

DEPARTMENT OF COMPUTER SCIENCE

COURSE CURRICULUM & MARKING SCHEME

**BCA – I, II & III
(BACHELOR OF COMPUTER APPLICATION)**

SESSION : 2019-20



ESTD: 1958

**GOVT. V.Y.T. PG AUTONOMOUS COLLEGE,
DURG, 491001 (C.G.)**

(Former Name – Govt. Arts & Science College, Durg)

NAAC Accredited Grade A⁺, College with CPE - Phase III (UGC), STAR COLLEGE (DBT)

Phone : 0788-2212030

Website - www.govtsciencecollegedurg.ac.in, Email – autonomousdurg2013@gmail.com

Note : - B.C.A. Part-I Syllabus is approved with the condition that it will be incorporated in this session (2019-20) as per Hemchand Yadav University, Durg if Board of Studies of Durg University will change the syllabus for B.C.A. Part-I.

**Members of Board Studies
Computer Science**

V.C. Nominee - Praveen 26/8/19 HOD - Shun
Subject Expert - V. Kes 26/08/19 - Chugh
Subject Expert - Ch - Sh
Alumni (member) - B. Dewangan
Prof. from other Dept. of Sc. faculty. -
Specialist from Industry - Rajiv

BCA-I,II,III

DEPARTMENT OF COMPUTER SCIENCE
GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
 Approved syllabus for BCA by the members of Board of Studies for
 the Session 2019-20

The syllabus with the paper combinations is as under

BCA I:

PAPER I: (BCA101)	DISCRETE MATHS
PAPER II: (BCA 102)	COMPUTER FUNDAMENTALS
PAPER III: (BCA 103)	PROGRAMMING IN 'C' LANGUAGE
PAPER IV: (BCA 104)	PC SOFTWARE AND MULTIMEDIA
PAPER V: (BCA 105)	WEB TECHNOLOGY AND E-COMMERCE
PAPER VI: (BCA 106)	COMMUNICATION SKILLS
PRACTICAL I: (BCA 107)	LAB 1: PROGRAMMING LAB IN 'C'
PRACTICAL II: (BCA 108)	LAB 2: PC SOFTWARE LAB
PRACTICAL III: (BCA 109)	LAB 3: WEB TECHNOLOGY LAB

Name and Signatures

<p>V.C. Nominee <i>[Signature]</i> 26/8/19</p> <p>Subject Expert <i>[Signature]</i></p> <p>Subject Expert..... <i>[Signature]</i></p> <p>Alumni(member).... B. D. Dewangan <i>[Signature]</i></p> <p>Prof. from other Dept. of Sc. Faculty <i>[Signature]</i> 26/8/19</p> <p>Specialist from Industry <i>[Signature]</i></p>	<p>Departmental members</p> <p>1. Incharge Head /Dr. J. K. Saluja <i>[Signature]</i></p> <p>2. Mr. Durgesh Kumar Kotangle <i>[Signature]</i></p> <p>3. Mr. Dileep Kumar Sahu <i>[Signature]</i></p>
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BCA II:

PAPER I: (201)	PART I: NUMERICAL ANALYSIS
	PART II: DIFFERENTIATION AND INTEGRATION
	PART III: DATA STRUCTURES
PAPER II: (202)	DBMS(ORACLE, SQL)
PAPER III: (203)	PROGRAMMING IN C++ & VISUAL C++
PAPER IV: (204)	COMPUTER NETWORKING & INTERNET TECHNOLOGY
PAPER V: (205)	PART A. SHELL PROGRAMMING IN UNIX/LINUX
	PART B. PRACTICAL BASED ON COURSE 205A
PAPER VI: (206)	PART A. PRINCIPLES OF MANAGEMENT
	PART B. FOUNDATION COURSE
PRACTICAL I: (207)	PRACTICAL BASED ON COURSE DBMS(202)
PRACTICAL II: (208)	PRACTICAL BASED ON COURSE C++ & VC++(203)
PRACTICAL III: (205 B)	PRACTICAL BASED ON COURSE UNIX/LINUX(205A)

