DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,
Chhatrapati Sambhajinagar.

CIRCULAR /SU/CM/NEP-UG/50/2023

It is hereby inform to all concerned that, on the recommendation of the Dean, Faculty of Commerce & Management; **_the Academic Council at its meeting held on 30.11.2023 has accepted the following subject wise Curriculum of National Education Policy-2020_** Under the Faculty of Commerce & Management.

Sr.No	UG Subject wise Curriculum	Semester
01	B.Com	Ist & IInd
02	B.Com. E-Commerce	Ist & IInd
03	BBA	Ist & IInd
04	BCA	Ist & IInd

This is effective from the Academic Year 2024--25 and Onwards as per appended herewith.

All concerned are requested to note the contents of this circular and bring notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO. SU/UGSYLL/2024-25/18935-44

Date:- 13-12-2023.

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Deputy Registrar,
Academic Section
Syllabus unit.

Copy forwarded with compliments to :-
1] **The Principals, all concerned affiliated Colleges,**
   Dr. Babasaheb Ambedkar Marathwada University.
2] The Director, University Network & Information Centre, UNIC, with **a** **request to upload this Circular on University Website.**
   Copy to :-
1] The Director, Board of Examination & Evaluation,
2] **The Section Officer, [B.Com. Unit] Examination Branch,**
3] The Section officer, [Eligibility Unit],
4] **The Programmer [Computer Unit-1] Examinations,**
5] **The Programmer [Computer Unit-2] Examinations,**
6] The In-charge, [E-Suvidha Kendra], Rajarshi Shahu Maharaj Pariksha Bhavan, Dr. Babasaheb Ambekar Marathwada University.
7] The Public Relation Officer,
8] The Record Keeper.

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

Curriculum of

B.COM.E-COMMERCE HONORS

BACHELOR OF E-COMMERCE

I TO IIND SEMESTER

APPLICABLE FOR AFFILIATED COLLEGES

under NEP 2020

[Effective from the Academic Year 2024-25 & onwards]

Dr. Babasaheb Ambedkar Marathwada University

Aurangabad, M.S., India

3 Years B. Com.(E-Commerce),

4 Years B. Com.(E-Commerce)(Hons)&

4 Years B.Com.(E-Commerce)(Hons. with Research)

Programme

Course Structure

Faculty of Commerce and Management

Course: - B.Com(E-Commerce)

Subject: -Commerce

(Witheffectfrom Academic Year 2024 – 25)

Illustrative Credit distribution structure for Three/ Four year Honours/ Honours with Research Degree Programme with Multiple Entry and Exit options – (Discipline Specific in Commerce)
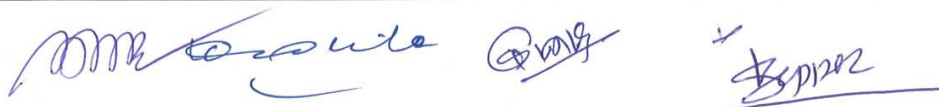
B. Com (E-Commerce) First Year

Semester: First Semester & Second Semester

Subject: Commerce

Sr. No.	Specification/ type of Papers	First Semester		Total Credits/ Semester	Second Semester		Total Credits/ Semester	Total Credits/ Year
		Paper	Credits		Paper	Credits		
1	Major Mandatory	DSC-1	3	6	DSC-3	3	6	12
		DSC-2	3		DSC-4	3		
2	Major Elective	--	--	--	--	--	--	
3	Minor	--	--	--	M-1	2	2	2
4	Generic/ Open Elective	GE/OE-1	2	4	GE/OE-3	2	4	8
		GE/OE-2	2		GE/OE-4	2		
5	Vocational Skill Course	VSC-1	2	4	VSC-2	2	4	8
6	Skill Enhancement Course	SEC-1	2		SEC-2	2		
7	Ability Enhancement Course	AEC-1	2	6	AEC-2	2	4	10
8	Value Education Course	VEC-1	2		VEC-2	2		
9	Indian Knowledge System	IKS	2		--	--		
10	On Job Training	--	--	2	--	--	2	4
11	Field Project	--	--		--	--		
12	Community Engagement Project	--	--		--	--		
13	Co-curricular Course	CC-1	2		CC-2	2		
14	Research Project	--	--		--	--		
	Cum. Cr./ Semester	--	22	22	--	22	22	44
	Cum. Cr./Year	--	--	--	--	--	--	44

