।। सा विद्या या विमुक्तये ।।

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

"ज्ञानतीर्थ" परिसर, विष्णुपूरी, नांदेड - ४३१६०६ (महाराष्ट्र)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

"Dnyanteerth", Vishnupuri, Nanded - 431606 Maharashtra State (INDIA)

Established on 17th September 1994 – Recognized by the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'A' Grade

25 1994 - 2019 SILVER JUBILEE YEAR

ACADEMIC (1-BOARD OF STUDIES) SECTION

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संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे CBCS Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९–२० पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, **दिनांक ०८ जून २०१९ रोजी संपन्न झालेल्या ४४व्या मा. विद्या परिषद बैठकीतील ऐनवेळचा विषय क्र.११/४४–२०१९** च्या ठरावानुसार प्रस्तुत विद्यापीठाच्या **संलग्नित महाविद्यालयांतील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदवी स्तरावरील प्रथम वर्षाचे** खालील विषयांचे **C.B.C.S. (Choice Based Credit System) Pattern** नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०१९–२० पासून लागू करण्यात येत आहेत.

1. Agricultural Microbiology
2. Agrochemicals & Fertilizers
3. Analytical Chemistry
4. B.C.A.
5. B.Voc. (Food Processing, Preservation and Storage)
6. B.Voc. (Web Printing Technology)
7. Biochemistry
8. Bioinformatics
9. Biophysics
10. Biotechnology (Vocational)
11. Biotechonology
12. Botany
13. Chemistry
14. Computer Application (Optional)
15. Computer Science (Optional)
16. Computer Science
17. Dairy Science
18. Dyes and Drugs
19. Electronics
20. Environmental Science
21. Fishery Science
22. Food Science
23. Geology
24. Horticulture
25. Industrial Chemistry
26. Information Technology (Optional)
27. Mathematics
28. Microbiology
29. Network Technology
30. Physics
31. Software Engineering
32. Statistics
33. Zoology

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या **www.srtmun.ac.in** या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.: शैक्षणिक–०१/परिपत्रक/पदवी–सीबीसीएस अभ्यासक्रम/२०१९–२०/**२९२**

दिनांक : ०३.०७.२०१९.

स्वाक्षरित/–
उपकुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत माहिती व पुढील कार्यवाहीस्तव :

१) मा. कुलसचिव यांचे कार्यालय, प्रस्तुत विद्यापीठ.
२) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.
३) प्राचार्य, सर्व संबंधित संलग्नित महाविद्यालये, प्रस्तुत विद्यापीठ.
४) साहाय्यक कुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
६) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ.

Swami Ramanand Teerth Marathwada University, Nanded
(NAAC Re-accredited with 'A' Grade)

Syllabus of

B.Sc. Optional Information Technology
(3 years)
(Revised CBCS pattern)

Introduced from Academic Year 2019-20

B.Sc. Optional Information Technology

B.Sc. Optional Information Technology (3years) program / degree is a general B.Sc. program where students opt Information Technology as one of the optional subject. It builds the student on studies in Information technology tools and techniques and to become competent in the current race and development of new software. The duration of the study is of six semesters, which is normally completed in three years.

CBCS pattern

The B.Sc. Optional Information Technology program as per CBCS (Choice based credit system) pattern, in which choices are given to the students under open electives and subject electives. The students can choose open electives from the wide range of options to them.

Eligibility and Fees

The eligibility of a candidate to take admission to **B.Sc. Optional Information Technology** program is as per the eligibility criteria fixed by the University. More details on admission procedure and fee structure can be seen from the prospectus of the college / institution as well as on website of the University.

Credit Pattern

Every course has corresponding grades marked in the syllabus structure.

The credit pattern is similar to other optional subjects like Physics, Mathematics, Chemistry, etc.

The Grading pattern to evaluate the performance of a student is as per the University rules.

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The detailed syllabus structure is as belwo,

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

CHOICE BASED CREDIT SYSTEM (CBCS)

SEMESTER PATTERN

Faculty of Science & Technology

Under Graduate (UG) Programmes

INFORMATION TECHNOLOGY (OPTIONAL)

CURRICULUM

(W. E. F. Academic Year 2019-2020)

CLASS: B. Sc. INFORMATION TECHNOLOGY (Optional) Structure

Year/ Sem	Code	Paper	Title of Paper	Periods /Week	Credit	Exam Hrs.	Marks		
							Ext	Int	Tot
Sem-I	OIT-101	I	Foundation of Information Technology	03	02	02	40	10	50
	OIT-102	II	Web Technology	03	02	02	40	10	50
Sem-II	OIT-103	III	Programming Language Concepts	03	02	02	40	10	50
	OIT-104	IV	Office Automation	03	02	02	40	10	50
Annual	OIT-105 (Lab)	V	Practical Based on Theory Papers II and IV.	03	04	03	80	20	100
Note: A Practical group/ batch for practical papers is recommended to have 10-15 students as per the SRTMUN and UGC Guidelines under CBCS (Choice Base Credit System)									

Theory: Paper No. I

Foundation of Information Technology

Course Code: OIT-101 **[Marks: 50 Total Periods: 45]**

Course Objectives:

1. Information Technology courses are an excellent choice to help advance your career.
2. Information technology courses can help you become a more competitive and valuable employee with important skills.

