Maharishi Mahesh Yogi Vedic Vishwavidyalaya

DIRECTORATE OF DISTANCE EDUCATION

Syllabus

Bachelor of Computer Science
B.Sc. (CS)

w. e. f. July 2012

B.Sc. (CS) SEMESTER – I

S. No.	Paper Code	Paper No.	Paper Name	Marks
1.	1DSBCS1	I	Fundamentals of Maharishi Vedic Science (Maharishi Vedic Science – I)	100
2.	1DSBCS2	II	Hindi Language	100
3.	1DSBCS3	III	Development of Entrepreneurship – I	100
4.	1DSBCS4	IV	Discrete Mathematics	100
5.	1DSBCS5	V	Statistical Methods and Probability Theory	100
6.	1DSBCS6	VI	Fundamentals of Computer and Information Technology	100
7.	1DSBCS7	VII	Practical – 1DBCS5 and 1DBCS6	100

B.Sc. (CS) SEMESTER – II

S. No.	Paper Code	Paper No.	Paper Name	Marks
1.	2DSBCS1	I	Advanced Concept of Maharishi Vedic Science (Maharishi Vedic Science – II)	100
2.	2DSBCS2	II	English Language	100
3.	2DSBCS3	III	Development of Entrepreneurship - II	100
4.	2DSBCS4	IV	Advance Calculus and Matrices	100
5.	2DSBCS5	V	Statistical Methods & Probability Distribution	100
6.	2DSBCS6	VI	Programming Methodology and C Programming	100
7.	2DSBCS7	VII	Practical - 2DBCS5 and 2DBCS6	100

FUNDAMENTALS OF MAHARISHI VEDIC SCIENCE

(MAHARISHI VEDIC SCIENCE – I)

UNIT - 1

Meaning & importance of Guru Pujan.

Meaning of meditation, Mann, Intelligence, Chita, Ego, Thought .

UNIT - II

Name of forty areas of Vedic Science and their expression in Human Physiology and characteristics of consciousness.

Consciousness, types of consciousness, characteristics of higher stages of consciousness.

UNIT - III

Maharishi's Yoga, Transcendental Meditation- a general Introduction, Types of Speech, TM Sidhi Programme, Principle of Yoga Asanas and their Concept.

UNIT - IV

Introduction: Maharishi Vedic Management.

Fundamental elements of Vedic Management –Totality

Management of Science and Art .

UNIT - V

Vedic Management and Leadership.

The Idea Leadership is based upon the Totality of Employee's Style

Suggested Readings:

- ➢ Chetna –His Holiness Maharishi Mahesh Yogi Jee
- ➢ Maharishi Sandesh - 1 and 2 , II-His Holiness Maharishi Mahesh Yogijee
- ➢ Scientific Yoga Ashanas –Dr. SatPal.
- ➢ Dhyan Shailly by Brahmchari Dr. Girish Ji

हिन्दी भाषा

<u>इकाई 1</u>
मानक हिन्दी भाषा – मानक का अर्थ, मानक भाषा के विभिन्न नाम, मानक हिन्दी के लक्षण, आवश्यकता आधुनिकीकरण की प्रक्रिया और मानक भाषा पर पड़ने वाले विभिन्न प्रभाव, मानक हिन्दी का स्वरूप, मानकीकृत भाषा के प्रमुख लक्षणों का सार। मानक हिन्दी के प्रकार – हिन्दी के रूप, व्याकाणिक, ढांचा, मानक हिन्दी की शैलियां (1) संस्कृत निष्ठ हिन्दी(2) उर्दू(3) हिन्दुस्तानी।

<u>इकाई 2</u>
अशुद्धियां और उनका संशोधन – अशुद्धियां के प्रकार (1) उच्चारण तथा वर्तनीगत अशुद्धियां (2) शब्दगत अशुद्धियां (3) शब्दार्थगत अशुद्धियां (4) वाक्यगत अशुद्धियां ।
(1) विभक्ति संबंधी अशुद्धियां – (क) कर्तारक (ख) कर्मकारक (2) लिंग संबंधी अशुद्धियां (3) वचन संबंधी अशुद्धियां (4) विशेषण संबंधी अशुद्धियां (5) विपरीत शब्दों के प्रयोग संबंधी अशुद्धियां।
हिन्दी का शब्द भंडार – (क) शब्दों को प्रकार, तत्सम, तद्भव, अर्ध तत्सम, देशी, विदेशी, धार्मिक और सांस्कृतिक, शासन संबंधी, शिक्षा संबंधी, कामधंधे संबंधी, खानपान संबंधी, पहनावा संबंधी, फल–फूल संबंधी।