Exit option: Award of UG Certificate in Major with **44 credits** and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor
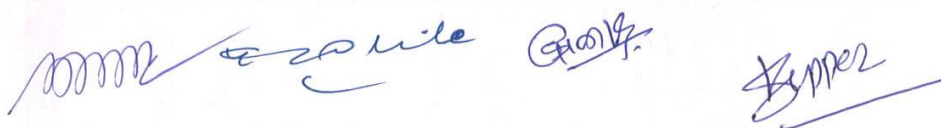
B. Com. (E-Commerce) First Year Second Semester – Based on NEP 2020

Major Mandatory	Minor	Generic/Open Elective	Generic/Open Elective	Vocational Skill Course	Skill Enhancement Course	Ability Enhancement Course	Value Education Course	Co-Curricular Course
DSC	M-1	GE/OE-3	GE/OE-4	VSE-2	SEC-2	AEC-2	VEC-2	CC-2
DSC-3 1. Financial Accounting-II (3 Credits) DSC-4 2. Business Mathematics& Statistics – II (3 Credits)	Basic Finance (2 Credits)	(Choose any one from Pool/Basket) I. Business Organization & Management - I II. Operating Systems-I III. Business Environment-I (2 Credits)	(Choose any one from Pool/Basket) I. Business Organization& Management – II II. Operating Systems-II III. Business Environment-II (2 Credits)	DBMS (2 Credits)	Introduction to C (2 Credits) Introduction to JAVA (2 Credits) Data Structures (2 Credits)	English Communication (2 Credits)	Environmental Studies (2 Credits)	Sports & Fitness (2 Credits)

Total Credits for Second Semester: 22 Credits
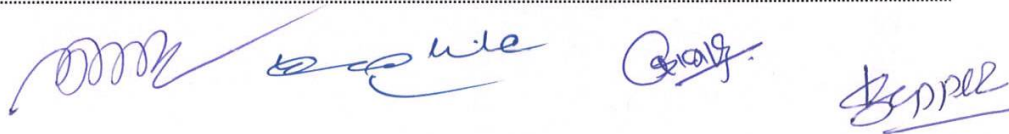
DSC-3 : Financial Accounting-II

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
3	45 Hours	3

Objectives: The purpose of this course is to develop the skill among the students about Preparing an organization's accounts.

Unit No.	Contents	No. of Hours
I	**Accounting Principles and Accounting Standards (Theory)** GAAP ,AS-1, AS-2, AS-7,AS-9, AS-10, AS-17	5
II	**Final Accounts of Non-trading Concerns (Numerical)** Meaning of Non-trading concerns, features, Capital and Revenue Receipts and Expenditures, difference between Receipts and Payments Account, Income and Expenditure Account, Preparation of Final Accounts	10
III	**Branch Accounts (Numerical)** Meaning of Branch and Branch Account, Objectives of Branch Account, Classification of Branches, Accounting for Dependent Branches-Methods of Accounting for Branch Accounting: **Debtors System**-Meaning, Cost Price Method and Invoice Price Method, Accounting Entries in the books of Head Office and Ledger Accounts. **Stock and Debtors System**-Meaning, Accounting entries in the Books of Head Office and Ledger Accounts	10
IV	**Departmental Accounts (Numerical)** Meaning, Objectives, Advantages of Department Accounts, Accounting Procedure- Unitary method and Tabular or Columnar Method, Allocation of Expenses and Incomes, Inter-departmental Transfers, Preparation of Departmental Trading, Profit and Loss Account and Balance Sheet.	10
V	**Consignment Accounting (Numerical)** Meaning of Consignment Account, Distinction between Consignment and Sale, Valuation of Inventories, Goods Invoiced above Cost, Normal Loss, Abnormal Loss, Accounting Entries in the books of the Consignor and Consignee, Ledger accounts- Consignment Account, Goods sent on Consignment Account, Inventories on Consignment Account, Inventory Reserve Account Consignee's Account, and Consignor's Account.	10