Course Outcome:

1. This course can assess and apply their strengths in marketing.
2. It includes model ethical and professional behavior.

UNIT-I:- Basic Computer Organization and History **Periods: 10**

Characteristics of Computer ,Basic Computer Organization ,Generations of Computer Classification of Computer -Minicomputer, Microcomputer, Mainframe System, Workstations, Client and Server, Handheld Computer, Supercomputer

UNIT-II:- Computer Peripherals & Memory Organization **Periods: 15**

Input Devices :- Keyboard, Mouse, trackball, Joystick electronic pen, Touch Screen, Image Scanner, OCR, OMR, MICR, Bar code reader Digitizer, speech recognition devices. Output Devices: - Monitors, Dot-matrix printer, Ink-jet printer Laser Printer, Plotter. Modem and Projector , Bio-metric devices Data Representation: BIT, BYTE, WORD ,ASCII, EBCDIC, BCD Code ,Introduction to Number system: Binary, Octal, Decimal and Hexadecimal ,Conversation from one number system to another number system. Computer Memory. Main Memory :- RAM, ROM, Cache Memory. Sequential Access Memory :- Magnetic Tape, Direct Access Memory :- HDD. Optical Storage :- CD, DVD, Blue-ray disk., Flash Memory : Pen-drive, memory card.

UNIT-III:- Operating System , Application and Software Packages **Periods: 10**

Introduction to Operating System , Functions of Operating System , Types of Operating System Introduction to Applications and Software Packages

UNIT-IV:- Data Communication and Internet **Periods: 10**

Introduction to Computer Network , Internet, Intranet, Data transmission modes , OSI Model , Role of communication protocol , Wireless network technologies , E-mail, FTP, Web Browser and types of web browser

References Books:

1. Fundamental of Computer (5th& 6th Edition) - By P.K.Sinha - BPB Publication
2. Fundamental of Computers, E.Balagurusamy, Mc.Graw Hill Education
3. Fundamental of Computer - V. Rajaraman - PHI Publication.

Theory: Paper No.II

Web Technology

Course Code: OIT -102 **[Marks: 50 Total Periods: 45]**

Course Objectives:

1. This introduces to the design, creation, and maintenance of web pages and websites.

2. This course give*s a* strong foundation *to* learn the Internet Technologies.

Course Outcome:

1. Use of web technology
2. Formats and languages used in modern web-pages: HTML, XHTML, CSS, XML, XSLT, Javascript etc.

Unit-I **Periods: 10**

Internet, The Important of the Internet, World Wide Web, URLs, Web Browsers, Web Server, Internet Services, The web flow, objectives of the website, basic interface design, developing a store board for the website, navigation and links within the site, checklist for designing.

Unit–II **Periods: 10**

HTML, Basic elements, Lists, Linking HTML pages, Linking to URLs, Text formatting, Text Alignment, Character Styles, Fonts and Font Sizes, Using Colors for the Web, Preformatted text, Horizontal lines, Line break, displaying special characters.

Unit –III **Periods: 10**

Images in HTML Pages, Tables in HTML, Frames, Creating Frames, frame attribute linking, complex framesets, Inline frames, Image maps.

Unit-IV **Periods: 15**

Form designing, Additional Layout features, CGI Scripting, Active Server Pages, Introduction to Embedding Multimedia and Java Applets, Inserting sound/Audio into Web Pages, Video file formats, Creating Marquee. Javascript and Dynamic HTML, Javascript, Structure of Javascript, Basic Commands in Javascript.

References Books:

1. Web Publication by Mnica D'Souza, Jude D'Souza, TMH Publication.

2. The Complete Reference HTML & CSS by T.A.Powell , TMH Publication.

3. HTML, DHTML, JavaScript, Perl CGI by IVAN Bayroos, BPB Publication.

Theory: Paper No.III

Programming Language Concepts

Course Code: OIT-103 **[Marks: 50 Total Periods: 45]**

Course Objectives:

1. This *course* provides the core knowledge to begin *programming* in any language.
2. This *course* introduces the fundamental building blocks of *programming.*

Course Outcome:

1. To Train students with *basic* concepts of *programming* using.
2. Develop various real time applications using latest technologies and *programming* languages

Unit-I: Introduction To Problem Solving &Programming Environment Periods:15

History of languages, high-level, Low level, Assembly languages etc. Compilers, Interpreters, Assemblers, Linkers, Loaders.
Problem Solving Aspects, Top-Down design, implementations of algorithm, program verification, efficiency of algorithms, analysis of algorithms, Flowcharts , Principles of flowcharting Flow charting symbols .