Name and Signatures

V.C. Nominee	Departmental members
Subject Expert	1. In-charge Head /Dr. J. K. Saluja
Subject Expert
Alumni(member).....	2. Mr. Durgesh Kumar Kotangle
Prof. from other Dept. of Sc. Faculty
Specialist from Industry	3. Mr. Dileep Kumar Sahu

BCA III:

PAPER I: (301)	PART I: CALCULUS & GEOMETRY
	PART II: DIFFERENTIAL EQUATION & FOURIER SERIES
	PART III: COMPUTER SYSTEM ARCHITECTURE
PAPER II: (302)	JAVA
PAPER III: (303)	OPERATING SYSTEM
PAPER IV: (304)	SOFTWARE ENGINEERING
PAPER V: (305)	PART A. MULTIMEDIA TOOLS & APPLICATION
	PART B. PRACTICAL BASED ON COURSE 305A
PAPER VI: (306)	PART A. FINANCIAL ACCOUNTANCY
	PART B. FOUNDATION COURSE
PRACTICAL I: (307)	PRACTICAL BASED ON COURSE JAVA
PRACTICAL II: (308)	PROJECT
PRACTICAL III: (305 B)	PRACTICAL BASED ON (305A) MULTIMEDIA TOOLS & APPLICATION

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GOVT. V.Y.T. P.G. AUTO. COLLEGE, DURG
SYLLABUS FOR: (2019-20)
BCA-I

Subject Code	Subject Paper	Theory Marks		Internal Marks		Teaching Load per Week		
		Max. (A)	Min. (B)	Max. (C)	Min. (D)	L	T	P
BCA101	Discrete Mathematics	80	27	20	8	4	2	-
BCA102	Computer Fundamentals	80	27	20	8	4	2	-
BCA103	Programming in 'C' language	80	27	20	8	4	2	-
BCA104	PC Software and Multimedia	80	27	20	8	4	2	-
BCA105	Web Technology and E-Commerce	80	27	20	8	4	2	-
BCA106	Communication skills	80	27	20	8	4	2	-
BCA107	LAB I: Programming Lab in 'C'	100	50	40	16	-	-	3x2
BCA108	LAB II: PC Software Lab	100	50	40	16	-	-	2x2
BCA109	LAB III: Web Technology Lab	100	50	20	8	-	-	1x2
TOTAL		780	312	220	88			
GRAND TOTAL	(PAPER + INTERNAL)	(A+C)		(B+D)				
		1000		400				

Note: Student will have to pass individually in all theory, practical and sessional.

V.C. Nominee	Departmental members
Subject Expert	1. In-charge Head /Dr. J. K. Saluja
Subject Expert.....
Alumni(member)....Be. Dewangan.....	2. Mr. Durgesh Kumar Kotangle
Prof. from other Dept. of Sc. Faculty
Specialist from Industry	3. Mr. Dileep Kumar Sahu

GOVT. V.Y.T. P.G. AUTO. COLLEGE, DURG (C.G.)
SYLLABUS FOR: (2019-20)
BCA – PART I
BCA -101
THEORETICAL FOUNDATION OF COMPUTER SCIENCE
PAPER-I: DISCRETE MATHEMATICS

Max Marks: 80

Min Marks: 27

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice. Only Simple calculator is allowed not scientific calculator.

UNIT - I

Recall of statements and logical connectives, tautologies and contradictions, logical equivalence, algebra of propositions quantifiers, existential quantifiers and universal quantifiers.

UNIT – II

Boolean algebra and its properties, algebra of propositions as an example, De Morgan's Laws, Partial order relations g.l.b., l.u.b. Algebra of electric circuits and its applications. Design of simple automatic control system.

UNIT - III

Boolean functions - disjunctive and conjugative normal forms Boolean's expansion theorem, fundamental forms. Many terminal Networks.

UNIT – IV

Arbitrary Cartesian product of sets, Equivalence relations, partition of sets, injective, subjective, objective maps, binary operations, countable, uncountable sets.

UNIT –V

Basic Concept of Graph Theory, Sub graphs, Trees and their properties, Binary Trees, Spanning Trees, Directed Trees, Planar graphs, Euler Circuit, Hamiltonian Graph. Chromatic number.