<u>इकाई 3</u>
हिन्दी की वाक्य रचना और विराम चिन्ह – (1) वाक्य और प्रकार, वाक्य के लक्षण, वाक्य की उपादेयता, समर्थ और असमर्थ वाक्य।
वाक्य परिवर्तन, विधानवाचक से निषेध वाचक, निश्चय वाचक, प्रश्नवाचक, विस्मयादिक बोधक, वाक्य परिवर्तन विशेषण की तुल्लावस्था मे परिवर्तन, शब्दों का परिवर्तन, सरल से मिश्र वाक्य, संयुक्त वाक्य तुलनात्मक अध्ययन, वाक्य बदलना, वाक्य परिवर्तन, वाक्य के भेद, विधिवाचक, निषेध वाचक, आज्ञावाचक, प्रश्नवाचक, विस्मयवाचक, इच्छावाचक, संदेहवाहक, संकेतवाचक।

<u>इकाई 4</u>
उपवाक्यों के भेद – संज्ञा उपवाचक, विशेषक उपवाचक, क्रिया विशेषक, कालवाचक, स्थानावाचक, परिमाण वाचक, रीतिवाचक, कार्यकरण वाचक, हिन्दी में प्रयुक्त विराम चिन्ह–पूर्ण विराम, अल्पविराम। पत्रलेखन, सारलेखन, पल्लवन ।

पत्र लेखन– पत्र लेखन के प्रकार, पत्रों के उदाहरण एवं पत्र लेखन की विशेषताएं (1) निजी पत्र, निमंत्रण पत्र (2) व्यावसायिक पत्र, व्यावसायिक पत्रों के प्रकार (3) शासकीय एवं अर्द्धशासकीय पत्र (4) आवेदन पत्र, समस्या प्रधान, आलोचनात्मक शिकायती सुझाव संबंधी स्पष्टीकरण पत्र (ख) सार लेखन (ग) पल्लवन।

<u>इकाई 5</u>
भारतीय संस्कृति – भारत देश और उसके निवासी – रामधारी सिंह ‘दिनकर’ । भारतीय समाज की संरचना, सामाजिक गतिशीलता (प्राचीन से लेकर आधुनिक काल तक), धर्म और दर्शन।
भारतीय संस्कृति का विश्व पर प्रभाव, मध्यप्रदेश का सांस्कृतिक वैभव।

उद्यमिता विकास – 1

इकाई – 1

उद्यमिता – परिभाषा, विशेषताएँ एंव महत्व, एक उद्यमी के प्रकार एवं कार्य, एक अच्छे उद्यमती के गुण, उद्यमिता अभिप्रेरणा घटक।

इकाई – 2

लक्ष्य प्राप्ति की प्रेरणा एवं विचारों की स्थापना। लक्ष्य निर्धारण एवं चुनौती का सामना। समस्या समाधान एवं सृजनात्मकता। क्रमबद्ध योजना एवं क्षमता की दिशाबद्धता। आत्मविश्वास का विकास। सम्प्रेषण कला। प्रभावित करने की क्षमता। नेतृत्व।

इकाई – 3

परियोजना प्रतिवेदन। चुनी हुई प्रक्रिया का मूल्यांकन । विस्तृत परियोजना प्रतिवेदन–आवश्यकता एवं प्रासंगिकता परियोजना प्रपत्र के प्रमुख भाग परियोजना प्रतिवेदन तैयार करना।

संगठन के प्रकार का चयन–एकाकी व्यवसाय, साझेदारी एवं सहकारी समिति का अर्थ एवं विशेषताएँ संगठन के चयन को प्रभावित करने वाले घटक।

