in a specific city. Generate suitable reports.
   viii. Create a suitable front end for querying and displaying the results.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Write queries to manipulate data.
- Demonstrate the aggregate functions and set operations.
- Apply the join operations.
- Know about usage of nested sub queries.
- Understand the method to create views.

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Second Year **NON-MAJOR ELECTIVE- II** **Semester IV**

WORKING PRINCIPLES OF INTERNET

Code **(Theory)** **Credit: 2**

COURSE OBJECTIVES:

- To teach the basics of the World Wide Web
- To understand the fundamentals of the Internet and the usage
- To know the components of Multimedia on the internet

UNIT - I:

What is Internet? The Internet's underlying Architecture

UNIT - II:

Connecting to the Internet – Communicating on the Internet

UNIT - III:

How the World Wide Web works. Common Internet tools

UNIT - IV:

Multimedia on the Internet – Intranet and shopping on the Internet

UNIT - V:

Safeguarding the Internet

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Preston Gralla, "How the Internet Works", Pearson Education, Eighth Edition, 2006.
2. C.Xavier, Fundamentals of Internet and Emerging Technologies, New Age International Private Limited; First Edition ,2021
3. Alexis Leon, Internet for Everyone, S. Chand (G/L) & Company Ltd; Second Edition 2012.
4. Andrea C. Nakaya,"Internet and Social Media Addiction", Reference Point Press,2015.
5. Richard Fox, Wei Hao,"Internet Infrastructure: Networking, Web Services, and Cloud Computing", CRC Press, 2017.
6. Douglas E. Comer,"The Internet Book: Everything You Need to Know about Computer Networking and How the Internet Works", CRC Press, 2018.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand the evolution of the Internet.
- Know the basic knowledge of the web
- Comprehend the protocols and standards used throughoutthe Internet.
- Discuss a variety of Internet and WWW applications and related technologies.
- Evaluate the opportunities and threats created by interconnecting computers via the Internet.

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Second Year **NON MAJOR ELECTIVE COURSE- I** **Semester-III**

TOUR OPERATIONS

Code: **(Theory)** **Credit: 2**

OBJECTIVES:

- To know the definition and concepts of tourism
- To understand the types of travel formalities
- To learn the Preparation of Tour Itinerary

UNIT- I TRANSPORT INDUSTRY:

Introduction to Transport Industry – Road Transport – Rail Transport - Cruise Liners Transportation - Reading of Railway Time Table – Railway Ticket Booking Procedures.

UNIT-II AIR TRANSPORT:

Development of Air Transport – Formation of IATA – Airline Industry (International and Domestic) - Role of Airlines in Tourism.

UNIT-III TRAVEL FORMALITIES:

Passport – VISA – Medical Certificates – Insurance – Customs - Foreign Exchange -Baggage allowance.

UNIT-IV TRAVEL AGENCY:

Evolution of Travel Agency – Departments and Functions of a Travel Agency - Source of income for Travel Agency.

UNIT-V TOURS OPERATIONS:

Origin of Tour Operations – Organising a Tour Program – Package Tours – Car Rentals – Tourist Guide Service -Preparation of Tour Itinerary – Tour Costing.

UNIT - VI CURRENT CONTOURS (For Continuous Internal Assessment Only):

Railway Ticket Booking Procedures - Baggage allowance - Organizing a Tour Program - Preparation of Tour Itinerary.

REFERENCE BOOKS:

1. Burkart and Melik, **Tourism -Past, Present and Future**, London, 1995.
2. R.M. Kaul, **Dynamics of Tourism** – **A Triology**, Vol.I., New Delhi, 1997.
3. Seth Pran Nath, Successful Tourism Practices, Vol.I., New Delhi, 1997.
4. Lonely Planet India, Guidebook, Travel literature

COURSE OUTCOME:

- Successful completion of this course will lead the students to appropriate knowledge in Tour operations.

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Second Year **NON MAJOR ELECTIVE COURSE-II** **Semester-IV**

CULTURAL TOURISM

Code: **(Theory)** **Credit: 2**

OBJECTIVES:

1. To gain the knowledge of Cultural Resources.
2. To understand the idea of Cultural Festivals
3. To get the knowledge of Cultural destinations.

UNIT- I CULTURAL TOURISM:

Definition - Meaning and Scope - Significance – Types of CulturalTourism Attractions - Culinary Traditions: North Indian - South Indian -Continental.

UNIT-II ARTS AND CRAFTS :

Music: Hindustani - Carnatic -Classical Dances: Kuchipudi, Odisi, Kathakali, Manipuri,Kadhak and Bharathanattiyam - Folk Dances.

UNIT-III CULTURAL RESOURCES OF NORTH INDIA :

Madura- Jaipur-Vaishnavadevi Temple Deccan Region: Konark – Amaravati- Somnathpur Temple -South India : Belur, Helibidu, Gurauvayur, Thiruppati- Madurai- Case studies: Darasuram, Velankanni.

UNIT-IV FESTIVALS:

Konark Festival in Odisha - Sarang Festival in Kolkata - Music Festival in Chennai- -Dance Festivals in Mamallapuram and Chidambaram - Music Festival in Thiruvaiyaru.

UNIT-V INDIAN CULTURAL DESTINATION – CULTURAL INSTITUTION IN INDIA:

Cultural Event Management – Preservation and Conservation of Monuments – Role of ASI, ICO, MOS -Mutts in India- Unique features of Tamil Culture: Chastity, Equality, Nobility, Charity , Justice.

UNIT - VI CURRENT CONTOURS (For Continuous Internal Assessment Only):

Hindustani Music - Culinary traditions of South India - Konark Festival–Role of ASI in heritage conservation.

REFERENCES :

1. V.s. Agarwal, the Heritage of Indian Art, Publications Divisions, Govt. of India, New Delhi.
2. A.L. Basham, The Wonder That was India, 3rd edition, London.
3. L. Basham, A Cultural History of India, Oxford University Press, New Delhi.
4. பண்டையநாகரிகங்கள் - எஸ்.எல். வி . மூர்த்தி
5. Art, Culture and Spirituality - Swami Atmaramananda&Dr.M.Sivaramkrishna.
6. The Book of Hindu Festivals and Ceremonies - Om Lata Bahadur.
7. Cultural Tourism In India- Luvkushmishra

COURSE OUTCOME:

- Successful completion of this course will lead the students to appropriate knowledge in Cultural Tourism.

Professional English [part-III -add on Course]

Weightage: 4 Credits Duration: 90hrs

Objectives:

The Professional Communication Skills Course is intended to help Learners in Arts and Science colleges

- Develop their competence in the use of English with particular reference to the workplace situation.
- Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.
- Develop their competence and competitiveness and thereby improve their employability skills.
- Help students with a research bent of mind develop their skills in writing reports and research proposals.

Unit 1- Communicative Competence (18 hrs)

Listening – Listening to two talks/lectures by specialists on selected subject specific topics -(TED Talks) and answering comprehension exercises (inferential questions)

Speaking: Small group discussions (the discussions could be based on the listening and reading passages- open ended questions

Reading: Two subject-based reading texts followed by comprehension activities/exercises

Writing: Summary writing based on the reading passages.

Grammar and vocabulary exercises/tasks to be designed based on the discourse patterns of the listening and reading texts in the book. This is applicable for all the units.

Unit 2 - Persuasive Communication (18 hrs)

Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication

Speaking: debates – Just-A Minute Activities

Reading: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions

Writing: dialogue writing- writing an argumentative /persuasive essay.

Unit 3- Digital Competence **(18 hrs)**

Listening to interviews (subject related)

Speaking: Interviews with subject specialists (usingvideo conferencing skills)

Creating Vlogs (How to become a vlogger and use vlogging tonurture interests – subject related)

Reading: Selected sample of Web Page (subject area)

Writing: Creating Web Pages

Reading Comprehension: Essay on Digital Competence for Academic and Professional Life.

The essay will address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area

Unit 4 - Creativity and Imagination **(18 hrs)**

Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – E.g. https://www.youtube.com/watch?v=tpvicScuDyo)

Speaking: Making oral presentations through short films – subject based

Reading: Essay on Creativity and Imagination (subject based)

Writing – Basic Script Writing for short films (subject based)

- Creating blogs, flyers and brochures (subject based)
- Poster making – writing slogans/captions(subject based)

Unit 5- Workplace Communication& Basics of Academic Writing (18 hrs)

Speaking: Short academic presentation using PowerPoint

Reading & Writing: Product Profiles, Circulars, Minutes of Meeting.

Writing an introduction, paraphrasing

Punctuation(period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis)

Capitalization (use of upper case)

Outcomes of the Course.

At the end of the course, learners will be able to,

- Attend interviews with boldness and confidence.
- Adapt easily into the workplace context, having become communicatively competent.
- Apply to the Research &Development organisations/ sections in companies and offices with winning proposals.

Instruction to Course Writers:

1. **Acquisition of subject-related vocabulary should not be overlooked**. Textboxes with relevant vocabulary may be strategically placed as a Pre Task or in Summing Up
2. Grammar may be included if the text lends itself to the teaching of a Grammatical item. However, testing and evaluation does not include Grammar.

Third Year	CORE COURSE V FUNDAMENTALS OF ALGORITHMS	Semester V
Code	(Theory)	Credit: 5

COURSE OBJECTIVES:

- To study the fundamentals of algorithms
- To understand trees, traversals and about shortest path.
- To know about the different algorithms related to sorting, optimality and backtracking

UNIT - I:

Introduction – Algorithm Specification, Pseudo code for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, Performance Measurement, Randomized algorithms.

UNIT - II:

Trees – Binary tree representations – Tree Traversal – Threaded Binary Trees – Binary Tree Representation of Trees – Graphs and Representations – Traversals, Connected Components and Spanning Trees – Shortest Paths and Transitive closure – Activity Networks – Topological Sort and Critical Paths.

UNIT - III:

Algorithms – Priority Queues - Heaps – Heap Sort – Merge Sort – Quick Sort – Binary Search – Finding the Maximum and Minimum.

UNIT - IV:

Greedy Method: The General Method – Optimal Storage on Tapes – Knapsack Problem – Job Sequencing with Deadlines – Optimal Merge Patterns.

UNIT - V:

Back tracking: The General Method – The 8-Queens Problem – Sum of Subsets – Graph Coloring.

UNIT VI: CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Ellis Horowiz, SartajSahni, "Fundamentals of Data Structure",Galgotia Publications, 2008.
2. Ellis Horowiz, Sartaj Sahni and Sanguthevar Rajasekaran, "Computer Algorithms", University Press, 2008.
3. Seymour Lipschutz, "Data Structures",TataMcgraw Hill, Schaum's Outline Series, 2014.
4. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Third Edition, PHI Learning Private Limited, 2012.

5. Alfred V. Aho, John E. Hopcroft and Jeffrey D. Ullman, “Data Structures and Algorithms
6. Anany Levitin, “Introduction to the Design and Analysis of Algorithms”, Third Edition, Pearson Education, 2012.
7. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, "Introduction to Algorithms",MIT Press, 2022.
8. https://www.tutorialspoint.com/data_structures_algorithms/algorithms_basics.htm
9. https://www.tutorialspoint.com/design_and_analysis_of_algorithms/index.htm

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Know the basic concepts of algorithms
- Understand trees and shortest path algorithms.
- Compare and contrast different sorting algorithms
- Comprehend greedy and optimality algorithms.
- Appreciate the backtracking concept and its different algorithms.

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Third Year	CORE COURSE VI COMPUTER NETWORKS	Semester V
Code	(Theory)	Credit: 5

COURSE OBJECTIVES:

- To describe the general principles of Computer Networks.
- To describe how the different layers in a computer network work
- To know about Wired LAN: IEEE Standards and Satellite networks.

UNIT - I:

Data Communication – Networks – The Internet – Protocols and Standards – OSI Model-Layers in OSI Model - TCP/IP Protocol Suite – Addressing.

UNIT - II:

Analog and Digital – Digital Signals – Transmission Impairment – Performance – Multiplexing – Guided Media – Unguided Media. Switching: Circuit Switched Networks – Datagram Networks – Virtual Circuit Networks

UNIT -III:

Data Link Layer: Error Detection and Correction -Introduction – Block Coding: Error detection, Error correction – Data Link Control: Framing – Flow and Error Control – Protocols – Noiseless Channels – Noisy channels – HDLC – Point to Point Protocol.

UNIT - IV:

Wired LAN: IEEE Standards – Standard Ethernet. Wireless LAN: IEEE 802.11 – Bluetooth. Connecting LANs: Connecting Devices – Virtual LANs. Wireless WAN: Cellular Telephony – Satellite Networks. Network Layer-Logical Addressing: IPv4 Addresses – IPv6 Addresses.

UNIT - V:

Transport Layer: Process to Process Delivery – User Datagram Protocol - TCP. Application Layer: Domain Name Space – DNS in the Internet – Electronic Mail – File Transfer. WWW: Architecture – HTTP.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. Behrouz A. Forouzan, “Data Communications and Networking”, McGraw-Hill Companies, New York, 5th Edition, 2017.

2. William Stallings “Data and computer communications”, Prentice Hall of India, 7th Edition, 2004.
3. Andrew S Tanenbaum, “Computer Networks”, Prentice Hall of India, New Delhi, 2013.
4. Dr M. P. Vani, "Data Communication and Computer Network", Notion Press, 2019.

5. Hazim Gaber, "Understanding Computer Networks 2020", Independently Published, 2020.
6. Grigorios N. Beligiannis, Ram Palanisamy, S. Smys, Álvaro Rocha, "Computer Networks and Inventive Communication Technologies", Springer, 2021.
7. https://www.guru99.com/data-communication-computer-network-tutorial.html

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Recall the basic concepts of computer networks
- Summarize the technical specifications of various layers of the OSI model in a computer network
- Identify the appropriate protocols and standards for computer networks
- Classify technical factors of cellular networks and satellite communication
- Know about the different functionalities of an application layer.

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Third Year **CORE COURSE VII** **Semester V**

DIGITAL ELECTRONICS AND MICROPROCESSOR

Code **(Theory)** **Credit: 5**

COURSE OBJECTIVES:

- To impart knowledge about the basics of Digital Systems
- To focus on the study of Boolean algebra, Combinational circuits.
- To impart knowledge about basic parts and functions of microprocessor and to have an understanding of the Registers, Interrupts, Interfaces, Buses, Pins, Instructions of 8085 microprocessor

UNIT - I:

Digital Systems and Binary Numbers - Digital Systems - Binary Numbers - Number Base Conversions - Octal and Hexadecimal Numbers - Complements of Numbers. Signed Binary Numbers - Binary Codes - Binary Storage and Registers - Binary Logic

UNIT - II:

Boolean Algebra and Logic Gates - Introduction - Basic Definitions - Axiomatic Definition of Boolean Algebra - Basic Theorems and Properties of Boolean Algebra. Boolean Functions - Canonical and Standard Forms - Other Logic Operations - Digital Logic Gates - Integrated Circuits.

UNIT - III:

Combinational Logic - Introduction - Combinational Circuits - Analysis of Combinational Circuits - Design Procedure - Binary Adder - Subtractor - Decimal Adder - Binary Multiplier - Magnitude Comparator - Decoders - Encoders - Multiplexers - HDL Models of Combinational Circuits.

UNIT - IV:

Evolution of Microprocessor – Single chip Microcomputer – Microprocessor Applications –Buses- Memory Addressing capacity and CPU – Microcomputers – Processor Architecture – Intel 8085 – Instruction cycle – Timing Diagram.