Total Weightage: 100 Marks

Semester End Examination (S.E.E.) :80 Marks

Continuous Internal Evaluation (C.I.E.) :20 Marks

Suggested Readings:
1. Advanced Accounts-   MC Shukla, T.S. Grewal & S. C. Gupta
2. Financial Accounting-   V.K. Goyal & Ruchi Goyal
3. A New Approach to Accountancy-   H.R. Kotalwar
4. Financial Accounting-   A. Mukherjee &M. Hanif
5. An Introduction to Accountancy-   Dr. S.N. Maheshwari& S.K. Maheshwari
6. Financial Accounting A Simplified Approach-Naseem Ahmed
7. Students Guide to Accounting Standards-   D.S. Rawat&DeeptiMaheshwari
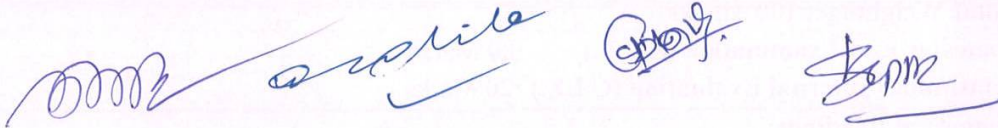
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4

DSC-4: Business Mathematics & Statistics -II

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
3	45 Hours	3

Objectives:
1. To provide knowledge and information about Statistical Applications.
2. To create skill and ability among students for using the Statistical Methods, Tools, Techniques by using I.T. devices.

Unit No.	Contents	No. of Hours
I	**Correlation** Meaning of correlation, Definition of correlation, Types, Methods of studying correlation and probable errors, Correlation co-efficient.	10
II	**Regression** Meaning of regression, Types of regression, linear regression, Methods of estimating regression lines.	10
III	**Index Numbers** Meaning of Index number, Types of Index number, Uses of Index number, Methods and constructing of price indices.	10
IV	**Probability and Expected Value.** Meaning and Nature of Probability, Definitions of probability, Applications of Probability-Addition & Multiplication, Law of Probability, Conditional probability.	10
V	**Statistical Application with Computer (Only for knowledge & Practical application)** Use of Excel, Knowledge of SPSS and other Statistical and Mathematical Tools and Software.	05

Total Weightage: 100 Marks

Semester End Examination (S.E.E.) :80 Marks

Continuous Internal Evaluation (C.I.E.) :20 Marks

Suggested Readings:
1. Elementary Statistical Methods: Dr. S.P. Gupta, Sultan Chand & Sons.
2. Fundamentals of Statistics: D.N. Elhance, et.al, Kitab Mahal.
3. Statistics (Theory, Methods & Application): Dr. D.C. Sancheti, V.K. Kapoor, Sultan Chand & Sons.
4. Fundamental of statistics – Dr. D.N. Elhance
5. Statistical Methods Dr. Sancheti and Kapoor
6. Statistical methods – Dr. SP Gupta
7. Problems in Statistics – Dr. Y.R. Mahajan

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M-1 : Basic Finance

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I	**Introduction:** **Finance :** Meaning, Definition, Evolution, Functions and Objectives, Relationship Between Accounting, Finance and Economics , **Time Value of Money:** Concept, Future Value of a Single amount, Future value of annuity, Present Value of a single amount, Present Value of annuity, Compounded Annual Growth Rate (CAGR)	10
II	**Financing Decisions:** Cost of Capital , Capital Structure, Working Capital Management, Capital Budgeting, Financial Market Analysis	10
III	**Financial Services:** Types of Financial Services, Micro Finance, Risk and Returns, Investment Management, Foreign Exchange Market	10

Total Weightage   **: 50 Marks**
Semester End Examination (S.E.E.)   :40 Marks
Continuous Internal Evaluation (C.I.E.) :10 Marks

Suggested Readings:
1. Imran, Ahsan Jamil, Azharuddin: basic Finance, Shabdadan Publication.

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6

GE/OE-3 (Elective): Business Organization & Management-I

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives: The course aims to provide basic knowledge to the students about the organization and management of a business enterprise.

