MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute affiliated to RGPV, Bhopal)

Department of Computer Science and Engineering

Scheme of Evaluation

B. Tech. I Semester *(Computer Science and Design)*

(for batch admitted in academic session 2022-23)

S. No.	Subject Code	Category Code	Subject Name	Maximum Marks Allotted							Total Marks	Contact Hours per week			Total Credits	Mode of Teaching	Mode of Exam.	Duration of Exam.
				Theory Slot				Practical Slot										
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation			L	T	P				
				End Sem. Exam	$Proficiency in subject /course	Mid Sem. Exam.	Quiz/Assignment		Lab Work & Sessional	Skill Based Mini Project								
1.	290121	DC	Introduction to Computer Science and Design	50	10	20	20	-	-	-	100	3	-	-	3	Blended	PP	2 Hrs
2.	290122	DC	Computer Programming	50	10	20	20	60	20	20	200	2	1	2	4	Blended	AO	2 Hrs
3.		BSC	Linear Algebra	50	10	20	20	-	-	-	100	3	1	-	4	Offline	PP	2 Hrs
4.		ESC	Basic Electrical & Electronics Engineering	50	10	20	20	60	20	20	200	2	1	2	4	Blended	MCQ	1.5 Hrs
5.	290123	DC	Digital Electronics	50	10	20	20	60	20	20	200	3	-	2	4	Blended	PP	2 Hrs
Total				**250**	**50**	**100**	**100**	**180**	**60**	**60**	**800**	**13**	**03**	**06**	**19**	-	-	-
7.	3000002	**Natural Sciences & Skills**	Engineering Chemistry	50	10	20	20	30	10	10	150	1	-	2	GRADE	Blended	MCQ	1.5 Hrs
Induction programme of three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations.																		

$Proficiency in course/subject – includes the weightage towards ability/ skill/ competency /knowledge level /expertise attained etc. in that particular course/subject

Natural Sciences& Skills: Engineering Physics / Engineering Chemistry / Environmental Science/ Language

MCQ: Multiple Choice Question **AO:** Assignment + Oral **OB:** Open Book **PP:** Pen Paper **SO:** Submission + Oral

Mode of Teaching					Mode of Examination				Total Credits
Theory				Lab	Theory			Lab	
Offline	Online	Blended		Offline	PP	AO	MCQ	SO	
		Offline	Online						
4	-	8	4	3	11	4	4	-	19
21		42	21	16	58	21	21		

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Department of Computer Science and Engineering

Scheme of Evaluation

B. Tech. II Semester *(Computer Science and Design)*

(for batch admitted in academic session 2022-23)

S. No.	Subject Code	Category Code	Subject Name	Maximum Marks Allotted							Total Marks	Contact Hours per week			Total Credits	Mode of Teaching	Mode of Exam.	Duration of Exam.
				Theory Slot				Practical Slot										
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation			L	T	P				
				End Sem. Exam	$Proficiency in subject /course	Mid Sem. Exam.	Quiz/Assignment		Lab Work & Sessional	Skill Based Mini Project								
1.	290221	DC	Data Structures	50	10	20	20	60	20	20	200	3	-	2	4	Blended	PP	2 Hrs
2.	290222	DC	Python Programming	50	10	20	20	60	20	20	200	3	-	2	4	Blended	AO	2 Hrs
3.	290223	DC	Computer System Organization	50	10	20	20	-	-	-	100	2	1	-	3	Blended	PP	2 Hrs
4.	290224	DC	Computer Graphics and Animation	50	10	20	20	60	20	20	200	2	1	2	4	Blended	PP	2 Hrs
5.		BSC	Probability and Random Process	50	10	20	20	-	-	-	100	3	-	-	3	Offline	PP	2 Hrs
6.	290225	DLC	Hardware and Troubleshooting Lab	-	-	-	-	60	20	20	100	-	-	2	1	Offline	SO	-
Total				**250**	**50**	**100**	**100**	**240**	**80**	**80**	**900**	**13**	**02**	**08**	**19**	-	-	-
7.	3000001	**Natural Sciences & Skills**	Engineering Physics	50	10	20	20	30	10	10	150	1	-	2	GRADE	Blended	MCQ	1.5 Hrs

Induction programme of three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations.

$Proficiency in course/subject – includes the weightage towards ability/ skill/ competency /knowledge level /expertise attained etc. in that particular course/subject

Natural Sciences& Skills: Engineering Physics / Engineering Chemistry / Environmental Science / Language **MCQ:** Multiple Choice question **AO:** Assignment + Oral **PP:** Pen Paper SO: Submission + Oral

Mode of Teaching					Mode of Examination				Total Credits
Theory				Lab	Theory			Lab	
Offline	Online	Blended		Offline	PP	AO	MCQ	SO	
		Offline	Online						
3	-	8	4	4	14	4	-	1	19
16		42	21	21	74	21		5	

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INTRODUCTION TO COMPUTER SCIENCE AND DESIGN

COURSE OBJECTIVES:

- To understand the basics of computers.
- To familiarize the students with various design techniques.
- To implement design solutions using digital logic, algorithms, computer networks and software development techniques.