Name and Signatures

Name and Signatures	Departmental members
V.C. Nominee	1. In-charge Head /Dr. J. K. Saluja
Subject Expert
Subject Expert.....	2. Mr. Durgesh Kumar Kotangle
Alumni(member)....B.e....Dewangan.....
Prof. from other Dept. of Sc. Faculty	3. Mr. Dileep Kumar Sahu
Specialist from Industry

BOOKS RECOMMENDED:

- 1. BOOLEAN ALGEBRA AND ITS APPLICATION - J.E. WHITESITT
- 2. CONCEPTS OF MODERN MATHEMATICS -P.L. BHATNAGAR
- 3. DISCRETE MATHEMATICS -B.R.THAKUR
- 4. GRAPH THEORY AND ITS APPLICATIONS -NARSINGH DEV.
- 5. DISCRETE MATHS -C.L.LIU T M HILL
- 6. A TEXT BOOK OF DISCRETE MATHEMATICS - SWAPNA KUMAR SARKAR, S. CHAND

Name and Signatures

<p>V.C. Nominee <i>[Signature]</i> 26/07/19</p> <p>Subject Expert <i>[Signature]</i></p> <p>Subject Expert..... <i>[Signature]</i></p> <p>Alumni(member)....<i>B. Dewangan</i>.....</p> <p>Prof. from other Dept. of Sc. Faculty <i>[Signature]</i> 26/07/19.</p> <p>Specialist from Industry <i>[Signature]</i></p>	<p>Departmental members</p> <p>1. In-charge Head /Dr. J. K. Saluja <i>[Signature]</i></p> <p>2. Mr. Durgesh Kumar Kotangle <i>[Signature]</i></p> <p>3. Mr. Dileep Kumar Sahu <i>[Signature]</i></p>
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GOVT.V.Y.T.P.G. AUTO. COLLEGE, DURG (C.G.)

SYLLABUS FOR: (2019-20)

BCA – PART I

BCA - 102

COMPUTER FUNDAMENTALS

Max Marks: 80

Min. Marks: 27

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

UNIT-I INTRODUCTION TO COMPUTERS

Computer System:- Characteristics and Capabilities, **Computer Hardware and Software:** Block Diagram of a Computer, **Different Data Processing:** Data, Data Processing System, Storing Data, Processing Data, **Types of Computers:** Analog, Digital, Hybrid, General and Special Purpose Computers, **Generations of Computer,** Computer Systems –Micros, Minis & Main-frames, Limitations of Micro Computer. **Number Systems:-** Decimal Number System, Binary Number System, Octal and Hexadecimal Number System, 1's and 2's Complement. **Codes:** – ASCII, EBCDI Codes, Gray Code & BCD. **Logic Gates:** – AND, OR NOT GATES and their Truth Tables, NOR, NAND and XOR Gates.

UNIT – II COMPUTER PERIPHERALS:

Introduction to Input Devices: Categorizing Input Hardware, Keyboard, Direct Entry – Card Readers, Scanning Devices – O.M.R., Character Readers, Thumb Scanner, MICR, Smart Cards, Voice Input Devices, Pointing Devices – Mouse, Light Pen, Touch Screen. **Computer Output:** Output Fundamentals, Hardcopy Output Devices, Impact Printers, Non-Impact Printers, Plotters, Computer output Microfilm/Microfiche(COM) systems, Softcopy Output Devices, Cathode Ray Tube, Flat Screen Technologies, Projectors, Speakers.

UNIT – III BASIC COMPONENTS AND STORAGE:

Central Processing Unit: The Micro-processor, Control Unit, A.L.U., Registers, Buses, Main Memory Main Memory (RAM) for microcomputers, Read Only Memory (ROM), **Storage Devices:** Storage Fundamentals, Primary and Secondary Storage, Data Storage and Retrieval Methods – Sequential, Direct & Indexed Sequential, Tape Storage and Retrieval Methods, Tape storage Devices, characteristics and limitations, Direct access Storage and Microcomputers - Hard Disks, Disk Cartridges, Direct Access Storage Devices for large Computer systems, Mass storage systems and Optical Disks, CD ROM.