UNIT - V:

Instruction Set of Intel 8085 – Instruction and Data Format – Address Modes – Status Flags – Intel 8085 instruction - Programming Microprocessor – Assembly language – Assembler.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. M. Morris R. Mano, Michael D. Ciletti. Digital Design: With an Introduction to the Verilog HDL, VHDL, and System Verilog, 6th Edition, 2018
2. Badri Ram, “Fundamentals of Microprocessors and Microcomputers”, Dhanpat Rai Publications, 2012.
3. Dhanasekharan Natarajan, "Fundamentals of Digital Electronics", Springer International Publishing, 2020
4. Dr. S Salivahanan,"Analog and Digital Electronic", McGraw-Hill Education, 2019.
5. Soumitra Kumar Mandal, "Digital Electronics", McGraw-Hill Education, 2018.
6. A. Anand Kumar, "Fundamentals of Digital Circuits", Prentice Hall India Pvt. Limited, 2016.
7. Senthil Kumar Saravanan, Jeevananthan, “Microprocessors and Microcontrollers”, Oxford University Press, 2010.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand about various number systems
- Know about Boolean Algebra and Logic Gates
- Draw and explain Combinational circuits
- Explain the Evolution of Microprocessors
- Use the Instruction Set of Intel 8085 in simple programs.

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Third Year **CORE PRACTICAL V** **Semester V**

DIGITAL ELECTRONICS AND MICROPROCESSOR LAB

Code **(Practical)** **Credit: 4**

COURSE OBJECTIVES:

- To have hands-on experience with digital electronics concepts.
- To experiment the design of basic logic circuits, combinational and sequential circuits
- To write ALP and to execute them with a microprocessor kit.

A. Digital Electronics Experiments

1. Verification of Logic gates
2. Construction of half and full adder
3. K-Map
4. Shift register
5. Up Down Counters

B. Microprocessor Experiments

1. Eight Bit Addition and Subtraction
2. Sum of series
3. Data transfer
4. Maximum of N Numbers
5. Decimal to Hexadecimal

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Verify the logic gate and the working of Adder and subtractors
- Construct and study the function of Shift registers
- Understand the working of Up Down Counters
- To write simple ALPs and execute them
- To manipulate an array with ALP.

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Third Year **MAJOR BASED ELECTIVE I** **Semester V**

1) ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

Code **(Theory)** **Credit: 4**

COURSE OBJECTIVES:

- To study about the basic concepts in Artificial intelligence and reasoning
- To know about knowledge representation and its subsequent inference
- To study the concept of expert systems

UNIT - I:

Problems and Search : Searching strategies- Uninformed Search- breadth first search, depth first search, uniform cost search, depth limited search, iterative deepening search, bidirectional search - Informed Search- Best first search ,Greedy Best first search , A* search – Constraint satisfaction problem , Local searching strategies.

UNIT - II:

Reasoning: Symbolic Reasoning Under Uncertainty- Statistical Reasoning - Weak Slot-And-Filler-Structure - Semantic nets – Frames- Strong Slot-And-Filler Structure-Conceptual Dependency-Scripts- CYC.

UNIT - III:

Knowledge Representation: Knowledge Representation - Knowledge representation issues - Using predicate logic - Representing Knowledge Using Rules. Syntactic-Semantic of Representation – Logic & slot and filler - Game Playing – Minimal search- Alpha beta cutoffs –Iterative deepening planning – component of planning system – Goal stack planning.

UNIT - IV:

Natural Language Processing**:** Natural Language Processing –Syntactic processing, semantic analysis-Parallel and Distributed AI-Psychological modeling-parallelism and distributed in reasoning systems – Learning Connectionist Models – Hopfield networks, neural networks.

UNIT - V:

Expert Systems: Common Sense –qualitative physics, common sense ontologies-memory organization -Expert systems –Expert system shells- explanation – Knowledge acquisition -Perception and Action – Real time search- robot architecture.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Elaine Rich, Kevin Knight, “Artificial Intelligence”, 3/e, Tata McGraw Hill, 2017.
2. Russell , “ Artificial intelligence :A modern Approach , Pearson Education ,3rd edition,2013
3. I. Gupta, G. Nagpal, "Artificial Intelligence and Expert Systems", Mercury Learning & Information, 2020.
4. C.S. Krishnamoorthy, S. Rajeev, "Artificial Intelligence and Expert Systems for Engineers", CRC Press, 2018.
5. V. Daniel Hunt, "Artificial Intelligence & Expert Systems Sourcebook, Springer US, 2012.
6. Artificial Intelligence and Expert system by V.Daniel hunt, Springer press, 2011.
7. Nilsson N.J., ”Principles of Artificial Intelligence”, Morgan Kaufmann.1998.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand the history of artificial intelligence (AI) and its foundations.
- Describe the modern view of AI as the study of agents that receive percepts from the Environment and perform actions.
- Demonstrate awareness of informed search and exploration methods.
- Create knowledge of decision making and learning methods
- Recall the concepts of expert systems.

*****

Third Year	MAJOR BASED ELECTIVE I 2) COMPUTER GRAPHICS	Semester V
Code	(Theory)	Credit: 4

COURSE OBJECTIVES:

- To understand the basic objectives and scope of computer graphics.
- To identify computer graphics applications and common graphics APIs.
- To know the basic structures of 2D and 3D graphics systems.

UNIT - I:

Overview of Computer Graphics System: Video Display Devices – Raster Scan Systems – Random – Scan Systems - Graphics Monitors and Workstations – Input Devices – Hardcopy Devices – Graphics Software.

UNIT - II:

Output Primitives: Line Drawing Algorithms – Loading the Frame Buffer – Line Function – Circle – Generating Algorithms. Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale levels– Area fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions.

UNIT - III:

2D Geometric Transformations: Basic Transformation – Matrix Representations – Composite Transformations – Window to View port Co-Ordinate Transformations. Clipping: Point Clipping – Line Clipping – Cohen-Sutherland Line Clipping – Liang Barsky Line Clipping – Polygon Clipping – Sutherland – Hodgman Polygon Clipping – Curve Clipping – Text Clipping.

UNIT - IV:

Graphical User Interfaces and Interactive Input Methods: The User Dialogue – Input of Graphical Data – Input Functions – Interactive Picture Construction Techniques. Three Dimensional Concepts: 3D-Display Methods – #Three Dimensional Graphics Packages.

UNIT - V:

3D Geometric and Modelling Transformations: Translation – Scaling – Rotation – Other Transformations. Visible Surface Detection Methods: Classification of Visible Surface Detection Algorithm –Blackface Detection – Depth-Buffer Method – A-Buffer Method – Scan-Line Method –Applications of Computer Graphics.

UNIT VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Donald Hearn M. Pauline Baker, Computer Graphics C Version, Pearson Education, 2014.
2. Alexey Boreskov, Evgeniy Shikin, "Computer Graphics From Pixels to Programmable Graphics Hardware", CRC Press, 2013.
3. Donald Hearn M. Pauline Baker, "Computer Graphics C Version", Pearson Education, 2014.
4. Branislav Sobota, "Computer Graphics and Imaging", Intech Open Publication, 2019.
5. Dr. Deepali A. Godse, Atul P. Godse, "Computer Graphics", UNICORN Publishing Group, 2020.
6. Gabriel Gambetta, "Computer Graphics from Scratch A Programmer's Introduction to 3D Rendering", No Starch Press, 2021.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand the basics of Computer Graphics, Different Graphics Systems and Applications of Computer Graphics.
- Learn Algorithms for Scan Conversion and filling of Basic Objects and their Comparative Analysis.
- Use of Geometric Transformations on Graphical Objects and their Application in Composite form.
- Apply 2D Geometric Transformations
- Use 3D Geometric and Modelling Transformations.

*****

Third Year	SKILL BASED ELECTIVE I WEB TECHNOLOGY	Semester V
Code	(Theory)	Credit: 2

COURSE OBJECTIVES:

- To understand the basic concepts related to HTML, JavaScript and VB script.
- To familiarize various concepts associated with Dynamic webpages
- To know about data representation with XML and XSL.

UNIT - I:

HTML: Introduction – SGML – Outline of an HTML Document – Head Section – Body Section – HTML Forms.

UNIT - II:

Java Script: Introduction – Language Elements – Objects of Java Script – Other Objects – Arrays.

UNIT - III:

VB Script: Introduction – Embedding VBScript Code in an HTML Document – Comments – Variables – Operators – Procedures – Conditional Statements – Looping Constructs – Object and VB Script – Cookies.

UNIT - IV:

Dynamic HTML (DHTML): Introduction – Cascading Style Sheets (CSS) – DHTML Document Object Model and Collections – Event Handling.

UNIT - V:

Extensible Mark-Up Language (XML): Introduction – HTML vs XML – Syntax of the XML Document – XML Attributes – XML Validation – XML DTD – The Building Blocks of XML Documents – DTD Elements – DTD Attributes – DTD Entities – DTD Validation – XSL – XSL Transformation.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. N.P. Gopalan and J. Akilandeswari, Web Technology – A Developer's Perspective, Prentice Hall of India Private Ltd, New Delhi, Second Edition, 2016.
2. C.Xavier, Web Technology and Design, NEW AGE; First edition, 2018
3. Steven M. Schafer, "HTML, XHTML, and CSS Bible", Wiley Publication, 2011
4. Keith Grant, "CSS in Depth", Manning Publication, 2018.

5. William Alvin Newton, Steven Webber, "Computer Programming JavaScript, Python, HTML, SQL, CSS", Independently Published, 2019.
6. Hasanraza ANSARI, "Learn VBScript", Independently Published, 2021.
7. https://www.geeksforgeeks.org/web-technology/

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand and apply the webpage concepts.
- Develop static and dynamic web pages
- Understand the feature of JavaScript and VB Script
- Develop knowledge about XML fundamentals and usage of XML technology.
- Understand about the web design with XSL and data validation with DTD.

*****

Third Year	CORE COURSE VIII OPERATING SYSTEMS	Semester VI
Code	(Theory)	Credit: 5

COURSE OBJECTIVES:

- To understand the basics of Operating systems and their working
- To Learn and understand operating system services and methods
- To understand the different types of devices connected with Operating systems.

UNIT - I:

Introduction - What Is an Operating System-Operating System Software -A Brief History of Machine Hardware -Types of Operating Systems - Brief History of Operating System Development-Object-Oriented Design

UNIT - II:

Early Systems: Single-User Contiguous Scheme -Fixed Partitions-Dynamic Partitions-Best-Fit versus First-Fit Allocation -Deallocation - Relocatable Dynamic Partitions. Virtual Memory: Paged Memory Allocation-Demand Paging-Page Replacement Policies and Concepts -Segmented Memory Allocation-Segmented/Demand Paged Memory Allocation - Virtual Memory-Cache Memory

UNIT - III:

Overview-About Multi-Core Technologies-Job Scheduling Versus Process Scheduling-Process Scheduler-Process Scheduling Policies-Process Scheduling Algorithms –A Word About Interrupts-Deadlock-Seven Cases of Deadlock -Conditions for Deadlock- Modeling Deadlock-Strategies for Handling Deadlocks –Starvation- Concurrent Processes: What Is Parallel Processing-Evolution of Multiprocessors- Introduction to Multi-Core Processors-Typical Multiprocessing Configurations--Process Synchronization Software.

UNIT - IV:

Types of Devices-Sequential Access Storage Media-Direct Access Storage Devices-Magnetic Disk Drive Access Times- Components of the I/O Subsystem- Communication among Devices-Management of I/O Requests

UNIT - V:

The File Manager -Interacting with the File Manager -File Organization – Physical Storage Allocation -Access Methods-Levels in a File Management System – Access Control Verification Module

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Ann McIver Mc Hoes, Ida M. Flynn, "Understanding Operating Systems", Course Technology, Cengage Learning, 2011.
2. Greg Tomsho,"Guide to Operating Systems", Cengage Learning, 2020.

3. Cesar Herrera, Darrell Hajek, Flor Narciso, "Principles of Operating Systems", Amazon Digital Services LLC - KDP Print US, 2020.
4. Cesar Herrera, Darrell Hajek,"Principles of Operating Systems", Independently Published, 2019.
5. Remzi H. Arpaci-Dusseau, Andrea C. Arpaci-Dusseau,"Operating Systems: Three Easy Pieces", Create Space Independent Publishing Platform, 2018.
6. Abraham Silberschatz, Peter B. Galvin, Greg Gagne, "Operating System Concepts", Wiley Publisher, 2018.
7. https://www.guru99.com/os-tutorial.html

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Recall the basic principles and importance of the operating system in a computer
- Illustrate the objectives and functions of the operating system components
- Identify the various operating system techniques
- Analyse the issues and challenges of the operating system and security mechanisms
- Evaluate the functions and features of file management in operating systems

*****

Third Year	CORE COURSE IX PROGRAMMING IN PHP	Semester VI
Code	(Theory)	Credit: 5

COURSE OBJECTIVES:

- To understand the basics of PHP and Ajax
- To know about various constructs available in PHP
- To understand and implement the AJAX based dynamic client-server interaction

UNIT - I:

Essentials of PHP - Operators and Flow Control - Strings and Arrays.

UNIT - II:

Creating Functions - Reading Data in Web Pages - PHP Browser – Handling Power.

UNIT - III:

Object-Oriented Programming –Advanced Object-Oriented Programming

UNIT - IV:

File Handling –Working with Databases – Sessions, Cookies, and FTP

UNIT - V:

Ajax – Advanced Ajax – Drawing Images on the Server.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Steven Holzner, The PHP Complete Reference, McGraw Hill Education, 2007.
2. Vikram Vaswani, PHP: A Beginner's Guide, McGraw Hill Education, 2008.
3. Don Gosselin, Diana Kokoska, Robert Easterbrooks, "PHP Programming with MySQL", Course Technology, 2010.
4. Kevin Tatroe, Peter MacIntyre, Rasmus Lerdorf, " Programming PHP: Creating Dynamic Web Pages", O'Reilly Media, 2013.
5. Alan Forbes, "The Joy of PHP: A Beginner's Guide to Programming Interactive Web Applications with PHP and MySQL, Create Space Independent Publishing Platform, 2015.
6. Antonio Lopez, "Learning PHP 7, Packt Publishing, 2016.
7. https://www.guru99.com/php-tutorials.html

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Understand the fundamental knowledge of developing web applications with PHP.
- Illustrate the advanced concepts like strings, arrays and functions
- Design Web based applications.
- Analyze and solve various database tasks using PHP.
- Develop AJAX based applications.

*****

Third Year	**CORE PRACTICAL VI PROGRAMMING IN PHP LAB**	**Semester VI**
Code	**(Practical)**	**Credit: 4**

COURSE OBJECTIVES:

- To acquire the programming experience in PHP
- To apply variables, strings, and constants to a PHP a script and test it with a program.
- To design an authentication web page in PHP with MySQL.

1. Write a program to find the factorial of a number.
2. Write a program using Conditional Statements need a number N and check whether it is divisible by M
3. Write a program to find the maximum value in a given multi-dimensional array.
4. Write a program to find the GCD of two numbers using user-defined functions.
5. Design a simple web page to generate multiplication table for a given number.
6. Design a web page that should compute one's age on a given date.
7. Write a program to download a file from the server.
8. Write a program to store the current date and time in a COOKIE and display the 'Last Visited' date and time on the web page.
9. Write a program to store page views count in SESSION, to increment the count on each refresh and to show the count on web page.
10. Write a program to design a simple calculator.
11. Design an authentication web page in PHP with MySQL to check username and password.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Learn PHP programming on handling strings and arrays.
- Design web pages for different applications with MYSQL
- Handle files, sessions and cookies by downloading a file from the server,
- Develop real-time applications.
- Gain experience in drawing images using Ajax.