Unit I - Introduction to Computer:

Introduction, Generation of computers, Classification of Computers, Hardware components, system bus. Computer memory and its types - RAM, ROM, Cache memory, Registers, secondary memory, memory hierarchy. Computer software - System software, application software. Operating system, its types and services. Booting.

Unit II - Digital Logic Design:

Von-Neumann Model, Various Subsystems, Binary numbers, Number Base Conversions, Complements, Signed Binary numbers, Binary Codes, Digital Logic Gates, Representation of sign (sign magnitude, two's complement). Boolean algebraic axioms, Boolean functions, truth tables. Adders and subtractors.

Unit III – Introduction to Algorithm

Fundamentals of Algorithmic Problem Solving, Characteristics, need for algorithms, Important Problem Types, Flowcharts for different problems. Procedural, Object oriented.

Unit IV - Computer Networks

Introduction, Types- LAN, MAN & WAN, Data transmission modes- Serial & Parallel, Simplex, Half duplex & full duplex, Synchronous & Asynchronous transmission, Transmission medium- Guided & Unguided, Cables- Twisted pair, Coaxial cable & Optical Fiber, Networking Devices-Repeaters, Hub, Switch, Bridge, Router, Gateway and Modem

Unit V - Software and Web Design:

The evolving role of software, changing nature of software, software myths. Software engineering - a layered technology, a process framework. Software Development Models - The waterfall model, incremental models, evolutionary models. **Web Designing Technologies:** The World Wide Web, Web Browsers, Web Servers, Uniform Resource Locators, Domain name system (DNS), Multipurpose Internet Mail Extensions, The Hypertext Transfer Protocol, FTP, HTML, Basic Text Markup, Lists, Tables, Forms, Frames, Hyperlinks, Images, Multimedia, Forms and Controls.

RECOMMENDED BOOKS:

- Fundamentals of Computer Engineering, E. Balagurusamy, Tata McGraw Hill Education Pvt. Ltd.
- Introduction of Computers : Peter Norton, TMH
- Computer Networks: Andrew Tananbaum, PHI
- Basic Computer Engineering: Silakari and Shukla, Wiley India

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COURSE OUTCOMES:

After completion of the course students would be able to:
CO1: Define the fundamentals of computer systems.
CO2: Outline various components of the computer system.
CO3: Analyse basics of digital circuit design techniques.
CO4: Select appropriate methods to design algorithms for problem solving using computers.
CO5: Explain the importance of computer networks.
CO6: Choose suitable development tools to create web based applications for solving real world problems.

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INTRODUCTION TO COMPUTER PROGRAMMING
230102

COURSE OBJECTIVES

- To familiar with program readability/understanding including program style/formatting and self-documenting code.
- To familiar with debugging process.
- To design and implement basic programming solutions including statements, control structures, and methods.

Unit I

Introduction to Programming, Machine Level Languages, Assembly Level Languages, High Level Languages, Program Execution and Translation Process, Problem solving using Algorithms and Flowcharts. Introduction to C Programming: Data Types, Constants, Keywords, Operators & Expressions, Precedence of operators and input/output functions.

Unit II

Control Statements and Decision Making: The goto statement, The if statement, The if-else statement, Nesting of if statements, The conditional expression, The switch statement, The while loop, The do…while loop, The for loop, The nesting of for loops, The break and continue statement.

Unit III

Arrays, Strings & Pointers: One dimensional Arrays, Passing Arrays to Functions, Multidimensional Arrays, Strings, Basics of Pointers & Addresses, Pointer to Pointer, Pointer to Array, Array of Pointers, Types of pointers, Pointer to Strings.

Unit IV

Functions & Structures: Function Basics, Function Prototypes, Passing Parameter by value and by reference, Passing string to function, Passing array to function, Function returning address, Recursion, Structures & Union, Pointer to Structure, Self-Referential Structures, Dynamic memory allocation by malloc/calloc function, Storage Classes.

Unit V

File Handling: Defining and Opening a file, Closing Files, Input/output Operations on Files, Predefined Streams, Error Handling during I/O Operations, Command Line Arguments.

RECOMMENDED BOOKS

- Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India.
- Paul Deitel and Harvey M. Deitel , How to Program, Pearson Publication.
- Yashavant Kanetkar , Let Us C, BPB publication.
- E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill.
- Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill.

COURSE OUTCOMES

After completion of the course students would be able to:

CO1: identify situations where computational methods and computers would be useful.

CO2: describe the basic principles of imperative and structural programming.

CO3: develop a pseudo-code and flowchart for a given problem.

CO4: analyze the problems and choose suitable programming techniques to develop solutions.

CO5: design, implement, debug and test programs.

CO6: design computer programs to solve real world problems.