Unit No.	Contents	No. of Hours
I	**Foundation of Indian Business:** Manufacturing and Service Sectors; Small and Medium Enterprises; Problems and Government policy. India's experience of liberalization and globalization. Technological innovations and skill development. 'Make in India' Movement. Social responsibility and ethics Emerging opportunities in business; Franchising, Outsourcing, and E-commerce.	10
II	**Business Enterprises:** Forms of Business Organization: Sole Proprietorship, Joint Hindu Family Firm, Partnership firm, Joint Stock Company, Cooperative society; Limited Liability Partnership; Choice of Form of Organization. Government - Business Interface; Rationale and Forms of Public Enterprises. International Business. Multinational Corporations.	10
III	**Management and Organization:** The Process of Management: Planning; Decision-making; Strategy Formulation. Organizing: Basic Considerations; Departmentation – Functional, Project, Matrix and Network; Delegation and Decentralization of Authority; Groups and Teams.	10

Total Weightage : **50 Marks**

Semester End Examination (S.E.E.) :40 Marks

Continuous Internal Evaluation (C.I.E.) :10 Marks

Suggested Readings:

1. Kaul, V.K., Business Organization and Management, Pearson Education, New Delhi
2. Chhabra, T.N., Business Organization and Management, Sun India Publications, New Delhi,
3. Gupta CB, Modern Business Organization, Mayur Paperbacks, New Delhi
4. Koontz and Weihrich, Essentials of Management, McGraw Hill Education.
5. Basu, C. R., Business Organization and Management, McGraw Hill Education.
6. Jim, Barry, John Chandler, Heather Clark; Organization and Management, Cengage Learning.

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GE/OE-3 (Elective): Operating Systems-I

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I	**Evolution of Operating Systems:** Concept of Operating system, Generations, types, Structure, The Process Concept, System's programmers view of processes, The Operating system services for process management, Scheduling algorithms, Performance evaluation	10
II	**Memory Management** Memory Management without swapping of paging, swapping, virtual memory page, replacement algorithms, modeling paging algorithms, design issued for paging systems, segmentation.	10
III	**InterprocessCommunicationandSynchronization** Needforinterprocesssynchronization,naturalexclusion.,semaphores,hardwa resportfor mutualexclusion,queuingimplementationofsemaphores,classicalproblemsi nconcern, programmingcriticalregionandconditionalcriticalregion,monitors,messagesde adlocks.	10

Total Weightage   **: 50 Marks**
Semester End Examination (S.E.E.)   :40 Marks
Continuous Internal Evaluation (C.I.E.) :10 Marks

Suggested Readings:
1. Deitel**H.M.,**"AnIntroductiontoOperatingsystem". AddisonWesleyPublishingCompany1984.
2. Milenkovic,M.,"OperatingSystems-concepts andDesign",McGrawHill InternationalEdition Computer Science Series 1992.

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GE/OE-3 (Elective): Business Environment-I

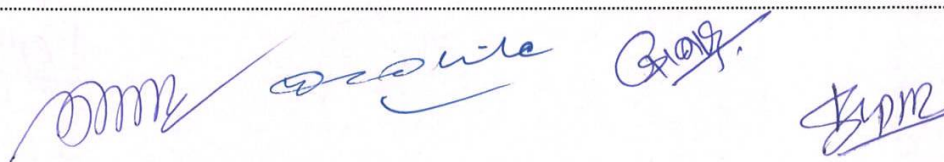| No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I	**Business Environment:** Concept of Business Environment, Nature, Scope, Objectives, Internal & External environment of Business, Importance of Business Environment	10
II	**Indian Business Environment** Political environment- Economic environment- Social Environment- Technological environment- Ecological & Legal environment-	10
III	**Problems of Growth:** Problems of Population, Poverty, Unemployment, Regional Imbalances, Agricultural backwardness, Black Money, Inflation.	10

Total Weightage   : **50 Marks**
Semester End Examination (S.E.E.)   :40 Marks
Continuous Internal Evaluation (C.I.E.) :10 Marks

