University of Mumbai

No. UG/21 of 2019-20

CIRCULAR:-

     Attention of the Principals of the Affiliated Colleges and Directors of the recognized Institutions in Commerce & Management Faculty is invited to this office Circular No. UG/277 of 2006, dated 25th July, 2006, relating to the Certificate, Diploma and Advanced Diploma in Computer Applications as an Add-on course.

     They are hereby informed that the recommendations made by the I/c Dean, Faculty of Commerce & Management, have been accepted by the Academic Council at its meeting held on 26th December, 2018 **vide** item No. 4.14 and that in accordance therewith, the revised syllabus for Add-on-Vocational Certificate, Diploma and Advanced Diploma Course in Computer Application (Sem. I to VI) (intake capacity 25 students), has been brought into force with effect from the academic year 2018-19, accordingly. (The same is available on the University's website www.mu.ac.in).

MUMBAI – 400 032   (Dr. Ajay Deshmukh)
    22nd May, 2019   REGISTRAR
To

    The Principals of the affiliated Colleges and Directors of the recognized Institutions in Commerce & Management Faculty. (Circular No. UG/334 of 2017-18 dated 9th January, 2018.)

A.C./4.14/26/12/2018

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No. UG/21 -A of 2019-20   MUMBAI-400 032   22nd May, 2019

Copy forwarded with Compliments for information to:-
1) The I/c Dean, Faculty of Commerce & Management,
2) The Director, Board of Examinations and Evaluation,
3) The Professor-com-Director, Institute of Distance and Open Learning (IDOL),
4) The Director, Board of Students Development,
5) The Co-ordinator, University Computerization Centre,

                                         (Dr. Ajay Deshmukh)
                                           REGISTRAR

UNIVERSITY OF MUMBAI

Syllabus for Add-on-Vocational

Certificate, Diploma and Advanced Diploma Course

in

Computer Application

Semester I to VI

Under the Faculty of Commerce & Management

(with effect from the Academic Year 2018-19)

ADD-ON-VOC COMPUTER APPLICATION
CERTIFICATE, DIPLOMA AND ADVANCED DIPLOMA COURSE
SYNOPSIS OF SYLLABUS
(w.e.f. 2018-2019)

LEARNING OBJECTIVES :

1. To enable students in developing effective designs and solutions for specific computer based problems.
2. To get hands on experience in software development tools, software system and modern computing platforms.

FIRST YEAR

PAPER - I
O/S, FUNDAMENTALS OF NETWORKING (50 MARKS) &
WEB DESIGNING (50 MARKS)

Total : 30 Lects

	O/S, FUNDAMENTALS OF NETWORKING UNIT I	
1.	Operating System OS, services, overview of OS, components, File system, file system storage, CPU scheduling, multitasking, programming, timesharing, buffering, buffering spooling, memory management, GUI,	15 Lects
2.	Networking Introduction Study of transmission media – wire & wireless media, Network topologies - LAN, MAN & WAN, Network topologies –access methods, Topologies – BUS, RING, STAR ,MESH and TOKEN RING, Protocols – Internet protocols, Introduction to connectivity devices – Modem, Hubs, Repeaters, Routers	
	UNIT II	
3.	Introduction to network security Need, threats, authentication, access control, server logs, virus protection, firewalls, intrusion detection systems, VPN, backup and off-site storage, Physical security, physical threats, implementing physical security.	15 Lects
4.	Data security&Data Privacy SSL, cryptography, Encapsulation, IPSec, L2TP Protocol	
	WEB DESIGNING **UNIT III**	
5.	Basics of Internet Introduction, Definition, History, How to create website using HTML & XML	05 Lects + 15 Practs
6.	HTML Introduction, Advantages& disadvantages, Different Tags & Attributes	
7.	Introduction to XML	10 Lects
	Practical : Minimum 5 practical to be covered	
References: 1. Andrew Tonenbourn - Networking 2. William Stollings – Computer Networks		

PAPER – II

C (50 MARKS) &C++(50 MARKS)