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Third Year	**MAJOR BASED ELECTIVE II**	**Semester VI**
	1) SOFTWARE ENGINEERING	
Code	**(Theory)**	**Credit: 4**

COURSE OBJECTIVES:

- To impart knowledge in the life cycle of software engineering
- To learn about Requirements Analysis Modeling, Basic Issues in Software Design and Software coding
- To acquire exposure in Web Engineering

UNIT - I:

Introduction: Introduction to Software Engineering - Software Process – Software Process Models - Software Model - Requirements Engineering Principles: Requirements Engineering - Importance of Requirements - Types of Requirements - Steps involved in Requirements Engineering.

UNIT - II:

Requirements Analysis Modeling: Analysis Modeling Approaches - Structured Analysis - Object Oriented Analysis - Design and Architectural Engineering : Design Process and Concepts - Basic Issues in Software Design - Characteristics of Good Design - Software Design and Software Engineering - Function Oriented System vs Object Oriented System - Modularity, Cohesion, Coupling, Layering - Real Time Software Design - Design Models - Design Documentation.

UNIT - III:

Object Oriented Concepts: Fundamental Parts of Object Oriented Approach – Data Hiding and Class Hierarchy Creation - Relationships - Role of UML in OO Design -Design Patterns - Frameworks - Object Oriented Analysis - Object Oriented Design - User Interface Design : Concepts of User Interface - Elements of User Interface -Designing the User Interface - User Interface Evaluation - Golden Rules of User Interface Design - User Interface Models - Usability

UNIT - IV:

Software Coding - Introduction to Software Measurement and Metrics – Software Configuration - Project Management Introduction - Introduction to Software Testing - Software Maintenance

UNIT - V:

Web Engineering : Introduction to Web - General Web Characteristics – Web Application Categories - Working of Web Application - Advantages and Drawbacks of Web Applications - Web Engineering - Emerging Trends in Software Engineering – Web 2.0 - Rapid Delivery - Open Source Software Development - Security Engineering - Service Oriented Software Engineering - Web Service - Software as a Service – Service Oriented Architecture - Cloud Computing - Aspect

Oriented Software Development - Test Driven Development - Social Computing

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Chandramouli Subramanian, Saikat Dutt Chandramouli Seetharaman, B.G. Geetha, Software Engineering, Pearson Publications, 2015.
2. Software Engineering, Jibitesh Mishra, Pearson Education, 2011.
3. Ian Sommerville,"Software Engineering", Pearson, 2011.
4. Rod Stephens, "Beginning Software Engineering", Wiley, 2015.
5. Ashfaque Ahmed, Bhanu Prasad,"Foundations of Software Engineering", CRC Press, 2016.
6. Titus Winters, Tom Manshreck, Hyrum Wright, "Software Engineering at Google", O'Reilly Media, 2020.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Recall the various techniques of software process models.
- Understand the requirements for a software project.
- Develop frameworks for software projects.
- Apply the knowledge, techniques, and skills in the development of a software product.
- Make use of web engineering concepts for software development.

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Third Year	**MAJOR BASED ELECTIVE II**	**Semester VI**
	2) BIG DATA ANALYTICS	
Code	**(Theory)**	**Credit: 4**

COURSE OBJECTIVES:

- To explore the fundamental concepts of big data analytics.
- To understand the concepts of Enterprise Technologies and Big Data Business Intelligence.
- To acquire knowledge about Big Data Storage.

UNIT - I:

Introduction: Concepts and Terminology – Big Data Characteristics – Different Types of Data –case study Background – Business goals and Obstacles – Business Motivations and Drivers for Big Data Adoption-Marketplace Dynamic – Business Architecture- Business Process Management.

UNIT - II:

Big data Adoption and Planning Considerations: Organization Prerequisites – Data Procurement – Privacy – Security – Provenance – Limited Real-time Support – Distinct Performance Challenges – Distinct Governance Requirements – Distinct Methodology – Big Data Analytics – Data Identification – Data Acquisition and Filtering – Data Extraction – Data validation and cleansing – Data Aggregation and Representation.

UNIT - III:

Enterprise Technologies and Big Data Business Intelligence: Online Transaction and Processing (OLTP) – Online Analytical Processing (OLAP) – Extract Transform Load (ETL) – Data Warehouses – Data Marts.

UNIT - IV:

Big Data Processing Concepts: Introduction – Parallel Data Processing – Distributed Data Processing – Hadoop – Processing Workloads – Cluster – Processing in Batch Mode – Map – Combine – Partition – Shuffle and Sort.

UNIT - V:

Big Data Storage Technology: On-Disk Storage Devices – NoSQL Database – In-Memory Storage Device – Big Data Analytics Techniques – Quantitative Analysis – Qualitative Analysis – Data Mining – Statistical Analysis – A/B Testing – Correlation-Regression – Machine Learning.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned.

REFERENCES:

1. Paul Buhler, Wajid Khattak and Thomas Erl, “Big Data Fundamentals: Concepts, Drivers & Techniques”, Prentice Hall Publications, 1st Edition, January 2016.
2. Dr. A.V.K. Shanthi, Dr. Praveen Kumar Misra, Dr. Bramah Hazela, Dr. Saptarshi Gupta, published a book “Big Data Analytics- Discovering, Analysying, Visualizing and Presenting Data”, by Scientific International Publishing House.
3. Soraya Sedkaoui,"Data Analytics and Big Data", Wiley, 2018.
4. DT Editorial Services, “Big Data (Hadoop 2, Map Reduce, Hive, YARN, Pig, R and Data Visualization) Black Book”, 1st Edition, Dreamtech Press, 2016.
5. Soumendra Mohanty, Madhu Jagadeesh, and Harsha Srivatsa, “Big Data Imperatives: Enterprise Big Data Warehouse, BI Implementations and Analytics”, Apress Media, 2013.
6. Tom White, “Hadoop: The Definitive Guide”, Third Edition, O’Reilly Media, 2012.

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Recall the basics of Big Data and its applications
- Know about OLTP,OLAP and ETL,
- Apply the cutting-edge tools and technologies to analyze Big Data
- Analyse various big data tools and techniques
- Evaluate various storage and analytical techniques.

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Third Year **PROJECT** **Semester-VI**

Code: **Credit: 3**

The candidate shall be required to take up a Project Work by group or individual and submit it at the end of the final year. The Head of the Department shall assign the Guide who, in turn, will suggest the Project Work to the students in the beginning of the final year. A copy of the Project Report will be submitted to the University through the Head of the Department on or before the date fixed by the University.

The Project will be evaluated by an internal and an external examiner nominated by the University. The candidate concerned will have to defend his/her Project through a Viva-voce.

ASSESSMENT/EVALUATION/VIVA VOCE:

1. PROJECT REPORT EVALUATION (Both Internal & External)

   I. Plan of the Project - 20 marks

   II. Execution of the Plan/collection of Data / Organisation of Materials / Hypothesis, Testing etc. and presentation of the report. - 45 marks

   III. Individual initiative - 15 marks

2. Viva-Voce / Internal & External - 20 marks

TOTAL **- 100 marks**

PASSING MINIMUM:

	Vivo-Voce 20 Marks	**Dissertation 80 Marks**
Project	40% out of 20 Marks (i.e. 8 Marks)	40% out of 80 marks (i.e. 32 marks)

A candidate who gets less than 40% in the Project must resubmit the Project Report. Such candidates need to defend the resubmitted Project at the Viva-voce within a month. A maximum of 2 chances will be given to the candidate.

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Third Year **SKILL BASED ELECTIVE II** **Semester VI**

MOBILE APPLICATION DEVELOPMENT

Code **(Theory)** **Credit: 2**

COURSE OBJECTIVES:

- To gain a basic knowledge of Android application development
- To understand about user Interfaces for the Android platform.
- To familiarize of the Android Studio development tool.

UNIT - I:

Introduction to Android: The Android Platform, Android SDK, Eclipse Installation, Android Installation, building you First Android application, Understanding Anatomy of Android Application, Android Manifest file

UNIT - II:

Android Application Design Essentials: Anatomy of an Android applications, Android terminologies, Application Context, Activities, Services, Intents, Receiving and Broadcasting Intents, Android Manifest File and its common settings, Using Intent Filter, Permissions

UNIT - III:

Android User Interface Design Essentials: User Interface Screen elements, Designing User Interfaces with Layouts, Drawing and Working with Animation

UNIT - IV:

Testing Android applications, Publishing Android application, Using Android preferences, Managing Application resources in a hierarchy, working with different types of resources.

UNIT - V:

Using Common Android APIs: Using Android Data and Storage APIs, managing data using Sqlite, Sharing Data between Applications with Content Providers, Using Android Networking APIs, Using Android Web APIs, Using Android Telephony APIs, Deploying Android Application to the World.

UNIT - VI CURRENT CONTOURS (for Continuous Internal Assessment Only):

Contemporary Developments Related to the Course during the Semester Concerned

REFERENCES:

1. Lauren Darcey and Shane Conder, “Android Wireless Application Development”, Pearson Education, 2011.
2. Reto Meier, “Professional Android 2 Application Development”, Wiley India Pvt Ltd,2010
3. Mark L Murphy, “Beginning Android3”, Apress Publications, 2011.
4. Bill Phillips, Chris Stewart, Kristin Marsicano, Brian Gardner, "Android Programming", Big Nerd Ranch, 2019.
5. Barry Burd, John Paul Mueller, “Android Application Development All in one for Dummies",Wiley Publications, 2020.

6. NamrataBandekar, Darryl Bayliss, Fuad Kamal, "Android Apprentice (Fourth Edition) Beginning Android Development with Kotlin", R R BOWKER LLC, 2021.
7. https://www.javatpoint.com/android-tutorial

COURSE OUTCOMES:

Upon successful completion of this course the students would be able to:

- Identify various concepts of mobile application programming in Android platform
- Implement the business logic in an app with java
- Understand Android User Interface Design with XML
- Know about Common Android APIs
- Deploy applications to the Android marketplace for distribution.

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IV	I	Language Course –IV (LC) - Tamil*/Other Languages ** #		6	3	3	25	75	100
	II	English Language Course–IV (ELC)		6	3	3	25	75	100
	III	Core Course – IV (CC)	Database Systems	5	5	3	25	75	100
		Core Practical - IV (CP)	Database Systems Lab	3	2	3	40	60	100
		Second Allied Practical (AP)		3	3	3	40	60	100
		Second Allied Course–II (AC)		3	2	3	25	75	100
	IV	Non Major Elective II - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Fundamentals of Information Technology	2	2	3	25	75	100
		Skill Based Elective - I	Skill Based Elective - I	2	2	3	25	75	100
	Total			**30**	**22**				**800**
V	III	Core Course V [CC]	Data Structures and Algorithms	5	5	3	25	75	100
		Core Course VI [CC]	Computer Networks	5	5	3	25	75	100
		Core Course VII [CC]	Digital Electronics and Microprocessor	5	5	3	25	75	100
		Core Practical V [CP]	Digital Electronics and Microprocessor Lab	4	3	3	40	60	100
		Major Based Elective - I	Software Engineering / System Analysis and Design / Management Information System	5	5	3	25	75	100
	IV	Skill Based Elective - II	Skill Based Elective - II	2	2	3	25	75	100
		Skill Based Elective – III	Skill Based Elective – III	2	2	3	25	75	100
		Soft Skills Development	Soft Skills Development	2	2	3	25	75	100
	Total			**30**	**29**				**800**
VI	III	Core Course VIII [CC]	Operating Systems	6	6	3	25	75	100
		Core Course IX [CC]	Programming in PHP	6	6	3	25	75	100
		Core Practical VI [CP]	Programming in PHP Lab	5	4	3	40	60	100
		Major Based Elective - II	Computer Graphics / Cloud Computing / Business Process Outsourcing	6	6	3	25	75	100
		Major Based Elective - III	Mini Project (Students to do it in their respective Colleges) / Dot Net Lab / Linux Lab	6	6	3	40	60	100
	V	Extension Activities	Extension Activities	-	1	-	-	-	-
		Gender Studies	Gender Studies	1	1	3	25	75	100
	Total			**30**	**30**				**600**
Grand Total				**180**	**140**	**-**	**-**	**-**	**4100**

List of Allied Courses

Allied Course I
Mathematics

Allied Course II
Applied Physics

Language Part – I	-	4
English Part –II	-	4
Core Paper	-	9
Core Practical	-	6
Allied Paper	-	4
Allied Practical	-	2
Non-Major Elective	-	2
Skill Based Elective	-	3
Major Based Elective	-	3
Environmental Studies	-	1
Value Education	-	1
Soft Skill Development	-	1
Gender Studies	-	1
Extension Activities	-	1 (Credit only)

* for those who studied Tamil upto 10th +2 (Regular Stream)

+ Syllabus for other Languages should be on par with Tamil at degree level

those who studied Tamil upto 10th +2 but opt for other languages in degree level under Part I should study special Tamil in Part IV

** Extension Activities shall be out side instruction hours

Non Major Elective I & II – for those who studied Tamil under Part I

a) Basic Tamil I & II for other language students
b) Special Tamil I & II for those who studied Tamil upto 10th or +2 but opt for other languages in degree programme

Note:

	Internal Marks	External Marks
1. Theory	25	75
2. Practical	40	60

3. Separate passing minimum is prescribed for Internal and External marks

FOR THEORY

The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]
The passing minimum for University Examinations shall be 40% out of 75 marks [i.e. 30 marks]

FOR PRACTICAL

The passing minimum for CIA shall be 40% out of 40 marks [i.e. 16 marks]
The passing minimum for University Examinations shall be 40% out of 60 marks [i.e. 24 marks]

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CORE COURSE I

PROGRAMMING IN C

Objective:

To impart basic knowledge of Programming Skills in C language.

Unit I

Introduction to C – Constants, Variables, Data types – Operator and Expressions.

Unit II

Managing Input and Output operations – Decision Making and Branching – Decision Making and Looping.

Unit III

Arrays – Character Arrays and Strings – User defined Functions.

Unit IV

Structures and Unions – Pointers – File management in C.

Unit V

Dynamic memory allocation – Linked lists- Preprocessors – Programming Guide lines.

Text Book:

1. Balagurusamy E., Programming in ANSI C , Sixth Edition, McGraw-Hill, 2012

Reference Book:

1. R.S. Bichkar, Programming with C, University Press, 2012

*****

CORE PRACTICAL I

PROGRAMMING IN C LAB

Objective :

To Impart Practical Training in C Programming Language

1. Write a Program to convert temperature from degree Centigrade to Fahrenheit.
2. Write a Program to find whether given number is Even or Odd.
3. Write a Program to find greatest of Three numbers.
4. Write a Program to using switch statement to display Monday to Sunday.
5. Write a Program to display first Ten Natural Numbers and their sum.
6. Write a Program to find Multiplication of Two Matrices.
7. Write a Program to find the maximum number in Array using pointer.
8. Write a Program to reverse a number using pointer.
9. Write a Program to solve Quadratic Equation using functions.
10. Write a Program to find factorial of a number using Recursion.
11. Write a Program to show Call by Value and Call by Reference.
12. Write a Program to add two numbers using pointer.
13. Write a Program to create a file containing Student Details.
14. Write a Program to update the details of student's information using various file modes.

*****

CORE COURSE II

PROGRAMMING IN C++

Objective:

To impart basic knowledge of Programming Skills in C++ language.