Suggested Readings:
1. VyavasaikParyavaran – Dr. Dinkar Girdhari, Uday Publication, Aurangabad.
2. VyavasaikParyavaran – Dr. Jitendra Ahirrao, Dr. Kalyan Laghane& Dr. Ramdas Vanare, Kailash Publication, Aurangabad.
3. Legal Environment of Business – AswathappaK. , Himalaya Publication, New Delhi.
4. Economic Environment of Business – Ghosh Biswanath, Vikas Publication, New Delhi.
5. Economic Environment of Business – Adhikari M., Sultan Chand and Co., New Delhi

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GE/OE-4 (Elective): Business Organization & Management-II

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I	**Leadership, Motivation and Control:** Leadership: Concept and Styles; Trait and Situational Theory of Leadership. Motivation: Concept and Importance; Maslow Need Hierarchy Theory; Herzberg Two Factors Theory. Control: Concept and Process.	10
II	**Functional Areas of Management:** Marketing Management: Marketing Concept; Marketing Mix; Product Life Cycle; Pricing Policies and Practices Financial Management: Concept and Objectives; Sources of Funds – Equity Shares, Debentures, Venture Capital and Lease Finance. Securities Market, Role of SEBI .Human Resource Management: Concept and Functions; Basic Dynamics of Employer – Employee Relations.	10
III	**Integrating Managerial Issues:** Managing in Global Environment, Managing Diversity, Managing Social Responsibility and Ethics, Managing Change and Innovation	10

Total Weightage: 50 Marks

Semester End Examination (S.E.E.) :40 Marks

Continuous Internal Evaluation (C.I.E.) :10 Marks

Suggested Readings:
1. Kaul, V.K., Business Organization and Management, Pearson Education, New Delhi
2. Chhabra, T.N., Business Organization and Management, Sun India Publications, New Delhi,
3. Gupta CB, Modern Business Organization, Mayur Paperbacks, New Delhi
4. Koontz and Weihrich, Essentials of Management, McGraw Hill Education.
5. Basu, C. R., Business Organization and Management, McGraw Hill Education.
6. Jim, Barry, John Chandler, Heather Clark; Organization and Management, Cengage Learning.
7. B.P. Singh and A.K.Singh, Essentials of Management, Excel Books
8. Buskirk, R.H., et al; Concepts of Business: An Introduction to Business System, Dryden Press, New York.
9. Griffin, Management Principles and Application, Cengage Learning
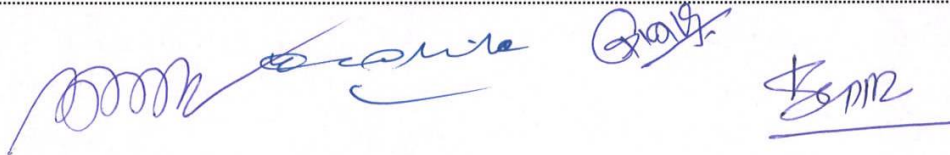
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No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:	To enable students compare several different approaches to storage management, file management and process management Understand various problems related to concurrent operations and their solutions.

Unit No.	Contents	No. of Hours
I	**Storage management:** Mass-StorageStructure, Disk Structure, Disk Attachment, Disk Scheduling, RAID Structure.	10
II	**File Systems** Directories,filesystems implementation,securityprotection mechanism.Principles ofI/O Hardware,I/Odevices,devicescontrollersdirectmemoryaccess.PrinciplesofI /O Software: Goals, interrupthandlers, device drivers, device independent I/O software, User space I/O, software.	10
III	**System Protection:** Goals,Principles,DomainofProtection,AccessMatrix,AccessControl.	10

Total Weightage : 50 Marks

Semester End Examination (S.E.E.) :40 Marks

Continuous Internal Evaluation (C.I.E.) :10 Marks

Suggested Readings:
3. Deitel**H.M.,**"AnIntroductiontoOperatingsystem". AddisonWesleyPublishingCompany1984.
4. Milenkovic,M.,"OperatingSystems-concepts andDesign",McGrawHill InternationalEdition Computer Science Series 1992.

