



**B.Sc. (Computer Science)**  
**B.Sc. (CS) (Semester-II)**

Course Code	<b>US02MACSC01</b>	Title of the Course	<b>Computer Fundamentals - II</b>
Total Credits of the Course	<b>4</b>	Hours per Week	<b>4</b>

Course Objectives:	<ol style="list-style-type: none"><li>1. To provide basic understanding of information and parallel instruction execution.</li><li>2. To impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.</li><li>3. To provide knowledge on spreadsheets and presentation tools.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	<b>Representation of Information and Parallel Instruction Execution</b> <ul style="list-style-type: none"><li>– Representation of integers</li><li>– Character codes (ASCII, Unicode)</li><li>– Error detection and correction codes, Hamming code</li><li>– Array processors, Multiprocessors, Multifunctional units, Pipelining</li></ul>	25
2.	<b>Problem Solving Through Logic Development, Gates and Boolean Algebra</b> <ul style="list-style-type: none"><li>– Examples of advanced problem solving through logic development</li><li>– Gates, Boolean Algebra</li><li>– Truth Tables</li><li>– Logic circuits for given Boolean expressions</li><li>– De Morgan's Theorems</li></ul>	25
3.	<b>Office Automation Tools – Spreadsheets</b> <ul style="list-style-type: none"><li>– Introduction to spreadsheets with features and applications</li><li>– Working with workbook, worksheets and cells<ul style="list-style-type: none"><li>- Creating, opening and sharing workbook</li></ul></li></ul>	25





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	<ul style="list-style-type: none"> <li>- Adding, removing, copying and renaming worksheets</li> <li>- Modifying columns, rows and cells, formatting cells</li> <li>- Working with formulas and functions, sorting and filtering the data</li> <li>- Making charts (Bar chart, pie charts)</li> </ul>	
4.	<b>Presentation Tools</b> <ul style="list-style-type: none"> <li>- Introduction to PowerPoint with features and applications</li> <li>- Creating a presentation: working with slides</li> <li>- Applying Themes and Slide Transitions</li> <li>- Inserting and formatting: picture, clip arts, shapes, lists, slides</li> <li>- Animating Text and Objects</li> <li>- Working with tables, charts and PowerPoint presentation view</li> </ul>	25

Teaching-Learning Methodology	Multiple teaching approaches: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CCSC R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CCSC R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understanding the fundamentals of information and parallel instruction execution.
2.	impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.
3.	provide knowledge on spreadsheets and presentation tools.





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Suggested References:

Sr. No.	References
1.	Rajaraman V, Computer Fundamentals, Prentice-Hall of India Pvt. Ltd.(4 <sup>th</sup> Edition), 2003.
2.	P.K. Sinha, Priti Sinha, Computer Fundamentals, 6 <sup>th</sup> Edition, 2003.
3.	Malvino A. P.: Digital Computer Electronics, 2 <sup>nd</sup> Edition, Tata McGraw, Hill Pub. Co. Ltd.,New Delhi, 1990.
4.	Gothmann, William H. : Digital Electronics - An Introduction to Theory and Practice, 2nd Edition,PHI,1982.
5.	Taxali R K : PC Software made simple for Windows, Tata McGraw-Hill Publishing Co. Ltd., 2000.
6.	Manuals of PC software.

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Vallabh Vidyanagar, Gujarat  
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Syllabus with effect from the Academic Year 2023-2024

**B.Sc. (Computer Science)**  
**B.Sc. (CS) (Semester-II)**

Course Code	<b>US02MACSC02</b>	Title of the Course	<b>Practical Based on US02MACSC01</b>
Total Credits of the Course	<b>4</b>	Hours per Week	<b>8</b>

Course Objectives:	<ol style="list-style-type: none"><li>1. To provide basic understanding of information and parallel instruction execution.</li><li>2. To impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.</li><li>3. To provide knowledge on spreadsheets and presentation tools.</li></ol>
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Course Content		
	Description	Weightage* (%)
	Part-1 : Practical based on US02MACSC01 (Unit-1 and Unit-2)	50%
	Part-2 : Practical based on US02MACSC01 (Unit-3 and Unit-4)	50%

Teaching-Learning Methodology	Hands on training through required ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CCSC R.6.8.3)	-
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CCSC R.6.8.3)	-
3.	University Examination	100%





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Course Outcomes: Having completed this course, the learner will be able to

1.	understanding the fundamentals of information and parallel instruction execution.
2.	impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.
3.	provide knowledge on spreadsheets and presentation tools.