Unit I

Basic Concepts of Object- Oriented Programming - Benefits of OOP - Object Oriented Languages - Applications of OOP – Structure of C++ Program - Tokens, Expressions and Control Structures – Functions in C++

Unit II

Classes and Objects – Constructors and Destructors –Operator Overloading and Type Conversions

Unit III

Inheritance : Extending Classes – Pointers - Virtual Functions and Polymorphism

Unit IV

Managing Console I/O Operations – Working with Files – Templates – Exception Handling

Unit V

Standard Template Library – Manipulating Strings – Object Oriented Systems Development

Text Book

1. Balagursamy E, Object Oriented Programming with C++, Tata McGraw Hill Publications, Sixth Edition, 2013

Reference Books

1. Ashok Kamthane, Programming in C++, Pearson Education,2013.

*****

CORE PRACTICAL II

PROGRAMMING IN C++ LAB

Objectives :

To Impart Practical Training in C++ Programming Language

1. Classes

Write a Program using a class to represent a Bank Account with Data Members – Name of depositor, Account Number, Type of Account and Balance and Member Functions – Deposit Amount – Withdrawal Amount. Show name and balance. Check the program with own data.

2. Constructor & Destructor

Write a program to read an integer and find the sum of all the digits until it reduces to a single digit using constructor, destructor and default constructor.

3. Default & Reference Argument

Write a program using function overloading to read two matrices of different data types such as integers and floating point numbers. Find out the sum of the above matrices separately and display the total sum of these arrays individually.

4. Operator Overloading

a. Addition of Two Complex Numbers.
b. Matrix Multiplication

5. Inheritance

Prepare Pay Roll of an employee using Inheritance.

6. Pointers

a. Write a Program to find the number of vowels in a given text
b. Write a Program to check for Palindrome

7. Files

Prepare Students Mark List in a file with Student Number, Mark in four subjects and Mark Total. Write a program to arrange these records in the ascending order of Mark Total and write them in the same file overwriting the earlier records.

8. Exception Handling

Prepare Electricity Bill for customers generating and handling any two Exceptions.

*****

CORE COURSE III

PROGRAMMING IN JAVA

Objective:

To understand the basic concepts of Object Oriented Programming with Java language

Unit I

Object Oriented Programming : Introduction to OOP – Objects and Classes – Characteristics of OOP – Difference between OOP and Procedure Oriented Language – Introduction to java Programming : Introduction – Features of Java – Comparing java and Other Languages – Applications and Applets – Java Development Kit – Complex Programs – Java Source File Structure – Prerequisites for Compiling and Running Java Programs

Unit II

Java Language Fundamentals : The Building Blocks of Java – Data Types – Variable Declarations – Wrapper Classes – Operations and Assignment – Control Structures – Arrays – Strings – StringBuffer Class

Unit III

Java as an OOP Language : Defining Classes – Modifiers – Packages - Interfaces

Unit IV

Exception Handling : Introduction – Basics of Exception Handling – Exception Hierarchy – Constructors and Methods in Throwable Class - Unchecked and Checked Exceptions – Handling Exceptions in Java – Exception and Inheritance – Throwing User-defined Exceptions – Redirecting and Rethrowing Exceptions – Advantages of Exception Handling Mechanism – Multithreading : Introduction – Creating Threads – Thread Life-cycle – Thread Priorities and Thread Scheduling – Thread Synchronization – Daemon Threads – Tread Groups – Communication of Threads

Unit V

Files and I/O Streams : Overview – Java I/O – File Streams – FileInputStream and FileOutputStream – File Streams – RandomAccess File – Serialization - Applets : Introduction – Java Applications versus Java Applets – Applet Life-cycle – Working with Applets – The HTML APPLET Tag – The java.Applet package

Text Book :

1. Object Oriented Programming through Java, P. Radha Krishna, University Press, 2011.

Reference Book:

1. Java Programming, K. Rajkumar, Pearson India, 2013

*****

CORE PRACTICAL III

PROGRAMMING IN JAVA LAB

Objectives :

To Impart Practical Training in Java Programming Language

1. Write a program to sort the given numbers using arrays.
2. Write a program to implement the FIND and REPLACE operations in the given multiple text.
3. Write a program to implement a calculator to perform basic arithmetic Operations.
4. Write a program to find the area of a rectangle using constructor
5. Write a program to find the student's percentage and grade using command line arguments.
6. Write a program to draw circle or triangle or square using polymorphism and inheritance.
7. Implement multiple inheritance concepts in java using interface, you can choose your own example of a company or education institution or a general concept which requires the use of interface to solve a particular problems.
8. Write a program to create threads and assign priorities to them
9. Write a program to develop an applet to play multiple audio clips using multithreading.
10. Write a program to create a window with three check boxes called red, green and blue. The applet should change the colors according to the selection.

*****

NON MAJOR ELECTIVE I

WORKING PRINCIPLES OF INTERNET

Objective :

To understand the working Principles of Internet

Unit I

What is Internet ? The Internet's underlying Architecture

Unit II

Connecting to the Internet – Communicating on the Internet

Unit III

How the World Wide Web works. Common Internet tools

Unit IV

Multimedia on the Internet – Intranet and shopping on the Internet

Unit V

Safeguarding the Internet

Text Book:

1. How the Internet Works, Preston Gralla, Pearson Education, Eighth Edition, 2006.

Reference Book :

1. Internet for Everyone, Alexis Leon, S. Chand (G/L) & Company Ltd; Second Edition 2012.

*****

CORE COURSE IV

DATABASE SYSTEMS

Objective :

To provide the basic concepts of the Database Systems including Data Models, Storage Structure, Normalization and SQL

Unit I

Introduction: Database-System Applications- Purpose of Database Systems - View of Data -- Database Languages - Relational Databases - Database Design -Data Storage and Querying Transaction Management -Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

Unit II

Relational Model: Structure of Relational Databases -Database Schema - Keys - Schema Diagrams - Relational Query Languages - Relational OperationsFundamental Relational-Algebra Operations Additional Relational-Algebra Operations- Extended Relational-Algebra Operations - Null Values - Modification of the Database.

Unit III

SQL:Overview of the SQL Query - Language - SQL Data Definition - Basic Structure of SQL Queries - Additional Basic Operations - Set Operations - Null Values Aggregate Functions - Nested Subqueries - Modification of the Database -Join Expressions - Views - Transactions - Integrity Constraints - SQL Data Types and Schemas - Authorization

Unit IV

Relational Languages: The Tuple Relational Calculus - The Domain Relational Calculus Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - Reduction to Relational Schemas - Entity-Relationship Design Issues - Extended E-R Features - Alternative Notations for Modeling Data - Other Aspects of Database Design

Unit V

Relational Database Design: Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Decomposition Using Functional Dependencies - Decomposition Using Multivalued Dependencies-More Normal Forms - Database-Design Process

Text Book:

1. Database System Concepts, Sixth edition, Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill-2010.

Reference Books:

1 Database Systems: Models, Languages, Design and Application, Ramez Elmasri, Pearson Education 2014

*****

CORE PRACTICAL IV

DATABASE SYSTEMS LAB

Objective :

To Impart Practical Training in MySQL

1. Create a table and perform the following basic mysql operations

   a) Set the primary key
   b) Alter the structure of the table
   c) Insert values
   d) Delete values based on constraints
   e) Display values using various forms of select clause
   f) Drop the table

2. Develop mysql queries to implement the following set operations

   a) Union
   b) Union all
   c) Intersect
   d) Intersect all

3. Develop mysql queries to implement the following aggregate functions

   a) Sum
   b) Count
   c) Average
   d) Maximum
   e) Minimum
   f) Group by clause & having clause

4. Develop mysql queries to implement following join operations

   a) Natural join
   b) Inner join
   c) Outer join-left outer, right outer, full outer
   d) Using join conditions

5. Develop mysql queries to implement nested subqueries

   a) Set membership (int, not int)
   b) Set comparison (some, all)
   c) Empty relation (exists, not exists)
   d) Check for existence of Duplicate tuples(unique, not unique)

6. Develop mysql queries to create a views and expand it.

7. Develop mysql queries to implement

a) String operations using %
b) String operations using '_'
c) Sort the element using asc,desc
   [*create necessary reletions with requires attribute]

8. Consider the following database for a banking enterprise

BRANCH(branch-name:string, branch-city:string, assets:real)
ACCOUNT(accno:int, branch-name:string, balance:real)
DEPOSITOR(customer-name:string, accno:int)
CUSTOMER(customer-name:string, customer-street:string, customer-city:string)
LOAN(loan-number:int, branch-name:string, amount:real)
BORROWER(customer-name:string, loan-number:int)

i. Create the above tables by properly specifying the primary keys and the foreign keys
ii. Enter at least five tuples for each relation
iii. Find all the customers who have at least two accounts at the *Main* branch.
iv. Find all the customers who have an account at *all* the branches located in a specific city.
v. Demonstrate how you delete all account tuples at every branch located in a specific city.
vi. Generate suitable reports.
vii. Create suitable front end for querying and displaying the results.

*****

NON-MAJOR ELECTIVE II

FUNDAMENTALS OF INFORMATION TECHNOLOGY

Objective :

To Provide the Basic Concepts in Information Technology

Unit I

Introduction to Computers - Generation of Computers - Classfication of Digital Computer - Anatomy of Digital Computer.

Unit II

CPU and Memory - Secondary Story Devices - Input Devices - Output Devices.

Unit III

Introduction to Computer Software - Programming Language - Operating Systems - Introduction to Database Management System.

Unit IV

Computer Networks - WWW and Internet - Email - Web Design

Unit V

Computers at Home, Education, Entertainment, Science, Medicine and Engineering - Introduction to Computer Security - Computer Viruses, Bombs, Worms.

Text Book:

1. Fundamentals of Information Technology, Alexis Leon And Mathews Leon, Vikas Publishing House Pvt. Ltd, 2009

Reference Book:

1. Fundamentals of Computers and Information Technology, M.N Doja, 2005

*****

CORE COURSE V

DATA STRUCTURES AND ALGORITHMS

Objective:

To understand the concepts of Data Structures and Algorithms.

Unit I

Arrays and sequential representations – ordered lists – Stacks and Queues – Evaluation ofExpressions – Multiple Stacks and Queues – Singly Linked List – Linked Stacks and queues – Polynomial addition.

Unit II

Trees – Binary tree representations – Tree Traversal – Threaded Binary Trees – Binary Tree Representation of Trees – Graphs and Representations – Traversals, Connected Components and Spanning Trees – Shortest Paths and Transitive closure – Activity Networks – Topological Sort and Critical Paths.

Unit III

Algorithms – Priority Queues - Heaps – Heap Sort – Merge Sort – Quick Sort – Binary Search – Finding the Maximum and Minimum.

Unit IV

Greedy Method : The General Method – Optimal Storage on Tapes – Knapsack Problem – Job Sequencing with Deadlines – Optimal Merge Patterns.

Unit V

Back tracking: The General Method – The 8-Queens Problem – Sum of Subsets – Graph Coloring.

Text Books:

1. Fundamentals of Data Structure – Ellis Horowiz, SartajSahni, Galgotia Publications, 2008.
2. Computer Algorithms – Ellis Horowiz, SartajSahni and Sanguthevar Rajasekaran, University Press, 2008.

Reference Book:

1. Data Structures – Seymour Lipschutz, Tata Mcgraw Hill, Schaum's Outline Series, 2014.

*****

CORE COURSE VI

COMPUTER NETWORKS

Objective:

To understand the Design and Organization of Computer Networks

Unit I

Overview and Physical Layer: Introduction: Data Communications - Networks - Network Types, Network Models: TCP/IP Protocol Suite- The OSI Model, Bandwidth utilization : Multiplexing- Spread Spectrum, Transmission Media: Guided Media-Unguided Media, Switching: Circuit Switched Network-Packet Switching-Structure of a switch

Unit II

Data Link Layer: Error Deduction and Correction : Introduction- Cyclic codes-Forward error correction, Data link Control: Data link layer protocols- Media Access Control: Random Access- Controlled Access, Wireless Networks: IEEE 802.11- Bluetooth-Cellular Telephone- Satellite network- Connection devices,

Unit III

Network Layer Services : Packet Switching- Network layer performance- IPV4 Addresses- Internet Protocol-Routing Algorithms - IPV6 Addressing

Unit IV

Transport Layer : Transport Layer Protocols- User Datagram Protocol - TCP:TCP Services TCP features - Windows in TCP - Flow Control - Error Control- TCP Congestion Control - TCP timers

Unit V

Application Layers : Client Server Programming - Word Wide Web & HTTP - FTP - Email - DNS

Text Book:

1. Data Communications and Networking, Behrouz A Forouzan, Tata McGraw Hill, Fifth Edison, 2013.

Reference Book:

1. Data Communications and Networks, Achyut Godbole and Atul Kahate, McGraw Hill Education, 2011.

*****

CORE COURSE VII

DIGITAL ELECTRONICS AND MICROPROCESSOR

Objective :

To provide an overview about Digital Electronics and Microprocessors

Unit I

Number Systems and Codes: Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – Binary Codes – Logic Gates and Circuits: – AND, OR, NOT, NAND, NOR, Exclusive OR and Exclusive NOR Gates

Unit II

Boolean Algebra: Definitions – Fundamentals of Boolean Algebra – Boolean Functions – Minterms and Maxterms – Laws and Theorems of Boolean Algebra – DeMorgan's Theorem - Simplifying Logic Circuits – Sum of Products – AND-OR Networks – Sum of Products and Product of Sums Forms – Karnaugh Maps – Product of Sums Simplification – NAND and NOR Implementation - Don't Care Conditions – Overlapping Groups – Rolling the Map – Eliminating Redundant Groups.

Unit III

Combinational Logic Circuits: Introduction – Adders – The Half Adder – The Full Adder –Subtractors – BCD Adder – Multiplexers – Demultiplexers – Decoders – Encoders – Sequential Logic Circuits: Flip Flops – RS Flip Flop – Clocked RS Flip Flop – D Flip Flop – JK Flip Flop – T Flip Flop –Master Slave Flip Flop Registers: Counters – Asynchronous or Ripple Counter – Ring Counter – Shift Registers.

Unit IV

Evolution of Microprocessor – Single chip Microcomputer – Microprocessor Applications –Buses- Memory Addressing capacity and CPU – Microcomputers – Processor Architecture – Intel 8085 – Instruction cycle – Timing Diagram

Unit V

Instruction Set of Intel 8085 – Instruction and Data Format – Address Modes – Status Flags – Intel 8085 instruction - Programming Microprocessor – Assembly language – Assembler.

Text Books:

1. Principles of Digital Electronics, Dr. K. Meena, PHI Learning Private Limited, New Delhi, 2009.
2. Fundamentals of Microprocessors and Microcomputers, Badri Ram, Eighth Edition, Dhanpat Rai Publications,2012.