Total : 10 Lects + 30 Practs

	C Language	
	UNIT I	
1.	Introduction to Programming language C	
2.	Keywords, Identifiers, Data types, User defined data types, Derived data types, constants, Type compatibility, Declaration of variables	**08 Lects**
	UNIT II	
3.	Operators,	**02 Lects**
4.	Control Structures :if, if… else, nested if…else, switch, do-while, for	**+** **10 Practs**
	UNIT III	
5.	Programs in C	**20 Practs**
	C++ **UNIT I**	
1.	Introduction to C++	
2.	Operators Memory management operators, Manipulators	**05 Lects**
	UNIT II	
3.	Functions in C++, Arrays, pointers, references, strings	
4.	OOPs Principles of OOP's, Classes and objects, Inheritance, Polymorphism, Data Abstraction, Encryption	**05 Lects** **+** **10 Practs**
5.	Constructors and destructors, Operator overloading and type conversion	
	UNIT III	
6.	Programs in C++	**20 Practs**
	Practical : 25 programs in C and 25 Programs in C++	

References :

1. Let us C by Yashawant Kanitkar
2. C – programming by E. Balguruswamy, Tata McGraw Hill
3. C++ complete reference Tata McGraw Hill

SECOND YEAR

PAPER – III

VISUAL BASIC (50 MARKS) & ASP.NET (50 MARKS)

Total : 10 Lects + 20 Practs

	Visual Basic UNIT I	
1.	Introduction to VB	05 Lects
2.	VB Environment Manu bar, Tool bar, Tool box, Properties Settings, Form layout	
	UNIT II	
3.	VB Programming Variables, Constants, Defining Variables, Arrays, Relational operators, Control Flow Statements, Loop Statements, Nesting of loops, use of Built in functions, Event driven programming	05 Lects
	UNIT III	
4.	Simple VB Project	20 Practs
	ASP.NET	
1.	Creating a webpage application, binding data to ASP.net server controls, accessing data from database using ADO.NET, using stored procedures in ASP.NET	10 Lects + 20 Practs
Practical : Minimum 5 practical of VB and 5 practical of ASP.NET to be covered.		

References :
 	
  1. Visual Basic Programming by Prentice Hall India Learning PVT LTD
  2. Visual Basic Programming by Dr. A. Murugan
  3. O'reily – ASP.net 2.0 cookbook		

S.S.A.D. & INTRODUCTION TO FUNDAMENTALS OF RDBMS (50 MARKS)

Total : 20 Lects + 20 Practs

	UNIT I	
1.	Introduction to DBMS Definition, Purpose, Database language, Database management system, Database Users, Overall System Structure, Different types of database systems.	**08 Lects**
2.	E- R Model Basic concepts, Mapping constraints, Keys, E-R diagram, Database Schema, Reduction of schema to tables.	
3.	Relational Model Structure of relational database, Relational Algebra.	
	UNIT II	
4.	SQL – Background, Basic structure, Null values, Nested sub queries, Derived relations, Joined relations, DDL	**08 Lects**
5.	Concurrency control-lock based protocol, timestamp based protocol, validation based protocol, Deadlock handling	
	UNIT III	
6.	Introduction to SQL The SQL language, role of SQL, Features and benefits, SQL standards (ANSI/ISO standards, other SQL standards & SQL access group), SQL and Networking	**04 Lects + 20 Practs**
7.	Basics Statements, names, data types, constants, expressions, built in functions, missing data (NULL values), Insert and delete operations, SET operations, Aggregate functions,	
8.	Simple Queries & Multi Table Queries	
	Practical : Minimum 10 practical to be covered.	