आर्थिक प्रबंधन । वित्तीय संस्थान एवं बैंको की भूमिका, बैंकिंग, वित्तीय योजना, कार्यकारी पूँजी–मूल्यांकन तथा प्रबन्धन, लागत व मूल्य निर्धारण तथा लाभ का मूल्यांकन आर्थिक लेखा–जोखा रखना।

इकाई – 4

उत्पादन का प्रबन्धन।खरीदने के तरीके, चल सम्पत्ति/माल का प्रबन्धन, गुणवत्ता प्रबन्धन, पैकिंग, विपणन प्रबन्धन, बिक्री एवं बेचने की कला, बाजार की समझ एवं विपणन नीति, उपभोत्ता प्रबंधन, समय प्रबन्धन

नियामक संस्थाओं की भूमिका–जिला उद्योग केन्द्र, प्रदूषण निवारण मंडल, खाद्य एवं औषधि प्रशासन, विद्युत विभाग तथा नगर निगम का विशेष अध्ययन।

विकासात्मक संस्थाओं की भूमिका, खादी एवं ग्रामीण आयोग/बोर्ड, मध्यप्रदेश वित्त निगम, अनुसूचित बैंक, मध्य प्रदेश का महिला आर्थिक विकास निगम।

इकाई – 5

स्वरोजगार मूलक योजनाएँ – प्रधानमंत्री रोजगार योजना, स्वर्ण जयंती शहरी रोजगार योजना, रानी दुर्गावती स्वरोजगार योजना, दीनदयाल स्वरोजगार योजना।

विभिन्न अनुदान योजनाएँ – लागत पूँजी अनुदान, ब्याज अनुदान, प्रवेश कर से छूट, परियोजना प्रतिवेदन, प्रतिपूर्ति अनुदान आदि।

महिला उद्यमियों हेतु विशेष प्रेरणाएँ, संभावनाएँ एवं समस्याएँ।

मध्यप्रदेश आदिवासी वित्त विकास निगम की योजनाएँ, म.प्र. अन्त्यावसायी निगम की योजना, म. प्र. पिछड़ा वर्ग एवं अल्पसंख्यक वित्त विकास निगम की योजनाएँ।

DISCRETE MATHEMATICS

UNIT-I:

Sets & Preposition –Introduction, combinations of sets, finite and infinite set, unacceptable indefinite sets, principle of inclusion , preposition. Relation and function introduction , a relation models for database . Properties of binary relation .Equivalence relation and lattices , partial ordering relation and lattices . Chain and anti-chain, a job scheduling problem and the pigeonhole principle.

UNIT-II:

Recurrence relation and recursive algorithm – Introduction, Recurrence, relation linear recurrence with coefficients solution, particular solutions, total solutions.

UNIT-III:

Group and ring –group and subgroup , generator and Evaluation of power , Cosets and Lagrange theorem, Permutation , groups and codes , Isomorphism and automorphism , Homomorphism and Normal group , Rings , Integral Domains and Field , Polynomial ring and cyclic codes.

UNIT-IV:

Boolean algebra lattices and algebraic system , principle of duality , basic properties of algebra's of system , defined by lattices , Distributive and complemented lattices , Boolean lattices and Boolean algebra's. Uniqueness finite Boolean algebra's. Boolean function and Boolean Expression, Prepositional Calculus.

UNIT-V:

Finite state machine –introduction, finite state machines, finite state machine as model of physical system, Equivalent machine, finite state Machine as language Recognizer.

Books : Discrete Mathematics By Pragya Publication

STATISTICAL METHODS & PROBABILITY THEORY

Unit – I Statistics-meaning, definition and scope

Definition of statistics, importance, scope and limitations. Primary and secondary data. Classification and tabulation. Understanding Graphical presentation-Histogram, Frequency polygon, frequency curve, cumulative frequency curve (ogive) .Diagrammatic presentation-Bar diagram, duo-directional bar diagram, two dimensional diagram, Pie-diagram. Measure of central tendency – requisites of ideal measure, arithemetic means, geometric mean and harmonic mean and their merits, demerits. Median, Mode and their merits, demerits. Other partition values.Determination of median and mode by graphical method.