Reference Books:

1. Digital Logic Design,M.MorrisMano ,Pearson Education, 2010
2. Microprocessors and Microcontrollers, Senthil Kumar Saravanan, Jeevananthan, Oxford Univ Press, 2010

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CORE PRACTICAL V

DIGITAL ELECTRONICS AND MICROPROCESSOR LAB

Objective :

To Impart Practical Training related to Digital Electronics and Microprocessors

A. Digital Electronics Experiments

1. Verification of Logic gates
2. Construction of half and full adder
3. K-Map
4. Shift register
5. Up Down Counters

B. Microprocessor Experiments

1. EightBit Addition and Subtraction
2. Sum of series
3. Data transfer
4. Maximum of N Numbers
5. Decimal to Hexadecimal

*****

MAJOR BASED ELECTIVE I (A)

SOFTWARE ENGINEERING

Objective:

To provide knowledge of the various phases of Software Engineering Process

Unit I

Introduction : Introduction to Software Engineering - Software Process - Software Process Models - Software Model - Requirements Engineering Principles : Requirements Engineering - Importance of Requirements - Types of Requirements - Steps involved in Requirements Engineering

Unit II

RequirmentsAnalysis Modeling : Analysis Modeling Approaches - Structured Analysis - Object Oriented Analysis - Design and Architectural Engineering : Design Process and Concepts - Basic Issues in Software Design - Characteristics of Good Design - Software Design and Software Engineering - Function Oriented System vs Object Oriented System - Modularity, Cohesion, Coupling, Layering - Real Time Software Design - Design Models - Design Documentation

Unit III

Object Oriented Concepts : Fundamental Parts of Object Oriented Approach - Data Hiding and Class Hierarchy Creation - Relationships - Role of UML in OO Design - Design Patterns - Frameworks - Object Oriented Analysis - Object Oriented Design - User Interface Design : Concepts of User Interface - Elements of User Interface - Designing the User Interface - User Interface Evaluation - Golden Rules of User Interface Design - User Interface Models - Usability

Unit IV

Software Coding - Introduction to Software Measurement and Metrics - Software Configuration - Project Management Introduction - Introduction to Software Testing - Software Maintenance

Unit V

Web Engineering : Introduction to Web - General Web Characteristics - Web Application Categories - Working of Web Application - Advantages and Drawbacks of Web Applications - Web Engineering - Emerging Trends in Software Engineering - Web 2.0 - Rapid Delivery - Open Source Software Development - Security Engineering - Service Oriented Software Engineering - Web Service - Software as a Service - Service Oriented Architecture - Cloud Computing - Aspect Oriented Software Development - Test Driven Development - Social Computing

Textbook:

1. Software Engineering, Chandramouli Subramanian, SaikatDutt, Chandramouli Seetharaman, B.G.Geetha, Pearson Publications, 2015

Reference Books:

1. Software Engineering, Jibitesh Mishra, Pearson Education, 2011

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MAJOR BASED ELECTIVE I (B)

SYSTEM ANALYSIS AND DESIGN

Objective :

To understand the concepts in the Design and Analysis of the System

Unit I

Overview**:** Introduction - The System Development Life Cycle (SDLC) - System Development - Methodologies - Project Team Roles and Skills - Planning Phase**:** Identifying business value - Feasibility Analysis - Creating the work plan, staffing the project, Controlling and directing the project.

Unit II

Analysis Phase**:** System Analysis - analysis process, business process automation, business process improvement, business process reengineering, developing the analysis plan. Gathering Information – interviews, joint application design, questionnaires, document analysis, observation, selecting the appropriate technique. Process Modelling – data flow diagrams, use cases. Data Modelling – ER diagram.

Unit III

Design Phase**:** System Design – design strategies, developing the design plan, moving from logical to physical model. Architecture Design – computing architectures, infrastructure design, global issues, security, User Interface (UI) – principles of UI design, UI design process, navigation design, input design, output design. Data Storage Design – data storage formats, optimizing data storage. Program Design – structure chart, program specification.

Unit IV

Implementation Phase: Construction - managing programming, system testing, developing documentation. Installation – conversion, change management, post implementation activities & maintenance, concept of PERT and GANTT Charts.

Unit V

Management Information System**:** Concept of Management, organization & System approach to management, MIS Planning, Designing and implementation, Role of DSS, Decision making & MIS, DSS and Knowledge Management System.

Text Book:

1. System Analysis and Design, Kenneth E Kendall Julie, PHI, 2012

Reference Book:

1. Modern Systems Analysis and Design, Jeffrey A. Hoffer, Pearson India, 2011

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MAJOR BASED ELECTIVE I (C)

MANAGEMENT INFORMATION SYSTEM

Objective:

To understand the concepts Management Information Systems and their Applications.

Unit I

Definition of MIS – Systems approach – meaning and objectives of MIS – MIS and use of computer – limitations of MIS

Unit II

Computer Software for information systems – introduction – system software – Application software – Software Trends.

Unit III

Information system in Business – introduction – Functional areas of Business – marketing information system – Human Resource Information system

Unit IV

Application of Information Technology in Business – Introduction of E-Commerce, Mobile Commerce, E- Governance, E- enterprises, From PC to the Web.

Unit V

Information security, Ethics and Society – Challenges of Securing computer systems – Types of Security Breaches, Cyper Laws and IT Act 2000 – Ethical and social Dimensions of Information Technology

Text Books:

1. Management Information System, A.K. Gupta, S. Chand and Company,2010
2. Management Information System, Dr. S.P. Rajagopalan – Margham Publications, 2012

Reference Books:

1. Management Information System, P. Mohan, Himalaya Publishing House, 2006
2. Management Information System, Managerial Perspectives, D.P. Goyal, Macmilan, 2010

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CORE COURSE VIII

OPERATING SYSTEMS

Objective:

To provide the Fundamental Concepts in an Operating System.

Unit I Introducing Operating Systems

Introduction - What Is an Operating System-Operating System Software -A Brief History of Machine Hardware -Types of Operating Systems -Brief History of Operating System Development-Object-Oriented Design

Unit II Memory Management

Early Systems: Single-User Contiguous Scheme -Fixed Partitions-Dynamic Partitions-Best-Fit versus First-Fit Allocation -Deallocation - Relocatable Dynamic Partitions. Virtual Memory: Paged Memory Allocation-Demand Paging-Page Replacement Policies and Concepts -Segmented Memory Allocation-Segmented/Demand Paged Memory Allocation - Virtual Memory-Cache Memory

Unit III Processor Management

Overview-About Multi-Core Technologies-Job Scheduling Versus Process Scheduling-Process Scheduler-Process Scheduling Policies-Process Scheduling Algorithms -A Word About Interrupts-Deadlock-Seven Cases of Deadlock -Conditions for Deadlock-Modeling Deadlock-Strategies for Handling Deadlocks –Starvation-
Concurrent Processes: What Is Parallel Processing-Evolution of Multiprocessors-Introduction to Multi-Core Processors-Typical Multiprocessing Configurations--Process Synchronization Software

Unit IV Device Management

Types of Devices-Sequential Access Storage Media-Direct Access Storage Devices-Magnetic Disk Drive Access Times- Components of the I/O Subsystem-Communication among Devices-Management of I/O Requests

Unit: V File Management

The File Manager -Interacting with the File Manager -File Organization - Physical Storage Allocation -Access Methods-Levels in a File Management System - Access Control Verification Module

Text Book:

1. Understanding Operating Systems, Ann McIver McHoes and Ida M. Flynn, Course Technology, Cengage Learning, 2011.

Reference Book:

1. OperatingSystems,AchyutGodbole and AtulKahate , McGraw Hill Publishing, 2010

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CORE COURSE IX

PROGRAMMING IN PHP

Objective :

To understand the Concepts of PHP and Ajax.

Unit I

Essentials of PHP - Operators and Flow Control - Strings and Arrays.

Unit II

Creating Functions - Reading Data in Web Pages - PHP Browser - Handling Power.

Unit III

Object-Oriented Programming –Advanced Object-Oriented Programming .

Unit IV

File Handling –Working with Databases – Sessions, Cookies, and FTP

Unit V

Ajax – Advanced Ajax – Drawing Images on the Server.

Text Book:

1. The PHP Complete Reference, Steven Holzner, McGrawHillEducation, 2007

Reference Books:

1. PHP: A Beginner's Guide, Vikram Vaswani, McGraw Hill Education, 2008

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CORE PRACTICAL VI

PROGRAMMING IN PHP LAB

Objective :

To Impart Practical Training in PHP Programming Language

1. Write a program to find the factorial of a number.
2. Write a program using Conditional Statements.
3. Write a program to find the maximum value in a given multi dimensional array.
4. Write a program to find the GCD of two numbers using user-defined functions.
5. Design a simple web page to generate multiplication table for a given number.
6. Design a web page that should compute one's age on a given date.
7. Write a program to download a file from the server.
8. Write a program to store the current date and time in a COOKIE and display the 'Last Visited' date and time on the web page.
9. Write a program to store page views count in SESSION, to increment the count on each refresh and to show the count on web page.
10. Write a program to draw the human face.
11. Write a program to design a simple calculator.
12. Design an authentication web page in PHP with MySQL to check username and password.

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MAJOR BASED ELECTIVE II (A)

COMPUTER GRAPHICS

Objective:

To understand the concepts on basic Graphical Techniques, Raster Graphics, Two Dimensional and Three Dimensional Graphics

Unit I

Overview of Computer Graphics System: Video Display Devices – Raster Scan Systems – Random – Scan Systems - Graphics Monitors and Workstations – Input Devices – Hardcopy Devices – Graphics Software.

Unit II

Output Primitives: Line Drawing Algorithms – Loading the Frame Buffer – LineFunction – Circle – Generating Algorithms.Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale levels– Area fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions.

Unit III

2D Geometric Transformations: Basic Transformation – Matrix Representations – Composite Transformations – Window to View port Co-Ordinate Transformations.Clipping: Point Clipping – Line Clipping – Cohen-Sutherland Line Clipping – Liang BarskyLineClipping – Polygon Clipping – Sutherland – Hodgman Polygon Clipping – Curve Clipping – TextClipping.

Unit IV

Graphical User Interfaces and Interactive Input Methods: The User Dialogue – Inputof Graphical Data – Input Functions – Interactive Picture Construction Techniques.Three Dimensional Concepts: 3D-Display Methods – #Three Dimensional Graphics Packages

Unit V

3D Geometric and Modeling Transformations: Translation – Scaling – Rotation – Other Transformations.Visible Surface Detection Methods: Classification of Visible Surface Detection Algorithm –Backface Detection – Depth-Buffer Method – A-Buffer Method – Scan-Line Method –Applications of Computer Graphics.

Text Book:

1. Donald Hearn M. Pauline Baker, Computer Graphics C Version, Second Edition, Pearson Education, 2014.

Reference Book:

1. Computer Graphics, Sunil Kumar Sharma, ManojSinghal, Pearson Education,2014

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MAJOR BASED ELECTIVE II (B)

CLOUD COMPUTING

Objective :

To understand the concepts in Cloud Computing and its Security

Unit I

Cloud Computing Foundation : Introduction to Cloud Computing – Move to Cloud Computing – Types of Cloud – Working of Cloud Computing

Unit II

Cloud Computing Architecture : Cloud Computing Technology – Cloud Architecture – Cloud Modeling and Design - Virtualization : Foundation – Grid,Cloud and Virtualization – Virtualization and Cloud Computing

Unit III

Data Storage and Cloud Computing : Data Storage – Cloud Storage – Cloud Storage from LANs to WANs – Cloud Computing Services : Cloud Services – Cloud Computing at Work

Unit IV

Cloud Computing and Security : Risks in Cloud Computing – Data Security in Cloud – Cloud Security Services – Cloud Computing Tools : Tools and Technologies for Cloud – Cloud Mashaps – Apache Hadoop – Cloud Tools

Unit V

Cloud Applications – Moving Applications to the Cloud – Microsoft Cloud Services – Google Cloud Applications – Amazon Cloud Services – Cloud Applications

Text Book

1. Cloud Computing – A Practical Approach for Learning and Implementation, A.Srinivasan and J.Suresh, Pearson India Publications, 2014

Reference Book

1. Cloud Computing: Principles and Paradigms, edited by RajkumarBuyya, James Broberg, Andrzej, Wiley India Publications, 2011

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MAJOR BASED ELECTIVE II (C)

BUSINESS PROCESS OUTSOURCING

Objective :

To provide the Knowledge about the working environment of Business Process Outsourcing Industry

UNIT I

Search For Competitiveness - Need For Outsourcing - BPOs: Beyond Call Centres

UNIT II

Transition Management - BPO Business Models - BPO Governance

UNIT III

Legal Issues in BPO Contracts - BPO—Regulatory Issues - Service Supplier Selection

UNIT IV

Service Level Agreement - BPO Legal Contract - BPO to KPO: Up In The Value Chain

UNIT V

HR Challenges in BPO Industry - Performance Evaluation In BPO - BPO—Prerequisites And Precautions - Service Quality Issues in BPO

Text Book

1. Business Process Outsourcing: A Supply Chain of Expertises, Vinod V. Sople, Prentice Hall of India, 2011.

Reference Book:

1. Business Process Outsourcing, Sarika Kulkarni, Jaico Publishing House, Delhi 2005

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MAJOR BASED ELECTIVE III (A)

MINI PROJECT

Students to do Mini Project in their respective Colleges. The **objective** of the Mini Project is to enable the students to work in convenient groups of not more than Four members on a project with a Latest Software.

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MAJOR BASED ELECTIVE III (B)

DOT NET LAB

Objective :

To Impart Practical Training in Dot Net Programming Language

1. Design ASP.Net web form using Html Server Controls to enter job seeker's details.
2. Create an ASP.Net web form using Web control to enter E-Mail registration form.
3. Apply appropriate validation techniques in E-Mail registration form using validation controls.
4. Write an ASP.Net application to retrieve form data and display it the client browser in a table format.
5. Create a web application using ADO.Net that uses which performs basic data manipulations:

   (i). Insertion (ii) Updating (iii) Deletion (iv) Selection
   Hint: Do operations using Ms-Access and SQL-Server

6. Create an application using Data grid control to access information's from table in SQL server.
7. Create an application using Data list control to access information's from table in SQL server and display the result in neat format.

Case Studies (Must Include basic database operations such as Insertion, Deletion, Modication, Selection and Searching)

9. Job Search Portal.
10. College Portal.
11. Company Portal.

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MAJOR BASED ELECTIVE III (C)

LINUX LAB

Objective : To Impart Practical Training in LINUX Operating System

Write Shell Programs for the following using the Linux Operating System

1. Check whether the given number is prime or not.
2. Find the biggest of given two numbers
3. Write a program to check the given number is odd or even
4. Write a program to generate Fibonacci Series
5. Write a program to prepare electric bill for domestic consumers.

   For first 100 units - Rs.0.75/ unit
   For next 100 units - Rs.1.50/unit
   Above 200 units - Rs.3.00/unit.

   Prepare the bill for the following format:
   Customer No. ----------
   Customer Name ----------
   Pre.Reading ----------
   Cur.Reading ----------
   Units Consumed ----------
   Charge ----------

   Signature

6. Write a program to display the result PASS or FAIL using the informationgiven below:

   Student Name, Student Reg. No. Mark1, Mark2, Mark3, Mark4. The minimum pass for each subject is 50.

7. Write a program to prepare a Payroll with Basic Pay, DA, Allowances, PF and Gross Pay.
8. Using Case Statement, write a program to check the files ending with vowels.
9. Write a single program to sort the names and numbers in alphabetical, ascending and descending order.
10. Write a menu driven program to print Bio-data for five persons.

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BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI- 620 024.

Applicable to the candidates admitted from the Academic year 2015-16 onwards

Part IV - VALUE EDUCATION (Revised syllabus)

Unit I Philosophy of Life and Social Values

Human Life on Earth (Kural 629) Purpose of Life (Kural 46) Meaning and Philosophy of Life (Kural 131, 226) Family (Kural 45), Peace in Family (Kural 1025) Society (Kural 446), The Law of Life (Kural 952), Brotherhood (Kural 807) Five responsibilities / duties of Man (a) to himself (b) to his family (c) to his environment (d) to his society, (e) to the Universe in his lives (Kural 43, 981).

Unit II Human Rights and Organisations

Definitions, Nature of Human Rights. Universal Declaration of Human Rights, International covenent on Civil and Political Rights - International covenent of Economic, Social and Cultural Rights. Amnesty International Red Cross.

Unit III Human Rights : Contemporary Challenges

Child labour - Womens Right - Bonded labour - Problems of refugees - Capital punishment. National and State Human Rights Commissions

Unit IV Yoga and Health

Definition, Meaning, Scope of Yoga - Aims and objectives of Yoga - Yoga Education with modern context - Different traditions and schools of Yoga - Yoga practices: Asanas, Pranayama and Meditation.