	References :
	
	  1. Database management Systems, Majumdar / AK Bhattacharya, Tata McGraw Hill
	  2. Database Systems and Concepts, Henry F. Korth, Sliberschatz, Sudarshan, McGraw Hill	

TALLY ERP 9 (50 MARKS)

Total : 20 Lects + 20 Practs

	TALLY ERP 9 UNIT I	
1.	Introduction Opening Tally.ERP9 software, creating a company, selecting a company, shut a company, delete a company	**08 Lects**
2.	Groups and Ledgers Creating: single group, sub – groups, multiple groups and displaying and altering groups Create, display and later a single ledger, create multiple ledgers and display or alter it.	
	UNIT II	
3.	Understanding Inventory Stock group, stock categories, godowns, units of measure, stock items	**08 Lects**
4.	Understanding vouchers Types of vouchers, configuring entry, journal entry for receipt and payment	
	UNIT III	
5.	Contra and journal voucher Purchase and Sales Sequence, Cost categories and cost centre's	**04 Lects + 20 Practs**
6.	Understanding BOM (Bill of material) and Price list Tax deducted at source, VAT and service tax	
	Practical : Minimum 5 practical of ASP.NET and 5 practical of Tally to be covered.	
	References : 1. Tally ERP 9	

THIRD YEAR

PAPER – V

JAVA PROGRAMMING(100 MARKS)

Total : 20 Lects + 20 Practs

	JAVA PROGRAMMING UNIT I	
1.	Programming constructs Introduction to JAVA, variables, data types and operators, Control flow statements, Type casting, Arrays	**04 Lects**
2.	OOPs Concepts OOPs, inheritance, polymorphism, abstraction, encryption	
	UNIT II	
3.	Exception Handling Exception hierarchy, methods, handling exceptions	**04 Lects + 10 Practs**
4.	String handling & Multithreading String CLASS, string METHODS, string BUFFER and string BUILDER CLASSES, Multitasking, Thread, Thread CLASS, thread creation, thread scheduler, thread priority, synchronization	
5.	I/O classes and serialization JAVA I/O purposes and features, JAVA I/O class overview table, FileInputStream and FileOutputStream Classes, Reader/Writer, serialization, Filtered Byte streams	
	UNIT III	
6.	Swings and Event Handling, Nested Classes and Socket Programming Swings, layout managers, event handling, event classes, swing event listeners and adapters, normal inner class, method local inner class, anonymous inner class, static nested class, nested interface, socket programming, socket class methods	**04 Lects + 10 Practs**
7.	JAVA new features Enum, Assertion, FOR – EACH loop	
	SOFTWARE TESTING UNIT IV	
1.	Fundamentals of Testing Definition, requirement, Fundamental test process, psychology of testing	**08 Lects**
2.	Testing throughout the software life cycle Software development models, test levels, test types : the targets of testing, Maintenance	
3.	Design Techniques and tool support for testing Identifying test conditions and designing test cases, categories of test design techniques, specification based or black box techniques, structure based or black box techniques, experienced based techniques, choosing a test technique, test organization, test plans, estimates and strategies, types of test tools	
	Practical : Minimum 12 practical to be covered	

Reference :

1. JAVA complete reference Tata McGraw Hill
2. Foundation of Software Testing, ISTQB certification, D Graham, Erik, Cengage Learning

SECTION A : ENTREPRENEURSHIP DEVELOPMENT (50 MARKS)

(This Section is Common for all Third Year Vocational Students) = 50 Marks

Module 1 : Introduction to Entrepreneurship (07 Lects)
- Concept & Definition of an Entrepreneur.
- Characteristics of an Entrepreneur.
- Functions of Entrepreneur.
- Need & Significance of Entrepreneurship Development.
- Types of Entrepreneurs.
- Intrapreneur – Meaning / Concept.
- Difference between Intrapreneur & Entrepreneur.
- Difference between Social Entrepreneur & Business Entrepreneur.
- Problems faced by Women Entrepreneurs.
- Entrepreneurship Development Programmes (EDP) – Concept & Importance.

Module 2 : Setting Up an Entrepreneurial Venture (07 Lects)
- Sources of Business Idea.
- Environmental Scanning.
- SWOC Analysis.
- Project – Concept & Meaning.
- Project Report – Elements & Importance.
- Feasibility Study – Concept – Importance – Areas.
- Steps in Project Selection.
- Business Plan – Concept – Elements – Devising a B – Plan on Business Ideas.