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Alumni(member).....	3. Mr. Dileep Kumar Sahu
Prof. from other Dept. of Sc. Faculty	
Specialist from Industry	

UNIT – IV COMPUTER SOFTWARE AND LANGUAGES:

System Software: System software Vs. Application Software, Types of System Software, Introduction and Types of Operating Systems, Boot Loader, Diagnostic Programs, Operating Systems Executive, BIOS, Utility Programs. **Application Software:** Microcomputer Software, Interacting with the System, Trends in PC software, Types of Application Software, Difference between Program and Packages. **Computer Languages:** Definition, Generations of Computer Languages, Types of Languages, **Language Processors:** Assembler, Compiler, Interpreter. Linker and Loader, Programming Constructs, Algorithm and Flow chart.

UNIT – V INTRODUCTION TO MS-DOS AND WINDOWS:

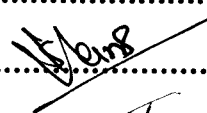
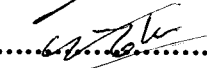

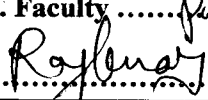
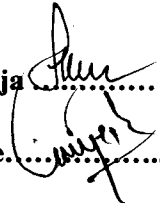
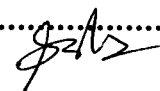
Introduction to DOS: History and Versions of DOS, *Fundamentals of DOS:* Physical Structure of the Disk, Compatibility of drives, Disks & DOS versions, Preparing Disks for use, Device Names. *Getting Started with DOS:* Booting Process (DOS, Windows, UNIX), System Files and Command.com, Internal DOS Files and Directories, Elementary External DOS Commands, Creating a Batch file, Additional.

Microsoft Windows: Operating System- Definition & functions, basics of Windows, Basic Components of Windows, Icons, Types of Icons, Taskbar, activating Windows, Using Desktop, Title Bar, running applications, Exploring computer, Managing Files and Folders, copying and moving files and folders. Control panel- Display properties, adding and removing software and hardware, setting date and time, screen saver and appearance. Using windows accessories, Overview of Unix/Linux.

BOOKS RECOMMENDED:

1. INTRODUCTION TO INFORMATION TECHNOLOGY : V. RAJARAMAN, PHI, SECOND EDITION
2. COMPUTER FUNDAMENTALS: P.K SINHA BPB PUBLICATIONS, SIXTH EDITION
3. FUNDAMENTAL OF INFORMATION TECHNOLOGY: CHETAN SHRIVASTAVA_KALYANI PUBLISHERS
4. COMPUTER TODAY:- SURESH K BASANDRA, GALGOTIA PUBLICATION.

Name and Signatures

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GOVT. V.Y.T.P.G. AUTO. COLLEGE, DURG(C.G.)
SYLLABUS FOR: (2019-20)
BCA – PART I
BCA-103
PROGRAMMING IN 'C' LANGUAGE

Max Marks: 80

Min. Marks : 27

NOTE:- The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

UNIT-I Fundamentals of C Programming

Overview of C : History of 'C', Structure of 'C' program. Keywords, Tokens, Data types, Constants, Literals and Variables, Operators and Expressions, Arithmetic operators, Relational operator, Logical operators, Expressions, Operator precedence and associativity, Type casting, Console I/O formatting, Unformatted I/O functions: getch(), getchar, getche(), getc(), putc(), putchar().

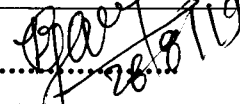

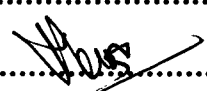
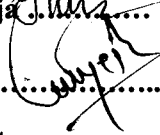
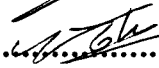
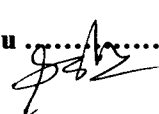
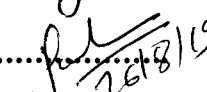
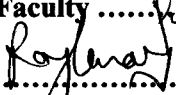
UNIT- II Control Constructs

If-else, conditional operators, switch and break, nested conditional branching statements, **Loops:** For, do..While, while, Nested loops, break and continue, goto and label, exit function.
Functions:-definition, **Function components:** Function arguments, return value, function call statement, function prototype. Type of function, Scope and lifetime of variable. Call by value and call by reference. Function using arrays. function with command line argument. User defined function: math and character functions, Recursive function.