Unit V Role of State Public Service Commission

Constitutional provisions and formation - Powers and Functions - Methods of recruitment - Rules and notification, syllabi for different exams - written and oral - placement.

BOOKS FOR REFERENCES:

1. Thirukkural with English Translation of Rev. Dr. G.U. Pope, Uma Publication, 156, Serfoji Nagar, Medical College Road, Thanjavur 613 004
2. திருக்குறள் - ஜி.யு.போப் - ஆங்கில மொழியாக்கத்துடன் உமா நூல். வெளியீட்டகம், தஞ்சாவூர்.
3. Leah Levin, Human Rights, NBT, 1998
4. V.R. Krishna Iyer, Dialetics and Dynamics of Human Rights in India, Tagore Law Lectures.
5. Yogic Thearpy - Swami Kuvalayananda and Dr.S.L.Vinekar, Government of India, Ministry of Health, New Delhi.
6. SOUND HEALTH THROUGH YOGA - Dr.K.Chandrasekaran, Prem Kalyan Publications, Sedaptti, 1999.

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BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI- 620 024

ENVIRONMENTAL STUDIES

(Applicable to the candidates admitted from the Academic year 2019-20 onwards)

Unit: 1 The Multidisciplinary nature of environmental studies
Definition, scope and importance. (2 lectures)
Need for public awareness

Unit: 2 Natural Resources:
Renewable and non-renewable resources:
Natural resources and associated problems.

a) Forest resources: use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams benefits and problems.

c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.

f) Land resources: Land as a resources, land degradation, man induced Landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

(8 lectures)

Unit: 3 **Ecosystems**

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession.
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:-

- a. Forest ecosystem
- b. Grassland ecosystem
- c. Desert ecosystem
- d. Aquatic ecosystems, (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

Unit: 4 Biodiversity and its conservation

- Introduction – Definition : Genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- Biological Diversity Act 2002/ BD Rules, 2004

(8 lectures)

Unit: 5 Environmental Pollution

Definition

Causes, effects and control measures of :

a. Air Pollution
b. Water Pollution
c. Soil Pollution
d. Marine Pollution
e. Noise pollution
f. Thermal Pollution
g. Nuclear hazards

- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides.
- Ill-Effects of Fireworks: Firework and Celebrations, Health Hazards, Types of Fire, Firework and Safety

(8 lectures)

Unit: 6 Social Issues and the Environment

- From Unsustainable to Sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people; its problems and concerns.

Case studies

- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.
- Issues involved in enforcement of environmental legislation
- Public awareness.

(7 lectures)

Unit: 7 Human Population and the Environment

- Population growth, variation among nations.
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights - Value Education
- HIV/ AIDS - Women and Child Welfare
- Role of Information Technology in Environment and human health
- Case studies.

Unit: 8 Field Work

- Visit to a local area to document environmental assets-river / forest/ grassland/ hill / mountain

References:

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Public Ltd Bikaner.
2. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt ltd, Ahamedabad – 380013, India, E-mail: mapin@icenet.net(R)
3. Brunner R.C. 1989, Hazardous Waste Incineration, McGraw Hill Inc 480 p
4. Clark R.S. Marine Pollution, Clanderson Press Oxford (TB)
5. Cunningham, W.P.Cooper, T.H.Gorhani E & Hepworth, M.T. 2001.
6. De A.K. Environmental Chemistry, Wiley Eastern Ltd
7. Down to Earth, Centre for Science and Environment (R)
8. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford University, Press 473p.
9. Hawkins, R.E. Encyclopedia of India Natural History, Bombay Natural History Society, Bombay (R)
10. Heywood, V.H & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge University Press 1140 p.
11. Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws Himalaya Pub. House, Delhi 284 p.
12. Mckinney, M.L. & Schoch R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition 639 p.
13. Mhaskar A.K. Matter Hazardous, Techno-Science Publications (TB)
14. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
15. Odum, E.P. 1971 Fundamentals of Ecology. W.B. Saunders Co. USA. 574 p
16. Rao MN & Datta, A.K. 1987 Waste Water treatment, Oxford & IBH Publication Co. Pvt Ltd 345 p.
17. Sharma B.K. 2001 Environmental chemistry Goel Publ House, Meerut.
18. Survey of the Environment, The Hindu (M).
19. Townsend C. Harper, J and Michael Begon, Essentials of Ecology, Blackwell science (TB)
20. Trivedi R.K. Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro Media (R).
21. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science Publications (TB).
22. Wagner K.D. 1998 Environmental Management. W.B. Saunders Co. Philadelphia USA 499 p

    (M) Magazine (R) Reference (TB) Textbook

23. http://nbaindia.org/uploaded/Biodiversityindia/Legal/33%20Biological%20Diversity%20Rules,%202004.pdf.

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PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCES-I

OBJECTIVES:

- To develop the language skills of students by offering adequate practice in professional contexts.
- To enhance the lexical, grammatical and socio-linguistic and communicative competence of first year physical sciences students
- To focus on developing students' knowledge of domain specific registers and the required language skills.
- To develop strategic competence that will help in efficient communication
- To sharpen students' critical thinking skills and make students culturally aware of the target situation.

LEARNING OUTCOMES:

- Recognise their own ability to improve their own competence in using the language
- Use language for speaking with confidence in an intelligible and acceptable manner
- Understand the importance of reading for life
- Read independently unfamiliar texts with comprehension
- Understand the importance of writing in academic life
- Write simple sentences without committing error of spelling or grammar

(Outcomes based on guidelines in UGC LOCF – Generic Elective)

UNIT 1: COMMUNICATION

1. **Listening**: Listening to instructions

2. **Speaking**: Telephone etiquette and Official phone conversations

3. **Reading** short passages (3 passages, one from each – Physics, Chemistry, Mathematics/Computer Science)

5. **Writing:** Letters and Emails in professional context

6. **Grammar in Context:**
   - Wh and yes or no,
   - Q tags
   - Imperatives

7, **Vocabulary in Context:** Word formation - .
   i) Creating antonyms using Prefixes
   ii) Intensifying prefixes (E. g inflammable)

Changing words using suffixes

A) Noun Endings
B) Adjective Endings
C) Verb Endings

UNIT 2: DESCRIPTION

Listening – Listening to process description

Speaking - Role play

Formal: With faculty and mentors in academic environment, workplace communication

Informal: With peers in academic environment, workplace communication

Reading –Reading passages on products, equipment and gadgets

Writing – Writing sentence definitions (e.g. computer) and extended definitions (e.g. artificial intelligence)

Picture Description – Description of Natural Phenomena

Grammar in Context: Connectives and linkers.

Vocabulary – Synonyms (register) - Compare & contrast expressions.

UNIT 3: NEGOTIATION STRATEGIES

Listening - Listening to interviews of specialists / inventors in fields (Subject specific)

Speaking – Brainstorming. (mind mapping). Small group discussions (subject-specific)

Reading – longer Reading text. (Comprehensive passages)

Writing – Essay Writing (250 word essay on topics related to subject area, like pollution, use of pesticides in cultivation, merits and demerits of devices like mobile phones, merits and demerits of technology in development)

Grammar in Context: Active voice & Passive voice – If conditional - Collocations –Phrasal verbs

UNIT 4: PRESENTATION SKILLS

Listening - Listening to presentation. Listening to lectures. Watching – documentaries (discovery / history channel)

Speaking –Short speech

- Making formal presentations (PPT)

Reading – Reading a written speech by eminent personalities in the relevant field /Short poems / Short biography.

Writing - Writing Recommendations

Interpreting visuals - charts / tables/flow diagrams/charts

Grammar in Context – Modals

Vocabulary (register) - Single word substitution

UNIT 5: CRITICAL THINKING SKILLS

Listening - Listening to advertisements/news and brief documentary films (with subtitles)

Speaking – Simple problems and suggesting solutions.

Reading: Motivational stories on Professional Competence, Professional Ethics and Life Skills (subject-specific)

Writing Studying problem and finding solutions- (Essay in 200 words)

Grammar-Make simple sentences

Vocabulary -Fixed expressions

SUGGESTED ACTIVITIES

UNIT 1

Listening: Links for formal conversation can be given - Gap filling exercises – Multiple Choice questions – Making notes.

Speaking - Role play activity

Reading – Note making. Note-Taking.

Writing: Guided Writing (developing hints)

Email

Grammar: Vocabulary – Worksheets – Games.

UNIT 2

Listening-

Process Descriptions (Processes of Condensation and Evaporation./Process of Measuring the thickness of a wire using a Screw -Gauge./process of Exaction of sugar from sugarcane)

Speaking – Role Play

Reading – Multiple choice questions - Evaluative answers – Classifying and labeling

Writing - Picture description – Description of natural phenomena (rainbow, earthquake, volcanic eruption, erosion, natural disasters in 150 to 200 words).

Vocabulary: Expansion of compound nouns

UNIT 3

Listening- Gap fill exercises – Listening comprehension

Speaking -Debates

Reading -Reading comprehension

Writing – Essay Writing

Grammar - Vocabulary, Activities, Worksheets & Games.

UNIT 4

Listening - Note taking (of listening & viewing items) - Filling a table based on the listening item.

Speaking – JAM, Presentations. (PPT-TECHNICAL)

Reading-Reading comprehension

Writing– Difference between recommendations and instructions

Questions/MCQs based on graphs/flow diagrams/charts

Grammar: Vocabulary – Activities, Worksheets & Games.

UNIT 5

Listening – Radio News/ TV-News telecast /

Speaking - Watch or listen to documentaries and ask questions

Reading - Reading motivational stories (success stories in subject area)

Writing - Essay writing.

Grammar -Vocabulary –Activities, Worksheets & Games

Professional English-Semester-II [part-III -add on Course]

Weightage: 4 Credits **Duration: 90hrs**

Objectives:

The Professional Communication Skills Course is intended to help Learners in Arts and Science colleges

- Develop their competence in the use of English with particular reference to the workplace situation.
- Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.
- Develop their competence and competitiveness and thereby improve their employability skills.
- Help students with a research bent of mind develop their skills in writing reports and research proposals.

Unit 1- Communicative Competence (18 hrs)

Listening – Listening to two talks/lectures by specialists on selected subject specific topics -(TED Talks) and answering comprehension exercises (inferential questions)

Speaking: Small group discussions (the discussions could be based on the listening and reading passages- open ended questions

Reading: Two subject-based reading texts followed by comprehension activities/exercises

Writing: Summary writing based on the reading passages.

Grammar and vocabulary exercises/tasks to be designed based on the discourse patterns of the listening and reading texts in the book. This is applicable for all the units.

Unit 2 - Persuasive Communication (18 hrs)

Listening: listening to a product launch- sensitizing learners to the nuances of persuasive communication

Speaking: debates – Just-A Minute Activities

Reading: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions

Writing: dialogue writing- writing an argumentative /persuasive essay.

Unit 3- Digital Competence **(18 hrs)**

Listening to interviews (subject related)

Speaking: Interviews with subject specialists (usingvideo conferencing skills)

Creating Vlogs (How to become a vlogger and use vlogging tonurture interests – subject related)

Reading: Selected sample of Web Page (subject area)

Writing: Creating Web Pages

Reading Comprehension: Essay on Digital Competence for Academic and Professional Life.

The essay will address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area

Unit 4 - Creativity and Imagination **(18 hrs)**

Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites – E.g. https://www.youtube.com/watch?v=tpvicScuDyo)

Speaking: Making oral presentations through short films – subject based

Reading: Essay on Creativity and Imagination (subject based)

Writing – Basic Script Writing for short films (subject based)

- Creating blogs, flyers and brochures (subject based)
- Poster making – writing slogans/captions(subject based)

Unit 5- Workplace Communication& Basics of Academic Writing (18 hrs)

Speaking: Short academic presentation using PowerPoint

Reading & Writing: Product Profiles, Circulars, Minutes of Meeting.

Writing an introduction, paraphrasing

Punctuation(period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis)

Capitalization (use of upper case)

Outcomes of the Course.

At the end of the course, learners will be able to,

- Attend interviews with boldness and confidence.
- Adapt easily into the workplace context, having become communicatively competent.
- Apply to the Research &Development organisations/ sections in companies and offices with winning proposals.

Instruction to Course Writers:

1. **Acquisition of subject-related vocabulary should not be overlooked**. Textboxes with relevant vocabulary may be strategically placed as a Pre Task or in Summing Up
2. Grammar may be included if the text lends itself to the teaching of a Grammatical item. However, testing and evaluation does not include Grammar.

NON MAJOR ELECTIVES (ARTS)

(For the candidates admitted from the academic year 2016-2017)

SI. No.	DEPARTMENT OFFERING THE NON-MAJOR ELECTIVE COURSES	TITLE OF THE NON-MAJOR ELECTIVE COURSES
1.	Applied Tamil	I. தமிழ் நடைக்கூறுகள் II. சிந்தனையியல்
2.	B.Litt.	
3.	Pulavar Degree	
4.	Tamil	
5.	B.B.A. (Bachelor of Business Administration)	I. Management Principles **(or)** Stock Exchange Practices II. Banking Practices **(or)** International Business
6.	B.Com.	I. Personal Investment **(or)** Elements of Insurance II. Introduction to Accountancy **(or)** Salesmanship
7.	B.Com. (Applied)	
8.	B.Com. (Computer Applications)	
9.	B.Com. (Bank Management)	I. Banking Practices **(or)** Indian Banking System II. Rural Banking **(or)** Elements of Insurance
10.	B.Com (Corporate Secretaryship)	I. Elements of Company Law II. Stock Markets in India
11.	B.Com (Co-operation)	I. Fundamentals of Cooperation **(or)** Cooperative Finance and Banking II. Cooperatives in Foreign Countries **(or)** Cooperative Bookkeeping System
12.	Economics	I. Advertisement Management II. Economics of Transportation
13.	English	I. Presentation Skills II. Functional Skills
14.	History	I. Freedom Movement in India II. Working of Indian Constitution
15.	Journalism & Mass Communication	I. Basic Photography II. Freelance Journalism
16.	Public Administration	I. Public Administration for Civil Services II. Indian Government and Administration
17.	Sanskrit	I. Introduction to Early Sanskrit Literature **(or)** History of fables & Popular tales and Didactic Literature Pub. R.S. Vadhyer Pub. Palakad II. Scientific Literature **(or)** Indian Aesthetics
18.	Social Work	I. Human Rights II. Contemporary Social Issues and Problems
19.	Sociology	I. Dynamics of Society II. Women Empowerment
20.	Tourism And Travel Management	I. Basics of Tourism II. Cultural Tourism

NON MAJOR ELECTIVES (SCIENCE)

(For the candidates admitted from the academic year 2016-2017 onwards)

SI. No.	DEPARTMENT OFFERING THE NON-MAJOR ELECTIVE COURSES	TITLE OF THE NON-MAJOR ELECTIVE COURSES
1.	Apparel and Fashion Technology	I. Hand Embroidery (P) II. Jewellery Making (P)
2.	BCA	I. Working Principles of Internet II. Fundamentals of Information Technology
3.	Biochemistry	I. Health and diseases II. Hospital Management
4.	Biotechnology	I. Biotechnology for Human Welfare II. Food Processing
5.	Botany	I. Biofertilizers & Biopesticides II. Horticulture
6.	Chemistry	I. Chemistry in Everyday Life II. Health Chemistry
7.	Computer Science	I. Working Principles of Internet II. Fundamentals of Information Technology
8.	Electronics	I. Principles of Electronics II. Everyday Electronics
9.	Fashion Technology & Costume Designing	I. Fashion Accessories Designing II. Visual Merchandising
10.	Geography	I. Geography of Tourism II. Disaster Management
11.	Geology	I. Fundamentals of Geology II. Introduction to Minerals, Rocks and Fossils
12.	Home Science	I. Bakery and Food Preservation II. Apparel Designing
13.	Hospital Administration	I. Personal Hygiene II. Role of Hospital Services
14.	Hotel Management & Catering Science	I. Basic Tamil / Special Tamil II. Basic Tamil / Special Tamil
15.	Information Technology	I. Fundamentals of Information Technology II. Information Security : Principles and Practices
16.	Mathematics	I. Quantitative Aptitude I II. Quantitative Aptitude II
17.	Microbiology	I. Mushroom Technology II. Biofertilizer Technology
18.	Nutrition & Dietetics	I. Nutrition for Women II. Nutrition for Health and Fitness

19.	Physics	I. Energy Physics II. Laser Physics
20.	Software Development	I. Working Principles of Internet II. Fundamentals of Information Technology
21.	Textile Science	I. Management and Entrepreneurship II. Marketing and Merchandising
22.	Visual Communication	I. Basics of Communication II. Communication Personality Development
23.	Zoology	I. Public Health and Hygiene II. Ornamental fish farming

NON-MAJOR ELECTIVE - I

PUBLIC ADMINISTRATION FOR CIVIL SERVICES

Objectives :

1. Students studying other majors may get familiarize with the basic concepts of Public Administration
2. To expose the students to various basic theories in Public administration.