Module 3 : Sources of Finance for an Entrepreneur (07 Lects)
- Fixed Capital & Working Capital.
  - Meaning & Factors.
- Capital Structure – Concept.
- Special Schemes for Women Entrepreneurs.
- Institutional Support to an Entrepreneur.
  - Small Industries Development Bank of India (SIDBI).
  - National Bank of Agriculture & Rural Development (NABARD).
  - National Small Industries Corporation (NSIC).
  - Industrial Development Bank of India (IDBI).
  - Khadi & Village Industries Commission (KVIC).
- Recent Trends of Finance Options for start-ups to venture into entrepreneurship High Network Individuals (HNI's), Venture Funding.
- Self Help Groups.
- Microfinance.

Module 4 : Forms of Organisation & New Opportunities Available to Entrepreneurs (07 Lects)
- Forms of Organisation – Sole Trading Concern – Partnership Firm – Limited Liability Partnership (LLP) – Limited Company – Public Company – Non-Government Organisations (NGO's).
- Prospects and Challenges for Entrepreneur in India.
- Scope of E-Entrepreneurship.
- Role of Entrepreneurship Development Cell (EDC) in Educational Institutions.

Module 5 : Practical Training / Project Work on Live Projects / (02 Lects)
Start-Up Ventures in Any Form / Venturing into any form of Entrepreneurship.

_____
(30 Lects)
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Total Marks		
Theory	:	35
Practical / Project	:	<u>15</u>
		<u>50</u> Marks

<u>OUTLINE OF THE QUESTION PAPER</u> : (Maximum Marks – 100)

Section I (Max marks - 35 marks)
N.B : 1) Q.01 is compulsory
    2) Attempt any two questions from Q.02-Q.05
Q.01 /- Answer the following. (Any 1 out of 2) (07)
Q.02/- Answer the following. (14)
Q.03/- Answer the following. (14)
Q.04/- Answer the following. (14)
Q.05/- Write short notes on. (Any two) (14)

N.B : Q.02- Q.04 can be descriptive questions or short answer questions.

SECTION B

ADOBE FLASH, COREL DRAW & PHOTOSHOP (50 MARKS)

Total : 10 Lects + 30 Practs

	ADOBE FLASH **UNIT I**	
1.	Flash Tools	**02 Lects** **+** **10 Practs**
2.	Drawing and modifying an Image	
3.	Making the moves with Symbols	
4.	Layering and other Neat Tricks	
	COREL DRAW **UNIT III**	
1.	Create logos, business cards, brochures, flyers, posters, website layouts, wallpapers.	**04 Lects** **+** **10Practs**
	PHOTOSHOP **UNIT III**	
1.	Introduction to Photoshop CC and Working with Workspace	**04 Lects** **+** **10Practs**
2.	Layer Use of layer, layer mask, layer styles, shape layer, smart objects in Photoshop, Extraction techniques, Filters Tool : Pen, Text, Brush	
References : 1. Adobe Flash Professional CC Classroom in a Book, by Russell Chun 2. Corel Draw Training Guide by Prof. Satish Jain, M. Geetha	

OJT (100 MARKS)

SR. NO.	TOPIC	MARKS
1.	OJT	50
2.	JAVA PRACTICAL	30
3.	FLASH/ COREL DRAW/ PHOTOSHOP PRACTICAL	15
4.	Oral	05
	TOTAL	**100**

N.B. : Total **THREE JOURNALS** to be made

(OJT + JAVA Practical + FLASH / COREL DRAW / PHOTOSHOP Practical)

COURSE FEES RECOMMENDED :

Course	Year	Fees	Project	Practicals	Total p.a.
First Year	Certificate Course	3000	–	1000	4000
Second Year	Diploma Course	3000	–	1000	4000
Third Year	Advance Diploma Course	3000	1000 (inclusive of all projects)	1000	5000

INTAKE CAPACITY : 25 Seats