Unit- II Measure of dispersion, Skewness and kurtosis

Requisities of ideal measure, Range, quartile deviation, mean deviation, standard deviation and their merits, demerits. Root mean square deviations and relation with standard deviation. Various formulae for calculating variance, variance of composite series, coefficient of variation, moment , moments about mean in terms of moments about any point and vise-versa. Properties of moment pearson's Beta and Gamma coefficients, Sheppard's correction. Skewness, kurtosis and their measures.

Unit – III Bivariate distribution-Scatter diagram, Karl Pearsons' coefficient of correlation. Determination of correlation coefficient for grouped data. Spearman's rank correlation coefficient (Repeated rank also). Curve fitting-Legender's principle of least squares, fitting of straight line, parabola, power curve and exponential curve. Regression, line of regression and their properties.

Unit – IV Probability-definitions: Trial, event and sample space. Exhaustive events, favourable events, equally likely events, Independent events and dependent events. Mathematical and statistical definition of probability with their limitations. Axiomatic definition of probability, addition law of probability, conditional probability, multiplication law of probability, Baye's theorem (with proof) .

Unit - V Random variable – Discrete and continuous random variable, probability mass function, probability density function and their properties. Distribution function and their properties. Joint, Marginal and Conditional probability function. Stochastic independence. Mathematical expectation and their properties, addition and multiplication theorem of expectation. Mean and Variance of linear combination of random variables.

Books :

1. P. Mukhopadhaya - Mathematical statistics new central book agency, Calcutta.
2. A. K. Goon, M. K. Gupta and Das Gupta, Fundamentals of Statistics Vol-1.
3. J. N. Kupur and H. C. Saxena, Mathematical Statistics.
4. S. C. Gupta and V. K. Kapur, Fundamentals of Mathematical Statistics.
5. B. L. Agarwal, Basic Statistics, New Age.
6. बी एल अग्र वाल – सांख्यिकी विधिया

FUNDAMENTALS OF COMPUTER AND INFORAMATION TECHNOLOGY

UNIT-1

Introduction to computer and information technology : History of development of computers, computer system concept , characteristics, capabilities and limitation , types of computer – analog, digital, hybrid, general, special purpose, micro, mainframe, super, generation of computer, personal computer (PCs) –IBM PCs, characteristics, PC/PCXT/PCAT-configurations, Pentium and Newer PCs specification and main characteristics, types of PCs-Desktop, Laptop, Notebook, Palmtop, Workstation etc , their characteristics.

Computer Organizations and Working: Basic component of a computer system –control unit, ALU, INPUT /Output function and characteristics, memory –RAM, ROM, EPROM, PROM and other types of memory.

UNIT-II

Input Devices: Keyboard, Mouse, Trackball, Joysticks, Digitizing tablet, Scanner, Digital Camera, MICR, OCR, OMR, BAR-CODE Reader, Voice Recognition, Light Pen, and Touch Screen.

Output Devices: Monitor –characteristics and types of monitor –digital, analog size, resolution, refresh rate, Interlaced /Non Interlaced, Dot Pitch, Video Standard –VGA,SVGA,XGA etc, Printer –Daisy wheel, Dot Matrix, Inkjet, Laser, line printer , plotter, sound card and speakers.

UNIT-III

Storage Devices: Storage Fundamental –Primary VS Secondary, Data Storage and Retrieval method –Sequential, Direct and Index Sequential, Various Storage Devices –Magnetic Tape ,Magnetic disks, Cartridge Tape, data drives, hard disk drives, floppy (Winchester disks), Disks, Optical Disks, CD,VCD,CD-R,CD-RW, ZIP Drive.

Computer Software: Need, types of software –system software, application software, system software-operating system, utility program, programming Language, assemblers, compiler and interpreter.

UNIT-IV

Operating System: Function, types –Batch, Single, Multiprogramming, Multiprocessing. Programming languages- Machine, Assembly, High Level and 4GL. Merit and Demerits of Programming Languages.