Unit I - Introduction Meaning, Nature, Scope and Significance of Public Administration - Comparative Public Administration - Public and Private Administration - New Public Management.

Unit II - Basic Concepts Organisation - Hierarchy - Unity of command - Span of control - Co-ordination - Centralization and Decentralization - Line and Staff.

Unit III - Theories of Administration Scientific Management (Taylor and the Scientific Management Movement) - Classical Theory (Fayol, Urwick, Gulick and others) - Bureaucratic Theory (Weber and his critics) - Behavoural Approach - Systems approach.

Unit IV - Administrative Behaviour Decision making - Communication and control, Leadership.

Unit V - Accountability and Control The concepts of Accountability and control : Legislative, Executive and Judicial control - Citizen and Administration : Role of civil society - People's Participation and Right to Information.

Reference :

1. Avasthi and S.R. Maheswari , " Public Administration', Lakshmi Navas, Agra, 2006
2. Rumki Basu, Concepts and Theories of Administration, Sterling Publication,New delhi2004.
3. Lakshmi Kanth P, Public Administration for UPSC McGraw Hill, New Delhi-2011.

NON-MAJOR ELECTIVE - II

INDIAN GOVERNMENT AND ADMINISTRATION

Objective : It facilitates the students to understand its various aspects of the subjects - evolution and constitutional frame work, salient features of Indian Administration, Union executive, State executive, District Administration.

Unit - I Evolution of Indian Administration - Constitutional Development Framework – Salient Feature of Indian constitution

Unit - II Union Administration – President - Prime Minister - Council of Ministers – Ministries and Departments – Supreme Court.

Unit - III State Administration – Executive – Council of Ministers – Departments and Directorate – State Public Service Commission – High Court – District Administration – Local Government.

Unit - IV Constitutional Authorities - Finance Commission - Union Public Service Commission - Election Commission - Comptroller and Auditor General of India

Unit - V Issues in Indian Administration - Generalists vs. Specialists - Centre-State relations Corruption – Lokpal, Lokayuktha - Administrative Reforms in India

References:

1. Dr.Vishnoo Bhagwan and Dr.Vidya Bhushan Indian Administration, S.Chand and Company Ltd., New Delhi, 2011.

2. M.Sharma ,Indian Administration ,Anmol Publications Pvt. Ltd., New Delhi, 2007.

3. S.R. Maheswari ,Indian Administration, S.Chand Co., New Delhi, 2010.

பாரதிதாசன் பல்கலைக்கழகம், திருச்சிராப்பள்ளி - 620 024
(2016-17ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணாக்கர்களுக்கு)

மூன்றாம் பருவம்

அடிப்படைத் தமிழ் - I
(Basic Tamil – I)

நோக்கம்: தமிழ்மொழியின் அடிப்படைகளை அறிந்துகொள்ளுதல். தமிழ் மொழியை எழுதவும் படிக்கவும் கற்றுக்கொள்ளுதல்.

அலகு 1

எழுத்துக்கள் அறிமுகம் - எழுத்துக்களின் வகைப்பாடு, எண்ணிக்கை - உயிரெழுத்துக்கள் - மெய்யெழுத்துக்கள் - உயிர்மெய்யெழுத்துக்கள் - ஆய்த எழுத்து - இனஎழுத்துக்கள் - வடமொழி எழுத்துக்கள்.

அலகு 2

எழுதும் பயிற்சி - தமிழ் எழுத்து வடிவங்களைக் காட்டி - அவற்றை இனங்காணவும் - வேறுபடுத்தி அறியவும் பயிற்சி தருதல் - ஒலிப்பு - பொருத்தமான எழுத்தைத் தேர்ந்தெடுக்கப் பரிசோதித்தல் - எழுத்துக்களை எழுதப் பயிற்றுவித்தல்.

அலகு 3

சொற்கள் கற்றல் - கோடிட்ட இடங்களை நிரப்புவதன் மூலம் எழுத்துகளையும் சொற்களையும் பயிற்றுவித்தல். வாசித்தல் - படம் ஒலிபெயர்ப்புச் சொல், இணையான ஆங்கிலச்சொல் முதலியவற்றைத் தந்து எழுத்துகளையும் சொற்களையும் பயிற்றுவித்தல்.

அலகு 4

சிறுதொடர் கற்றல் - எளிய தொடர்களை அறிமுகப்படுத்துதல் - சிறு தொடரின் உறுப்புகளைக் கற்றுத்தருதல் - அவ்வுறுப்புக்களைத் தொடரில் இனங்காணச்செய்தல் - சிறு தொடர்களை எழுதும் பயிற்சி தருதல்.

அலகு 5

மழலைப் பாடல்கள், அறநெறிக்கதைகள் - பாடல்களையும் கதைகளையும் பிழையின்றி வாசிக்கச் செய்தல் - பிழையின்றி எழுதச்செய்தல்.

பார்வை :

தமிழ் இணையப் பல்கலைக்கழகச் சான்றிதழ்க் கல்விப்பாடத்திட்டத்தில் உள்ள முதல் அலகான "அடிப்படைநிலை" (www.tamilvu.org)

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நான்காம்பருவம்

அடிப்படைத் தமிழ் - II
(Basic Tamil – II)

நோக்கம்: இப்பாடத்தில் கீழே தடித்த எழுத்துக்களில் தரப்பட்டுள்ள பாடங்களின் வழியாகத் தமிழ்மொழியை எழுதவும் வாசிக்கவும் பழக்குதல்.

அலகு 1

சந்தை - மலர்கள், காய்கறிகள், பழங்கள் முதலியன குறித்த செய்திகளை அறியச் செய்தல் - அவை தொடர்பான வாக்கியம் அமைக்கப் பழக்குதல் எங்கள் குடும்பம் - குடும்ப உறுப்பினர், குடும்ப உறவு முறைகள் பற்றி அறியச் செய்தல் - தொடர்பான சொற்கள், தொடர்கள் முதலியவற்றை வாசிக்கவும் எழுதவும் பழக்குதல்.

அலகு 2

விருந்தோம்பல் - உணவு பரிமாறும் முறை - உணவு வகைகள் முதலியன பற்றி விளக்கமாக அறியச் செய்தல் - ஆறு, குளம், கடல், வானம், மேகம், மலை, மழை முதலியன பற்றி அறியச் செய்தல் : இவை தொடர்பான சொற்கள், தொடர்கள் முதலியவற்றை வாசிக்கவும் எழுதவும் பழக்குதல்.

அலகு 3

பாரதியார் - பாரதியார் பற்றிய வரலாறு, அவரது ஓரிரு கவிதைகள் பற்றி அறியச்செய்தல் - கணைக்கால் இரும்பொறை - இம்மன்னனின் தன்மான உணர்வினை நாடகத்தின் வழியாக உணர்த்துதல். இப்பாடங்கள் தொடர்பான சொற்கள், தொடர்களை வாசிக்கவும் எழுதவும் பழக்குதல்.

அலகு 4

மாமல்லபுரம் - மாமல்லபுரம் அமைந்துள்ள இடம் மற்றும் கலைக்கோயில்கள் பற்றி விளக்குதல் - பயணம் - பேருந்தில் பயணம் செய்யும் முறையை விளங்க வைத்தல்இ வாசிக்கவும் எழுதவும் பழக்குதல்.

அலகு 5

மொழி - விளக்கம் - மொழிக்குடும்பங்கள் - உலகச் செம்மொழிகள் - இந்தியச் செம்மொழிகள் - செம்மொழித் தகுதிகள் - வரையறைகள் - வாழும் தமிழ்ச் செம்மொழி - தமிழின் தொன்மை - தமிழின் சிறப்புகள் - தமிழ்ச் செம்மொழி நூல்கள் - தமிழ்ச் செம்மொழி அறிந்தேற்பு பரிதிமாற்கலைஞர் அவர்கள் முதல் கலைஞர் திரு.மு.கருணாநிதி அவர்கள் வரை (அறிஞர்கள் - அமைப்புகள் - நிறுவனங்கள் - இயக்கங்கள் தொடர் முயற்சிகள் - அறப்போராட்டங்கள் - உலகத் தமிழ்ச் செம்மொழி மாநாடு, கோவை 2010)

பார்வை :

தமிழ் இணையப் பல்கலைக்கழகச் சான்றிதழ்க் கல்வி பாடத்திட்டத்தில் உள்ள இரண்டாம் அலகு மற்றும் மூன்றாம் அலகுகளான முறையே இடைநிலை, மேல்நிலை ஆகியவை (www.tamilvu.org).

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பாரதிதாசன் பல்கலைக்கழகம், திருச்சிராப்பள்ளி - 620 024
(2016-17ஆம் கல்வியாண்டு முதல் சேர்க்கை பெறும் மாணாக்கர்களுக்கு)

மூன்றாம் பருவம்

சிறப்புத் தமிழ் - தாள் I
(Special Tamil – I)

(பத்து அல்லது பன்னிரண்டாம் வகுப்பு வரை தமிழ் படித்திருந்து **இளநிலைப் பட்டப்படிப்பில் (UG) பகுதி I இல் இதர மொழிப்பாடங்கள் படிக்கின்ற மாணவ / மாணவியர்** படிக்க வேண்டிய **சிறப்புத் தமிழ் முதலாம் தாளுக்குரியபாடத்திட்டம்.** இப்பாடத்திட்டப் பகுதிகள் பல்கலைக்கழக இளங்கலை முதலாமாண்டு செய்யுள் திரட்டு நூலை அடிப்படையாகக் கொண்டது.)

அலகு - I

பாரதியார் 1. செந்தமிழ்நாடு 2. புதுமைப்பெண்
பாரதிதாசன் 1. அழகு 2. தமிழனுக்கு வீழ்ச்சியில்லை
கவிமணி தேசிகவிநாயகம் பிள்ளை 1. சுகாதாரக்கும்மி
சுரதா 1. கலப்பை

அலகு - II

கவி காமு ஷெரீப் 1. நிலவே சொல் 2. அறிய முயல்
கண்ணதாசன் 1. நட்பு
வாணிதாசன் 1. வாழ்க இளம்பரிதி

அலகு - III

நாட்டுப்புறப்பாடல்கள் 1. தாலாட்டுப் பாடல் 2. ஒப்பாரிப் பாடல்

புதுக்கவிதைகள்
1. அப்துல் ரகுமான் - வெற்றி
2. அறிவுமதி - நட்புக்காலம்
3. ஆண்டாள் பிரியதர்ஷினி - நிலாச்சோறு
4. சிற்பி - ஓடு ஓடு சங்கிலி
5. தாமரை - தீர்ப்பு
6. மீரா - தலைகுனிவு
7. மேத்தா.மு - வெளிச்சம் வெளியே இல்லை
8. வைரமுத்து – ருசி

ஐக்கூ கவிதைகள்

1. அமுதபாரதி 2. அரிமதி இளம்பரிதி 3. அரிமதி தென்னகன்
4. அன்பாதவன் 5. இராசன்.எ.மு. 6. உயிர்வேலி ஆலா
7. கார்முகில் 8. செந்தமிழன் 9. புதுவை இளவேனில்
10. புதுவை தமிழ் நெஞ்சன்

அலகு - IV

சிறுகதை 1. **கைவண்ணம்...(தேர்ந்தெடுக்கப்பட்டசிறுகதைகள்)**
தொகுப்பாசிரியர் முனைவர் தங்க. செந்தில்குமார்
அய்யா நிலையம்,கதவு எண், 1603,
ஆரோக்கிய நகர்,ஐந்தாம் தெரு,E.B. காலனி,
நாஞ்சிக்கோட்டைச் சாலை, தஞ்சாவூர் - 613 006
விலை ரூ.70/-

அலகு - V

இலக்கிய வரலாறு 1. மரபுக் கவிதை 2. புதுக்கவிதை 3. சிறுகதை

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நான்காம்பருவம்

சிறப்புத் தமிழ் - தாள் II
(Special Tamil – II)

(பத்து அல்லது பன்னிரண்டாம் வகுப்பு வரை தமிழ் படித்திருந்து பகுதி I இல் இதர மொழிப்பாடங்கள் படிக்கின்ற மாணவ / மாணவியர் படிக்க வேண்டிய **சிறப்புத் தமிழ் இரண்டாம் தாளுக்குரிய பாடத்திட்டம்.** இப்பாடத்திட்டப் பகுதிகள் பல்கலைக்கழக இளங்கலை இரண்டாமாண்டு செய்யுள் திரட்டு நூலை அடிப்படையாகக் கொண்டது.)

அலகு – I

புறநானூறு
1. 'வள்ளியோர் படர்ந்து' எனத் தொடங்கும் பாடல் (பாடல் எண். 47)
2. 'நின்னயந்துறைஞர்க்கும்' எனத் தொடங்கும் பாடல் (பாடல் எண். 163)

குறுந்தொகை
1. 'வில்லோன் காலன கழலே' எனத் தொடங்கும் பாடல் (பாடல் எண். 07)
2. 'அகவன் மகளே! அகவன் மகளே' எனத் தொடங்கும் பாடல் (பாடல் எண். 23)

அலகு – II

சிறுபாணாற்றுப்படை (முழுவதும்)

அலகு – III

திருக்குறள்
1. புறங்கூறாமை (அதிகாரம் 19) 2. மானம் (அதிகாரம் 97)

நாலடியார்
1. 'அரும்பெறல்' எனத் தொடங்கும் பாடல் (பாடல் எண். 34)
2. 'கல்லாதுபோகிய நாளும்' எனத் தொடங்கும் பாடல் (பாடல் எண். 169)

அலகு – IV

சிலப்பதிகாரம் - அடைக்கலக் காதை **(பல்கலைக்கழக செய்யுள் திரட்டில் உள்ள பகுதி மட்டும்)**

கம்பராமாயணம் - குகப் படலம் **(பல்கலைக்கழக செய்யுள் திரட்டில் உள்ள பகுதி மட்டும்)**

அலகு – V

இலக்கிய வரலாறு - அற இலக்கியம்,
சங்க இலக்கியம்
காப்பிய இலக்கியம்

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OFFICE MANAGEMENT

Skill Based Elective I (Semester IV)

INTRODUCTION TO OFFICE MANAGEMENT

UNIT I

Office management – Meaning – Elements of office management – Functions of office management.