UNIT-III Array, String, Structure and Union

Array:-Array declaration, One and Two dimensional numeric and character arrays. Multi dimensional arrays.
String:-String declaration, initialization, string manipulation with/without using library function.
Structure, Union & Enum- Structure: basics, declaring structure and structure variable, typedef statement, array of structure, array within structure, Nested structure; passing structure to function, function returning structure. **Union:** basics, declaring union and union variable, **Enum:** declaring enum and enum variable.

Name and Signatures

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Alumni(member)....B.....Pawangan.....	
Prof. from other Dept. of Sc. Faculty 	
Specialist from Industry 	

UNIT- IV Pointer

Definition of pointer, pointer declaration, using & and * operators. Void pointer, pointer to pointer, Pointer in math expression, pointer arithmetic, pointer comparison, dynamic memory allocation, functions – malloc, calloc, realloc and free, pointers vs. Arrays, Arrays of pointer, pointer to array, pointers to functions, function returning pointer, passing function as argument to function, pointer to structure, dynamic array of structure through pointer to structure.

UNIT-V File Handling and Preprocessor

File handling: file pointer, file accessing functions: fopen(), fclose(), fputc(), fgetc(), fprintf(), fscanf(), fread(), fwrite(), feof(), fflush(), rewind(), fseek(), ferror(). File handling through command line argument. **Introduction to C preprocessor:** #include, #define, conditional compilation, **Directives:** #if, #else, #elif, #endif, #ifndef etc.

BOOKS RECOMMENDED: -

MAIN READING:

1. PROGRAMMING IN ANSI C:- E BALAGURUSAMI, TATAMCGRAW -HILL, THIRD EDITION.
2. LET US C – YASHWANT KANETKAR INFINITY SCIENCE PRESS, EIGHTH EDITION.
3. MASTERING IN C – K R VENUGOPAL, TATAMCGRAW-HILL
3. THE C PROGRAMMING LANGUAGE – BRIAN W. KEMIGHAM, DENNIS M. RITCHE, PRENTICE HALL, SECOND EDITION
4. APPLICATION PROGRAMMING IN ANSI C - R. JOHNSON-BAUGH, MARTIN KALIN, MACMILLAN SECOND EDITION.
5. THE SPIRIT OF C - MULLISH COOPER, JAICO PUBLISHING HOUSE
6. HOW TO SOLVE IT BY COMPUTERS - R.G.DROMEY, PRENTICE HALL OF INDIA.

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GOVT.V.Y.T.P.G. AUTO. COLLEGE, DURG (C.G.)

SYLLABUS FOR: (2019-20)

BCA – PART I

BCA-104

PC SOFTWARE & MULTIMEDIA

Max Marks – 80

Min Marks – 27

NOTE: - The Question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

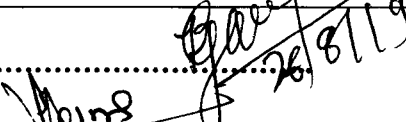
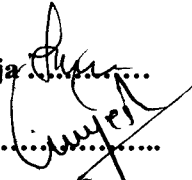
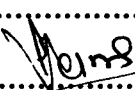
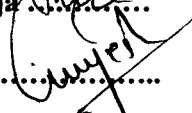

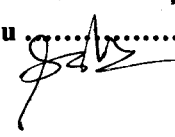
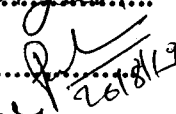
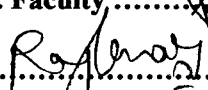
Unit - I MS-Word

Introduction to word processing software and it's features, creating new document, saving documents, opening and printing documents. **Home Tab:** setting fonts ,paragraph settings, various styles(normal, no spacing, heading1, heading2, title, strong),find & replace, format painter, copy paste and paste special. **Insert Tab:** Pages, tables, pictures, clipart, shapes, header & footer, word art, equation and symbols. **Page Layout Tab:** Page setup, page background, paragraph(indent and spacing). **Mailing Tab:** create envelops and labels, mail merge. **Review Tab :**spelling and grammar check, new comment, Protect document, **View Tab:** document views, zoom, window(new window, split, switch window).