Unit–II: Fundamental of Algorithms & Array Techniques Periods:10

Algorithm for exchanging the value of two variables, counting, summation of set of numbers, factorial computations, generation of Fibonacci series. Introduction to array, memory representation of array, and algorithm for array order Reversal, array counting, finding maximum and minimum element from array.

Unit –III: Data Structures Periods:15

Introduction to Linked list, Representation of linked list in memory, Traversing, Searching in Unsorted linked list, Inserting at the beginning of a list, deleting node following a given Node. Stack: Introduction, Memory representation of Stack, Insert element in Stack i.e. PUSH operation, Delete element from Stack i.e. POP operation.
Queue: Introduction, Memory Representation, Insert & Delete operation in Queue.

Unit-IV : Sorting and searching techniques Periods:05

Bubble sort, selection sort, merge sort, insertion sort, linear search and binary search

References Books:

1. FUNDAMENTALS OF COMPUTERS BY V. RAJARAMAN.
2. HOW TO SOLVE IT BY COMPUTER, BY R.G. DROMMY (PHI LTD)
3. COMPUTERS AND COMMONSENSE BY R. HUNT AND SHELL Y.
4. DATA STRUCTURE BY SEYMOUR LIPSCHTZ (TMH PUBLICATION)

Theory: Paper No. IV

Office Automation

Course Code: OIT-104 **[Marks: 50 Total Periods: 45]**

Course Objectives:

1. Office tools course would enable the students in crafting professional word documents, excel spread sheets, power point presentations using the Microsoft suite of office tools.
2. To provide an in-depth training in use of office automation, internet and internet tools. The course also helps the candidates to get acquainted with IT.

Course Outcome:

1. It provides an in-depth training in use of office automation tool.
2. The students in preparation of documents and presentations with office automation tools.

UNIT-I: Operating System **Periods: 10**

Disk Operating System: DOS Preliminaries, Files, Directory, Wild Character, Booting Procedure, Internal DOS Commands, External DOS Commands. Windows Operating System: Windows Operating system Features, Files, Folders, Architecture of Windows O.S., Desktop, My Computer, Recycle bin, Control Panel, Web Browsers - Internet Explorer, Mozilla Firefox, Google Chrome, Linux Operating System: Features, Structure of File system, Basic Linux Commands.

UNIT-II: MS WORD **Periods: 15**

1. Create and save a document using a. Deletion of Character, Word, line and block of text b. Undo and redo process c. Moving, Copying and renaming .
2. Format the Text document a. Character formatting b. Paragraph formatting c. Page formatting
3. Spell check the document a. Finding and Replacing of text b. Bookmarks and Searching for a Bookmarks c. Checking Spelling and Grammar automatically d. Checking Spelling and Grammar using Dictionary.
4. Print the document a. Print Preview b. Print Dialog box WORD
5. Mail Merge in Ms-word a. Create main document and data file for mail merging b. Merging the files c. From letters using mail merging d. Mailing labels using mail merging .
6. Table creation in Ms-word a. Create a table in the document b. Add row, column to a table c. Changing column width and row height. d. Merge, split cells of table. e. Use formulae in tables. f. sorting data in a table. g. formatting a table.

UNIT-II: EXCEL **Periods: 10**

Create and save a new work book in Excel,. Entering Data into Worksheet , Editing data of Worksheet, Formatting the text in the cells, Formatting the numbers in the cells., Formatting cells., Copying format of cell along with data format. , Changing the height and width of cells., Freezing Titles, splitting screen, . Enter formulae for calculation in the cells., Copying the formula over a range of cells., Built in Functions Inserting built-in functions in to the cells. , Types of Graphs , Create graphs for the data using Chart Wizard.,

UNIT-III: POWER POINT **Periods: 10**

Layout of opening screen in Power Point, The tool bars in MS Power Point, Create and save a new presentation using MS Power Point , Choose Auto Layout for a new slide., Insert text and pictures into a blank slide., Insert new slides into the presentation., Apply slide transition effects. , Slide show. , Set animation to text and pictures in a slide , Set the sounds, order and timing for animation. Introduction to Ms-Access : Database Concept,

References Books:

1. **MS-DOS 6.22 by Russell A, Stultz, BPB Publication.**

Practical (Annual): Paper No. V

[Marks: 100]

Course Code: OIT-105(Lab) : **Practical Based On Theory Papers – II & IV**

Objectives:

1. To familiarize the students to the practical HTML, DHTML and JavaScript
2. Give hands on training to the students and make them acquainted with various Real Time Applications and Uses of MS-Office which will boost their future professional career.

Outcomes:

1. Able to use of web technology and its related software's
2. It provides an in-depth training in use of office automation tool.

- **At least 10 practical sessions based on paper no II.**
- **At least 10 practical sessions based on paper no IV.**