Disk Operating System (Dos) Introduction History & version of Dos basic –physics structure of disk drive name , Fat ,File & directory structure and naming rules , booting process , Dos system files. Dos command: Internal –DIR , MD , CD,RD,COPY,DEL, REN , VOL,DATE,TIME,CLS,PATH, TYPE etc. External – CHKDSK, XCOPY, PRINT, DISKCOPY, DISKCOMP, DOSKEY, TREE,MOVE, LABEL, APPEND, FORMAT, SORT, FDISK, BACKUP, EDIT, MODE, ATTRIB , HELP, SYS ,etc Executable V/s Non executable file in Dos.

Number System: Data representation in computer, number system of computer –Binary, Octal, Hexa-Representation & their conversion, coding system –ASCII, BCD, EBCDIC etc.

UNIT-V

Data Communication and Networks: communication channels –twister, coaxial, fiber, optic. Types of Networks –LAN, WAN, MAN etc, Topologies of LAN –Ring, BUS, STAR, MESH and TREE topologies , components of LAN-media , NIC,NOS, Bridges, HUB, Routers Repeater and Gateway .

Computer virus: Virus working principles, types of viruses, virus detection and prevention, viruses on networks. Use of communication and IT in daily life.

An Introduction: Modern Science and Vedic Science, Unified field based computer Science.

Text & Reference Books:-

1. Learning Window 98 step by step by Rajeev Mathur , BPB Publication.
2. Learning Word 97 for Window by Rajeev Mathur , BPB Publication,
3. Learning Excel 97 for Window by Rajeev Mathur , BPB Publication.
4. A First Course in Computer by Sanjay Saxena , Vikas Publishing House New Delhi.
5. Microsoft Office 2000 by A. Mansoor by Pragya Publications.
6. Office 97 Interactive Course by Greg Perry, Tec media.
7. Microsoft Office 2000 by A. Mansoor by Pragya Publications.

Maharishi Vedic Science - II

ENGLISH LANGUAGE

Unit I:

Simple, Compound and Complex Sentences. Coordinate Clause (With, But, Either - Or Neither-Nor, Otherwise or Else).

Unit II:

Subordinate clauses – noun clauses as subject, Object and complement: Relative clauses (restrictive and nonrestrictive clauses) Adverb clauses (open and hypothetical, conditional, with, because, though, here, so that, as long as, as soon as).

Comparative Clause (as + = adjective/adverb + as-no sooner than).

Unit III:

Tenses: Simple present, progressive and present perfect. Simple past, progressive and past perfect. Indication of Futurity. The passive (Simple present and past, present and past perfect and to infinitive structure).

Unit IV:

Reported Speech: (i) Declarative sentences, (ii) Imperatives (iii) Interrogatives , Exclamatory sentences. Models (will, shall, should, would, ought to, have to/have got to, can, could, may-might and need).

Unit V:

Verb Structures (Infinitives and gerundial),   Linking devices.   Letter (both formal and informal).

Development of Entrepreneurship - II

ADVANCE CALCULUS & MATRICES

UNIT-I

Derivative as Tangent to a curve , Continuity and differentiability , limit and derivative , derivative of products and composite function , Leibnitz rule and chain rule.

UNIT-II

Expansion of function by Maclaurins's theorem, Taylor's theorem, partial differentiation, total differentiation coefficient, Homogeneous Function, Euler theorem.

UNIT-III

Integral as anti- derivative , integration by part , change of variable , integration of rational and irrational function , definite integral , definite integral as a limit of a sum , application of definite integral to find sum of infinite series.

UNIT-IV

Differential Equation : solution of ordinary differentiation equations ,solution of first order and first degree differential equation , first order and higher degree differential equation, linear differential equation of second order.

UNIT-V

Matrix: Solution of system of linear equation using matrix method , rank of matrix , consistency of the linear system , Eigen value and Eigen vectors.

Books: Advance Calculus & Matrices By Pragya Publication

Statistical methods & Probability Distribution

UNIT- I
Plane of regression, Properties of residual, Yule's notation, Multiple and Partial regression, Multiple and partial correlation coefficient (For three variables) and their properties.

UNIT – II
Theory of Attributes – Class, Class frequencies, order of classes, consistency of data, conditions for consistency of data. Independence of attributes, criterion for independence of attributes, Yule's coefficient of association, coefficient of colligation.