UNIT – II MS-Excel

Introducing Excel, use of excel sheet, creating new sheet, saving, opening, and printing workbook. **Home Tab :** Font, alignment, number, styles and cells and editing, conditional formatting. **Insert Tab:** Table, charts(column chart ,pie chart, bar chart, line chart) and texts(header & footer, word art, signature line). **Page Layout Tab :** page setup options, scale to fit(width, height, scale). **Formulas Tab :** Autosum (sum, average, min, max),logical(IF, and ,or ,not ,true, false),math & trig (sin, cos tan, ceiling, floor, fact, mod, log),watch window. **Data Tab :** get external data from MS Access, sort and filter options ,Data validation, group and ungroup. **Review Tab:** protect sheet, protect workbook, share workbook. **View Tab:** page breaks, page layout, freezing panes, split and hide.

Name and Signatures

Name and Signatures		Departmental members	
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Subject Expert		2. Mr. Durgesh Kumar Kotangle.....	
Subject Expert.....		3. Mr. Dileep Kumar Sahu	
Alumni(member)....B.e....D.Cuwanagan....			
Prof. from other Dept. of Sc. Faculty			
Specialist from Industry			

UNIT – IV MS-Access

Front end and back end of application , introduction to dbms, features of dbms, Creating blank databases, saving it in accdb format. defining data types in ms access. *Home Tab*: datasheet view, design view, pivot chart view, pivot table view, sort and filter options. *Create Tab* : creating tables, creating reports, query wizard. *External Data Tab* : importing data from access and excel sheet, exporting data to excel and ms word. *Datasheet Tab*: Relationships, fields and columns options, datatype and formatting options.

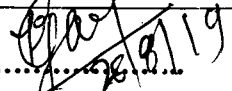
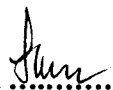
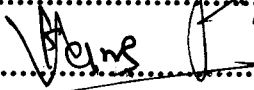
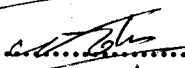
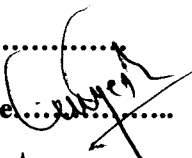
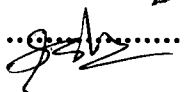
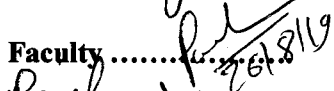
UNIT – V Animations and Graphics

Definition of multimedia, application of Multimedia, Basic Concept of 2D/3D Animation, Principle of animation, Hardware and software resources requirement for animation, introduction of various file formats (.mpeg, .gif, .jpeg, .mp4, .tif, .flv). **Creating a new movie in flash** :Get set Up, Input Text, Animate Text, drawing and painting with tools, brush, create basic shapes like Oval, Rectangle & Polystar Tools, tools working with object & filing the object, Transformation, object properties dialog box, creating layers motion tweeing, shape tweeing , mask layers, basic action scripts, importing sound through Flash.

BOOKS RECOMMENDED :-

1. MICRODOFT OFFICE 2007 FUNDAMENTAL: - L STORY, D WALLS.
2. MS OFFICE : - S S SHRIVASTAVA, FIREWALL MEDIA.
3. OFFICE 2000 MADE EASY: - ALAN NEIBAUER, TATA MCGRAW HILL
3. FLASHMX BIBLE -ROBERT REINHART
4. SAMS TEACH YOURSELF MACROMEDIA FLASH 8 IN 24 HOURS- PHILLIP KERMAN
5. PHOTOSHOP BIBLE -WILEY PUBLICATION
6. HOW TO DO EVERYTHING WITH MACROMEDIA -BONNIE BLAKE, DOUGSAHLIN
7. MULTIMEDIA MAKING IT WORKS: - BY TAY VAUGHAN TATA MCGRAW HILLS

Name and Signatures

Name and Signatures	Departmental members
V.C. Nominee 	1. Incharge Head /Dr. J. K. Saluja 
Subject Expert 	2. Dr. Kajal Kiran Gulhare
Subject Expert..... 	3. Mr. Durgesh Kumar Kotangle..... 
Alumni(member)..... <i>Dr. Dewangan</i>	4. Mr. Dileep Kumar Sahu 
Prof. from other Dept. of Sc. Faculty 	
Specialist from Industry 