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GE/OE-4 (Elective): Business Environment-II

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I	**Government Policies:** Industrial Policy 1948, 1956, 1977, 1980, 1991, 2019, 2022 Monetary Policy – Meaning and Definition, Objectives, Instruments and Limitations of Monetary Policy, Export and Import Policy, Technological policies	10
II	**Economic Trends :** National Income, Saving and Investment, Price Trends in India, Income, Money Market, Foreign Trade and Balance of Payments.	10
III	**International Business Environment :** Foreign Capital – Types, Needs, Importance, FDI , Foreign Capital in India, IMF – International Monetary(IMF), World Trade Organization(WTO), World Bank.	10

Total Weightage : 50 Marks

Semester End Examination (S.E.E.) :40 Marks

Continuous Internal Evaluation (C.I.E.) :10 Marks

Suggested Readings:

1. VyavasaikParyavaran – Dr. Dinkar Girdhari, Uday Publication, Aurangabad.
2. VyavasaikParyavaran – Dr. Jitendra Ahirrao, Dr. Kalyan Laghane& Dr. Ramdas Vanare, Kailash Publication, Aurangabad.
3. Legal Environment of Business – AswathappaK. , Himalaya Publication, New Delhi.
4. Economic Environment of Business – Ghosh Biswanath, Vikas Publication, New Delhi.
5. Economic Environment of Business – Adhikari M., Sultan Chand and Co., New Delhi
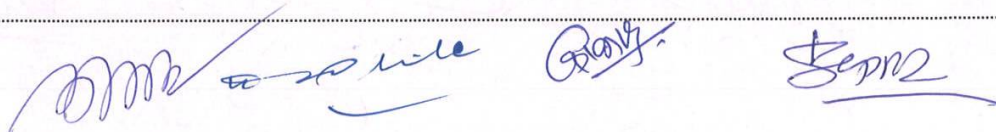
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VSE-2: DBMS

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I	Introduction to Database Management System, Field, File Data Base, Concept, Features, Components, Data Models, language, Normalization	05
II	Study of FOXPRO Commands. CREATE, APPEND, EDIT, BROWSE, RECALL, COPY, PACK, FIND, LOCATE, REPLACE, DELETE, LIST, SORT. INDEX. Report & Label Generation.	10
III	Programming in FOXPRO Creating program files, control, looping & structures, SKIP, INPUT, ACCEPT, SET, DO WHILE, END DO, IF-END IF, FOR, END FOR, DO CASE-END CASE, TEXT, END TEXT.	10

Practical:

Using FOXPRO handle the Databases of College Library, Class, Hostel etc.

Running all commands for database operations.

Writing of programmes using Modi Comm or Editor in FOXPRO.

Important Note:

➢ DBMS is purely a practical subject where students will learn Unit II & III in Computer Lab with Hands-on Training.

➢ University Examination for DBMS is practical examination where external examiner will evaluate the students in college Computer Lab.

➢ The breakup for 50 Marks Practical Exam is as follows :

1. Project File   : 20 Marks
2. Viva-voce   : 20 Marks
3. Hands-On Test : 10 Marks

Suggested Readings:

11) Taxali   FoxPro 2.5

2) Ahlo   H.M. FoxPro 2

3) Siegal   Mastering FoxPro 2.5

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SEC-2 :(A) Introduction to C

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I	Programming and C fundamentals-character set- Tokens, identifiers and keywords - data type-constant-variable-expressions-	04
II	Statements-arithmetic operators-relational and logical operators-assignment operators-comparison operators-bitwise operators-conditional operators-library functions.	04
III	Input-Output statement-control statement- while, do-while, for...nested-loop- break continue-switch, go to statement-string functions, arrays-single dimension - multi dimension-accessing arrays-pointers-pointers and arrays.	06
IV	Functions - definition-accessing a function-passing argument to a function- argument data type-function prototype-program structure: storage classes-automatic external - static variable-multi file programs-library functions-recursion.	08
V	Structure and union: definition of structure-processing a structure - user defined data type (type definition) - structure and pointers - passing structure to a function -self-referential structure-union-files and file handling in brief	08

Important Note:

➢ Introduction to C is purely a practical subject where students will learn Unit I-V in Computer Lab with Hands-on Training.

➢ University Examination for Introduction to C is practical examination where external examiner will evaluate the students in college Computer Lab.