UNIT – III
Theoretical Discrete Distributions – Binomial Distribution, Poisson Distribution (Limiting form of Binomial Distribution), Negative Binomial Distribution, Geometric Distribution, Hypergeometric Distribution and their properties.

UNIT – IV
Theoretical continuous Distribution – Rectangular or Uniform Distribution, Normal Distribution, Gamma Distribution, Beta Distribution (Ist and IInd kind), Exponential Distribution, Cauchy Distribution and their properties.

UNIT- V
Bivariate normal Distribution – Marginal and Conditional Distribution, moment generating function, their properties and limitations (without proof). Cumulants and their properties. Chebyshev's inequality, convergence in probability, Weak law of large numbers, Burnolli's law of large numbers. Central limit theorem – Lindeberg – Levy's and De-Moiver – Laplace theorem

Suggested Readings :
1. P. Mukhopadhaya - Mathematical statistics new central book agency, Calcutta.
2. A. K. Goon, M. K. Gupta and Das Gupta, Fundamentals of Statistics Vol-1.
3. J. N. Kapoor and H. C. Saxena, Mathematical Statistics.
4. S. C. Gupta and V. K. Kapur, Fundamentals of Mathematical Statistics.
5. B. L. Agarwal, Basic Statistics, New Age.
6. बी एल अग्रवाल – सांख्यिकी विधिया

PROGRAMMING METHODOLOGY AND C PROGRAMMING

UNIT - I

Program Concept, Characteristics of Programming, Various Stages in Program Development, Algorithms, Flow Charts, Programming Techniques – Top Down, Bottom Up, Modular, Structured, Features, Merits, Demerits and Their Comparative Study. Programming Logic - Simple, Branching, Looping, Recursion, Programming Testing & Debugging.

UNIT- II

Introduction to C Language, C Language Standards, Features of C, Structure of C Program, Introduction to C Compilers, Creating and Compiling C Programs, IDE, Features of Turbo C Compiler. Keywords, Identifiers, Variables, Constants, Scope and Life of Variables, Local and Global Variable, Data Types, Expressions. Operators - Arithmetic, Logical, Relational, Conditional and Bit Wise Operators, Precedence and Associativity of Operators, Type Conversion. Basic Input/Output Library Functions ,Character Input/Output getch(), getchar(). getche(), putchar(). Formatted Input/Output - printf() and scanf(), Mathematical & Character Functions.

UNIT- III

Declaration Statement, Conditional Statement - if Statement, if else Statement, Nesting of if... .else Statement, else if Ladder, The ?: Operator, switch Statement. Iteration Statements - for Loop, while Loop, do-while Loop. Jump Statements: break, continue, goto, exit(). Arrays - Concept of Single and Multi Dimensional Arrays Strings: Declaration, Initialization, Functions .

UNIT – IV

The Need of C Functions, User Defined and Library Function, Prototype of Functions, Prototype of main() Function, Calling of Functions, Function Arguments, Argument Passing: Call By Value and Call By Reference, Return Values. Nesting of Function, Recursion, Array as Function Argument, Command Line Arguments, Storage Class Specifier - Auto, Extern, Static, Register.

UNIT - V

Defining Structure, Declaration of Structure Variable, Type def, Accessing Structure Members, Nested Structures, Array of Structure, Structure Assignment, Structure as Function Argument, Function that Return Structure, Union.

TEXT & REFERENCE BOOKS:

- *BALAGURUSWAMY, "PROGRAMMINGIN C ", TMH PUBLICATIONS*
- *GOTTFRIED SCHAUMS OUTLINE SERIES, "PROGRAMMING WITH C ", TMH PUBLICATIONS*
- *MAHAPATRA, " THINKING IN C ", (PHI)PUBLICATIONS*
- *ANURAG SEETHA, "INTRODUCTION TO COMPUTERS AND INFORMATION TECHNOLOGY", RAIN PRASAD & SONS, BHOPAL*
- *S.K. BASANDRA, "COMPUTERS TODAY", GALGOTIA PUBLICATIONS.*
- *PETER JULIFF "PROGRAM DESIGN" PHI PUBLICATIONS*