UNIT II

Office organization – Definition, Characteristics and Steps – Types of Organization – Functions of an Office administrator

UNIT III

Office record management – Importance – Filing essentials –Classification and arrangement of files-Modern methods of filing-Modern filing devices

UNIT IV

Office Communication – Correspondence and Report writing –Meaning of office communication & mailing

UNIT V

Form letters –Meaning, Principles, and Factors to be considered in designing office forms – Types of report writing

TEXT BOOKS RECOMMENDED:

1. Fundamentals of office management – by J.P.Mahajan,
2. OfficeManagement by S.P.Arrora
3. Office Management – R.S.N.Pillai & Bagavathi- S.Chand.

Skill Based Elective II (Semester V)

OFFICE MANAGEMENT TOOLS

UNIT I

Computer Fundamentals

Computer and Operating system Fundamentals – Components of a computer system –Input and Output devices – Memory Handling –Storage Device s

UNIT II

MS -Word

Introduction to MS-Word and User Utilities – Exploring Template and Formation of Documents – Table handling –Mail Merge and Print Process

UNIT III

MS – Excel

Spreadsheet –workbook window –Formatting Cells / Worksheet – Working with Formula, Function and Charts – Filtering data and Printing a Presentation

UNIT IV

MS – Power Point

Introduction to MS –Power Point –Creating Templates – Font and color editing – Adding – Multimedia effects – Consolidating using MS-Power Point

UNIT V

Officer Appliances

Accounting machine – Addressing machine – Envelope Sealing machine – Franking machine & other modern office gadgets

TEXT BOOKS RECOMMENDED:

1. Computer Application in Business –Dr.S.V.Srinivasa Vallabhan, Sultan Chand and Sons, New Delhi
2. MS-Office and Internet by Alexis Leon
3. Computer Application in Business – K.Mohan Kumar, Vijay Nicole imprints Private Limited Dr.S.Rajkumar –Chennai
4. Computer Basics – V.Rajaraman – PHI.
5. Office Management – R.S.N.Pillai & Bagavathi – S.Chand

Skill Based Elective III (Semester V)

COMMUNICATION AND INTERPERSONAL SKILLS

UNIT I

Basic Communication

Communication – Meaning and Definition – Medium of Communication – Barriers to Communication

UNIT II

Listening

Needs and Advantages of Listening – Active – Elements of active listening with reading - coherence of listening with reading and Speaking

UNIT III

Speaking

Features of effective speech – Role play-Conversation building –Topic presentation – Group Discussions

UNIT IV

Reading

Comprehensive of Technical and Non- Technical Material – Skimming Scanning – inferring Guessing

UNIT V

Writing

Writing Effective Sentences – Cohesive writing – Clarity and Conciseness in writing –Resumes and job applications

TEXT BOOKS RECOMMENDED:

1. Basic Communication Skills by p.Kiranmani Dutt and Geetha Rajeevan
2. Business Scenarios by Heidi Schuttz Ph.D
3. Business Communication –Asha Kaul – PHI.
4. Business Communication – Sathya Swaroop Debasish & Bhagaban Das – PHI
5. Business Communication – NS Raghunathan & Santhanam – Marghum.

BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI - 24.
UNDER GRADUATE DEGREE PROGRAMMES

SOFT SKILLS DEVELOPMENT

Learning Objective

Today's world is all about relationship, communication and presenting oneself, one's ideas and the company in the most positive and impactful way. This course intends to enable students to achieve excellence in both personal and professional life.

Unit I
Know Thyself/ Understanding Self
Introduction to Soft skills-Self discovery-Developing positive attitude-Improving perceptions-Forming values

Unit II
Interpersonal Skills/ Understanding Others
Developing interpersonal relationship-Team building-group dynamics-Net working-Improved work relationship

Unit III
Communication Skills / Communication with others
Art of listening-Art of reading-Art of speaking-Art of writing-Art of writing e-mails-e mail etiquette

Unit IV
Corporate Skills / Working with Others
Developing body language-Practising etiquette and mannerism-Time management-Stress management

Unit V
Selling Self / Job Hunting
Writing resume/cv-interview skills-Group discussion- Mock interview-Mock GD – Goal setting - Career planning

TEXT BOOKS:

Meena.K and V.Ayothi (2013) A Book on Development of Soft Skills (Soft Skills : A Road Map to Success), P.R. Publishers & Distributors, No, B-20 & 21, V.M.M. Complex, Chatiram Bus Stand, Tiruchirappalli- 620 002.
(Phone No: 0431-2702824: Mobile No: 94433 70597, 98430 74472)

Alex K. (2012) Soft Skills – Know Yourself & Know the World, S.Chand & Company LTD, Ram Nagar, New Delhi- 110 055.
Mobile No : 94425 14814 (Dr.K.Alex)

REFERENCE BOOKS:

(i) Developing the leader within you John c Maxwell
(ii) Good to Great by *Jim Collins*
(iii) The seven habits of highly effective people Stephen Covey
(iv) Emotional Intelligence Daniel Goleman
(v) You can win Shive Khera
(vi) Principle centred leadership Stephen Covey

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Bharathidasan University, Tiruchirappalli – 24

Gender Studies

Objectives

- To make boys and girls aware of each others strengths and Weakness.
- To develop sensitivity towards both genders in order to lead an ethically enriched life.
- To promote attitudinal change towards a gender balanced ambience and women empowerment .

Unit – I

Concepts of Gender: Sex – Gender – Biological Determinism – Patriarchy – Feminism – Gender Discrimination – Gender Division of labour – Gender Stereotyping – Gender Sensitivity – Gender Equity – Equality – Gender Mainstreaming - Empowerment.

Unit – II

Women's Studies vs Gender Studies : UGC's Guidelines – VII to XI Plans – Gender Studies : Beijing Conference and CEDAW – Exclusiveness and Inclusiveness.

Unit – III

Areas of Gender Discrimination : Family – Sex Ratio – Literacy – Health – Governance – Religion Work Vs Employment – Market – Media – Politics – Law – Domestic Violence – Sexual Harassment – State Policies and Planning .

Unit – IV

Women Development and Gender Empowerment : Initiatives – International Women's Decade – International Women's Year – National Policy for Empowerment of Women – Women Empowerment Year 2001 – Mainstreaming Global Policies .

Unit – V

Women's Movements and Safeguarding Mechanism : In India National /State Commission for Women(NCW) – All Women Police Station – Family Court – Domestic Violence Act – Prevention of Sexual Harassment at Work Place Supreme Court Guidelines – Maternity Benefit Act – PNDT Act – Hindu Succession Act 2005 – Eve Teasing Prevention Act – Self Help Groups – 73rd and 74th Amendment for PRIS

பாலின சமத்துவம்

அலகு - I

பாலினம் தொடர்பான கோட்பாடுகள் :பாலியல் - பாலினம் - உடற்கூறுரீதியாக நிர்ணயித்தல் - ஆணாதிக்கம் - பெண்ணியம் - பாலின பாகுபாடு – பாலின வேலைப்பாகுபாடு – பாலின ஒருபடித்தானவைகள் - பாலின உணர்வூட்டல் - பாலின சமவாய்ப்பு – பாலின சமத்துவம் - பாலின மையநீரோட்டமாக்கல் - அதிகாரப்படுத்துதல்

அலகு -II

மகளிரியல் Vs பாலின சமத்துவக்கல்வி – பல்கலைக்கழக மானியக்குழுவின் வழிக்காட்டுதல்கள் - ஏழாவது ஐந்தாண்டுதிட்டம் முதல் பதினோராவது ஐந்தாண்டுதிட்டம் - பாலின சமத்துவக்கல்வி : பெய்ஜிங் மாநாடு மற்றும் பெண்களுக்கு எதிரான அனைத்து வன்முறைகளையும் ஒழிப்பதற்கான சர்வதேச உடன்படிக்கை - இணைத்தல் /உட்படுத்துதல் - ஒதுக்கல் -

அலகு – III

பாலியல் பாகுபாட்டிற்கான தளங்கள் : குடும்பம் - பாலின விகிதாச்சாரம் - கல்வி – ஆரோக்கியம் - ஆளுமை –மதம் - வேலை Vs வேலை வாய்ப்பு – சந்தை – ஊடகங்கள் - அரசியல் - சட்டம் -குடும்ப வன்முறை –பாலியல் துன்புறுத்தல் - அரசு கொள்கைகள் மற்றும் திட்டங்கள் .

அலகு – IV

பெண்கள் மேம்பாடு மற்றும் பாலின சமத்துவ மேம்பாடு : முயற்சிகள் - சர்வதேச பெண்களுக்கான தசாப்தம் - சர்வதேச பெண்கள் ஆண்டு – பெண்களின் மேம்பாட்டிற்கான தேசிய கொள்கை – பெண்கள் அதிகார ஆண்டு 2001 – சர்வதேச கொள்கைகளை மைய நீரோட்டமாக்கல்

அலகு – V

பெண்கள் இயக்கங்கள் மற்றும் பாதுகாப்பு நிறுவன ஏற்பாடுகள் : தேசிய மற்றும் மாநில மகளிர் ஆணையம் - அனைத்து மகளிர் காவல் நிலையங்கள் - குடும்ப நீதி மன்றங்கள் - குடும்ப வன்முறையிலிருந்து பெண்களைப் பாதுகாக்கும் சட்டம் 2005 – பணியிடங்களில் பெண்கள் மீதான பாலியல் துன்புறுத்தல்களை தடுப்பதற்கான உச்சநீதிமன்ற வழிகாட்டுதல்கள் - தாய்சேய் சேமநலச்சட்டம் - பெண்சிசுவை கருவிலேயே கண்டறியும் தொழில் நுட்பம் (முறைப்படுத்துதல் மற்றும் தவறாக பயன்படுத்துதலை தடை செய்திடும்) சட்டம் - ஈவ்டீசிங் (பெண்களை தொல்லை செய்தல்) தடுப்புச்சட்டம் - சுய உதவிக் குழுக்கள் - பஞ்சாயத்து அமைப்புகளுக்கான 73வது மற்றும் 74வது சட்டத்திருத்தம்.

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CODE OF CONDUCT FOR STUDENTS

1. Students should not leave the College premises during class hours without written permission of the Principal / Competent authority.
2. Students should be punctual in attending classes and other co-curricular and extra-curricular activities. Late comers will not be allowed in the class.
3. Students will be responsible for all equipment entrusted to them. Students should not cause any damage to any property, equipment, instruments, tools etc., of the College. An amount of Rs.150 towards General maintenance, is payable by each Student at the end of the Academic Year, prior to Examinations. In case of any damage, the actual cost will be recovered from the student along with a fine.
4. Students should take care of their belongings while within the campus. The College will not be responsible for any loss of such belongings.
5. Use of Mobile phones, Pagers, Cameras, etc., are prohibited inside the campus, during College hours, from 10am to 4pm. If found in contravention, they will be confiscated.

   Smoking and consumption of pan is prohibited inside the campus. Consumption of any intoxicants or drugs is totally prohibited, and will lead to immediate dismissal from the College.
6. Students should display their Identity Card prominently, while they are within the campus and while travelling in the College bus. The security staff will not permit any student inside the campus without their identity card.
7. All Students should dress in a presentable manner. T-shirts and sleeveless dresses are not permitted.
8. The management reserves the right to modify the class timings and schedule.
9. Students should not hold any meetings or collect any money from other students without proper permission from the Principal / HOD.
10. Students should not involve themselves in any political or religious activity inside the Campus.

    Ragging in any form is totally banned and is punishable as per the Government Order. If any student is found to be indulging in any sort of ragging or harassment to juniors or other fellow students, inside or outside the campus, bus, he/she will be dismissed immediately from the College, and criminal action will be taken against them as per the rules.
11. The following acts of misconduct will result in immediate dismissal from the College:

    (i) Assault of any person
    (ii) Willful damage to College property
    (iii) Intimidation, coercion and/or interference with other students
    (iv) Misbehavior with other students and/or Staff

12. The decision of the Principal decision is final and binding on all the students, in all matters pertaining to the College.
13. All other rules, regulations and guidelines prescribed by University / Government agencies will be implemented.
14. Attendance
    1. Absence from class without proper reason and without prior permission from the HOD is tantamount to breach of discipline and such absence will attract punishment and should be avoided. One period of absence in the forenoon or afternoon session will be treated as half a day of absence.
    2. Absence for more than 10 days without prior permission from the HOD may lead to removal from the nominal roll.
    3. Students appearing for the University examinations must have at least 80% of attendance as per the rules of the University. A minimum of 70% attendance is required to appear for examinations.

RULES OF CONDUCT AND DISCIPLINE

1. All students should conduct themselves with DECENCY, DECORUM and DIGNITY at all times and in all places.
2. Students must co-operate in protecting and taking care of all college property and equipments. They are expected to keep the building, playfield and their rooms neat and tidy.
3. Difficulties experienced by the students and suggestions for improving their welfare may be brought to the notice of the principal or any other staff member for consideration and necessary action.
4. Students who want to participate in matches and competitions not conducted by the college can do so only after getting the permission of the principal.
5. Students are forbidden from taking any part in political activities of any kind particularly those directed against the authority of the government.
6. Students who are found damaging college property will be expelled from the college. If any damage to the college property is caused by the student who is not identified minimum collective fine of Rs.100/- per student will be levied at the end of the year.

RULES REGARDING ATTENDANCE & LEAVE OF ABSENCE

1. A Candidates other then private one shall be required to put in seventy five percent to qualify for admission to any prescribed examination of the university.
2. If a student is absent for one or more hours during a session (Forenoon or afternoon) he/she will lose the attendance for half-a-day.
3. The Principal of the college shall have a power to condone shortage of attendance of students to be admitted for university examinations upto a maximum of a 10 percent, ie., nine days each semester on valid reasons as ill health etc., on payment of the prescribed condonation fee of Rs.500/-.

4. Statement of attendance of the students shall be displayed in the college notice board every month.
5. In case the shortage of attendance of a student exceeds the limit prescribed for purpose of condonation of attendance, he/she will not be presented to the University examinations.
6. A student will be given only one opportunity to carry forward the deficiency in attendance of one semester to the next semester during the degree course, failing which he/she will have to re-do the course.

DISCIPLINE REGULATIONS

The following rules shall be on force in the college as per the Tamilnadu Educational rules.

1. No Student who has been convicted of any offence in a criminal court will be allowed to continue his studies in the college.
2. Students should abstain from active participation in party or communal politics.
3. Students who indulge in political propaganda or who organize fellow students in to political factions in the premises of the college or who otherwise engage themselves in party politics are liable to be expelled from the college.
4. Principal or other constituted college authorities may frame and issue from time to time disciplinary rules of a permanent or temporary nature relating to the conduct, inside and outside the college premises, of students.
5. Principal and other constituted college authorities shall have full powers to inflict the following punishments in the interest of the students or of the institution concerned fine, denial of attendance, denial of terms certificates, suspensions and expulsion.
6. Students should not indulge in any activity leading to the disruption of peace and discipline and dislocation of normal work in the college premises. Those who are guilty of violation of this rule will be severely dealt with.
7. Ragging is strictly forbidden. Anyone who is guilty of ragging will be severely punished.
8. Students who are guilty of (a) rude language towards the staff of the college or (b) assault or attempt to assault the staff or fellow students of the college, will be expelled from the institution.

RAGGING – WARNING

- Ragging of any sort is banned.
- Ragging is illegal and punishable.
- Ragging in any form at any place in the college campus or outside is strictly prohibited.
- Ragging is punishable with imprisonment upto 7 years with a fine of Rs.25,000. Strict disciplinary action will be taken against any student found indulging in an act of ragging.

- Any complaint about ragging has to be reported to the respective HODs or authorities.
- Ragging of any sort will be informed to the Police authorities.

IDENTITY CARD

Every student will be provided with an identity card with his photo duly attested by the principal. Students are required to keep their identity card with them always.