➢ The breakup for 50 Marks Practical Exam is as follows :
   1. Project File   : 20 Marks
   2. Viva-voce   : 20 Marks
   3. Hands-On Test : 10 Marks

Suggested Readings:

1. Introduction to Information Technology – ITL Education Solutions Limited, Pearson Education
2. V.D. Dudheja : Information Technology, E-Commerce and Business- Commonwealth Publishers, New Delhi.
3. Anita Goel : Computer Fundamentals, Pearson Publication.
4. Sanjay Saxena : Information Technology, Vikas Publication
5. Leena Sen, Communication Skills, PHI Learning.
6. Locker and Kaczmarek, Business Communication : Building Critical Skills, TMH

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14

SEC-2 : (B) Introduction to JAVA

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives: Toorientthestudentswith Javalanguage.

Unit No.	Contents	No. of Hours
I	**Java-** History,Features, Differencebetween Java, C & C++, Java Support System &Environment, Java variants	06
II	**Java Program:** Overviewof Java Program,Java Program Structure, Java Tokens, Java Statements, Implementing Java Program, Java VirtualMachine	06
III	**Elements** CommandLine,Arguments,Constants,DataTypes,Variables,Declaration,Operatorsand Expressions,	08
IV	BranchingandLoopinginJava,Classes,ObjectsandMethods,Arrays, IntroductiontoJavaApplets,Lifecycle	10

Practicals:

Writing of Java Programmes based on Java language.
Developing Java Applets and Embedding in HTML Tags.

Important Note:
➤ Introduction to JAVA is purely a practical subject where students will learn Unit II,III IV in Computer Lab with Hands-on Training.
➤ University Examination for Introduction to JAVA is practical examination where external examiner will evaluate the students in college Computer Lab.
➤ The breakup for 50 Marks Practical Exam is as follows :
   1. Project File   : 20 Marks
   2. Viva-voce   : 20 Marks
   3. Hands-On Test : 10 Marks

Suggested Readings:

1. E-Balguruswamy,ProgrammingwithJAVA
2. Rebelsky,ExperimentsinJava
3. Arnold,TheJavaProgrammingLanguage

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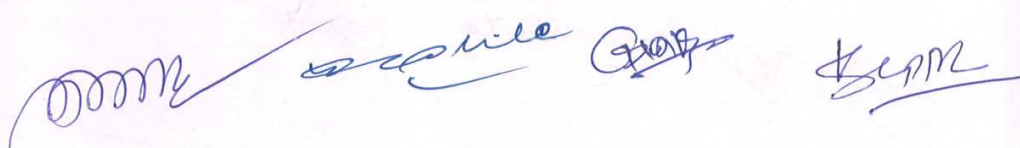| No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives: To enable students tohandleoperationslikesearching,insertion,deletion, traversing mechanism etc. on various datastructures.
To help studentsapplyconceptslearnedinvariousdomainslikeDBMS, compiler construction etc.
To enable Students touse linearand non-lineardatastructureslikestacks,queues, linked list.

Unit No.	Contents	No. of Hours
I	IntroductiontoDataStructure Data object & structure,Types and classification, Linear and Non LinearStructures.	06
II	Arrays, Stacks& Queues: Arrays- LinearLinkedList,OperationsofTraversing,insertionand deletionofnodes Stacks-Operations,arrayandlinkedrepresentationsofstacks,stack applications,StackTraversing-PUSHandPOPoperations. Queue- Structures-Traversal- InsertionandDeletionoperations inaQUEUE	16
III	Non LinearStructures - Trees and Graph -Binary Tree Traversing,BinarySearchTress- AVLTrees-PathCycle adjacency, Graph representation, Graph searching Sorting andSearching operations in different structures.	08

Practicals:
Algorithmimplementationto be donein anyprogramming language.
Important Note:
  ➢ Data Structures is purely a practical subject where students will learn Unit II & III in Computer Lab with Hands-on Training.
  ➢ University Examination for Introduction to Data structures is practical examination where external examiner will evaluate the students in college Computer Lab.
  ➢ The breakup for 50 Marks Practical Exam is as follows :
      1. Project File   : 20 Marks
      2. Viva-voce   : 20 Marks
      3. Hands-On Test : 10 Marks

Suggested Readings:

1. A Practical Introduction to Data Structures and Algorithm Analysis by Clifford A. Shaffer
2. Data Structures and Algorithms. Addison Wesley
3. Introduction to Algorithms. McGraw-Hill, Dinesh Mehta and Sartaj Sahni
4. Handbook of Data Structures and Applications, Chapman and Hall/CRC Press, 2007.
5. Data Structure, BhagatSingh&NAP

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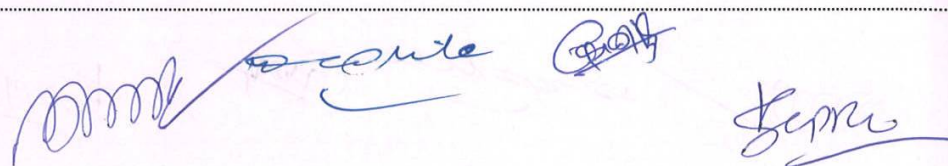
AEC-2: English Communication

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I		10
II		10
III		10

Total Weightage : 50 Marks

Semester End Examination (S.E.E.) : 40 Marks

Continuous Internal Evaluation (C.I.E.) : 10 Marks
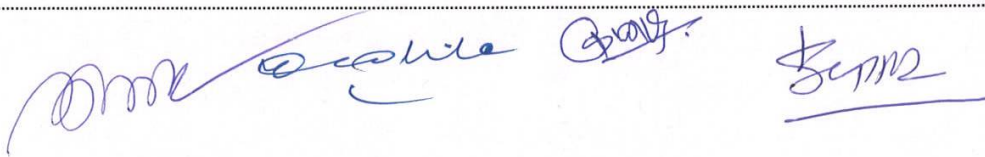
Suggested Readings:

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VEC-2 :Environmental Studies

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives:

Unit No.	Contents	No. of Hours
I		10
II		10
III		10

Total Weightage : 50 Marks
Semester End Examination (S.E.E.) :40 Marks
Continuous Internal Evaluation (C.I.E.) :10 Marks
Suggested Readings:

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CC-2: Sports & Fitness

No. of Credits	No. of Teaching Hours	No. of Lectures per Week
2	30 Hours	2

Objectives: To orient students about various forms and types of exercises.
To help students plan their exercise and diet schedule.
To equip students with various components of physical training.

Unit No.	Contents	No. of Hours
I	**Foundations of Exercise:** Meaning, forms and types of exercise, Mode of exercise; Concept of Training and fitness, Health related fitness, Components of fitness, specificity of training effect, Retraining and Maintenance of training; The exercise prescription, quantity and quality of the exercise program, Warm up and limbering down; Concept of body composition, Somato-type and physical activity, Meaning and Definition of Sports Training; Aim and Objective of Sports Training; Characteristics and Principles of Sports Training;	12
II	**Exercise performance:** Energy expenditure during physical activity, carbohydrate metabolism and performance, fat metabolism and performance, effect of exercise on protein requirements, physique and sports performance. Exercise programmes: Resistance exercise training, aerobic exercise, types of exercise, effective for weight contrast, - dieting or exercise, weight reduction programme for young athletes.	08
III	**Training Components:** Strength – Types, Mean and Methods of Strength Development; Speed – Types, Mean and Methods of Speed Development; Endurance – Types, Mean and Methods of Endurance Development; Coordination – Types, Mean and Methods of coordination Development; Flexibility – Types, Mean and Methods of Flexibility Development	10

Suggested Readings:
1. Difiore, J.(1998). *Complete guide to postnatal fitness.* London: A & C Black,.
2. Giam, C.K & The, K.C. (1994). *Sport medicine exercise and fitness.* Singapore: P.G. Medical Book.
3. Mcglynn, G., (1993). *Dynamics of fitness.* Madison: W.C.B Brown.
4. Sharkey, B. J.(1990). *Physiology of fitness,* Human Kinetics Book.
5. Bessesen, D. H. (2008). Update on obesity. *J Clin Endocrinal Metab. 93*(6), 2027-2034.
6. Butryn, M.L., Phelan, S., &Hill, J. O.(2007). Consistent self-monitoring of weight: a key component of successful weight loss maintenance. *Obesity (Silver Spring). 15*(12), 3091-3096.

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