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**B.Sc. (Computer Science)**  
**B.Sc. (CS) (Semester-II)**

Course Code	<b>US02MICSC01</b>	Title of the Course	<b>Computer Basics and Logic Gates</b>
Total Credits of the Course	<b>2</b>	Hours per Week	<b>2</b>

Course Objectives:	<ol style="list-style-type: none"><li>1. To provide basic understanding of information and parallel instruction execution.</li><li>2. To impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	<b>Representation of Information and Parallel Instruction Execution</b> <ul style="list-style-type: none"><li>– Representation of integers</li><li>– Character codes (ASCII, Unicode)</li><li>– Error detection and correction codes, Hamming code</li><li>– Array processors, Multiprocessors, Multifunctional units, Pipelining</li></ul>	50
2.	<b>Problem Solving Through Logic Development, Gates and Boolean Algebra</b> <ul style="list-style-type: none"><li>– Examples of advanced problem solving through logic development</li><li>– Gates, Boolean Algebra</li><li>– Truth Tables</li><li>– Logic circuits for given Boolean expressions</li><li>– De Morgan's Theorems</li></ul>	50

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approaches: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations
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**B.Sc. (CS) (Semester-II)**

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CCSC R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CCSC R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understanding the fundamentals of information and parallel instruction execution.
2.	impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.

Suggested References:	
1.	Rajaraman V, Computer Fundamentals, Prentice-Hall of India Pvt. Ltd.(4 <sup>th</sup> Edition), 2003.
2.	Tanenbaum A.S., Structured Computer Organization, Prentice-Hall of India Pvt. Ltd, 5th edition, 2005.
3.	P.K. Sinha, Priti Sinha, Computer Fundamentals, 6 <sup>th</sup> Edition, 2003.
4.	Malvino A. P.: Digital Computer Electronics, 2 <sup>nd</sup> Edition, Tata McGraw, Hill Pub. Co. Ltd.,New Delhi, 1990.
5.	Gothmann, William H. : Digital Electronics - An Introduction to Theory and Practice, 2nd Edition,PHI,1982.
6.	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, “ Introduction to Algorithms” 3 <sup>rd</sup> Edition, The MIT Press Cambridge, Massachusetts London, England, 2009.





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7.	Steven S. Skiena, "The Algorithm Design Module", 2 <sup>nd</sup> Edition, Springer-Verlag London Limited, 2008.
8.	Donald E. Knuth, The Art of Computer Programming, Volume 1: Fundamental Algorithms, 3 <sup>rd</sup> Edition, Addison Wesley Longman, 1997.

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**B.Sc. (Computer Science)**  
**B.Sc. (CS) (Semester-II)**

Course Code	<b>US02MICSC02</b>	Title of the Course	<b>Practical Based on US02MICSC01</b>
Total Credits of the Course	<b>2</b>	Hours per Week	<b>4</b>

Course Objectives:	<ol style="list-style-type: none"><li>1. To provide basic understanding of information and parallel instruction execution.</li><li>2. To impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.</li></ol>
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Course Content		
	Description	Weightage* (%)
	Practical based on US02MICSC01	100%

Teaching-Learning Methodology	Hands on training through required ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CCSC R.6.8.3)	-
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CCSC R.6.8.3)	-
3.	University Examination	100%





**B.Sc. (Computer Science)**  
**B.Sc. (CS) (Semester-II)**

Course Outcomes: Having completed this course, the learner will be able to

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|----|---|
| 1. | understanding the fundamentals of information and parallel instruction execution.         |
| 2. | impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra. |

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**B.Sc. (Computer Science)**  
**B.Sc. (CS) (Semester-II)**

Course Code	<b>US02IDCSC01</b>	Title of the Course	<b>Basics of Computers - II</b>
Total Credits of the Course	<b>2</b>	Hours per Week	<b>2</b>

Course Objectives:	<ol style="list-style-type: none"><li>1. To provide basic understanding of information and parallel instruction execution.</li><li>2. To impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.</li></ol>
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Course Content		
Unit	Description	Weightage* (%)
1.	<b>Representation of Information and Parallel Instruction Execution</b> <ul style="list-style-type: none"><li>– Representation of integers</li><li>– Character codes (ASCII, Unicode)</li><li>– Error detection and correction codes, Hamming code</li><li>– Array processors, Multiprocessors, Multifunctional units, Pipelining</li></ul>	50
2.	<b>Problem Solving Through Logic Development, Gates and Boolean Algebra</b> <ul style="list-style-type: none"><li>– Examples of advanced problem solving through logic development</li><li>– Gates, Boolean Algebra</li><li>– Truth Tables</li><li>– Logic circuits for given Boolean expressions</li><li>– De Morgan's Theorems</li></ul>	50

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approaches: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CCSC R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CCSC R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understanding the fundamentals of information and parallel instruction execution.
2.	impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.

Course Objectives:	1. To provide knowledge on spreadsheets. 2. To provide knowledge on presentation tools.
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Suggested References:	
1.	Rajaraman V, Computer Fundamentals, Prentice-Hall of India Pvt. Ltd.(4 <sup>th</sup> Edition), 2003.
2.	Tanenbaum A.S., Structured Computer Organization, Prentice-Hall of India Pvt. Ltd, 5 <sup>th</sup> edition, 2005.
3.	P.K. Sinha, Priti Sinha, Computer Fundamentals, 6 <sup>th</sup> Edition, 2003.
4.	Malvino A. P.: Digital Computer Electronics, 2 <sup>nd</sup> Edition, Tata McGraw, Hill Pub. Co. Ltd.,New Delhi, 1990.





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5.	Gothmann, William H. : Digital Electronics - An Introduction to Theory and Practice, 2nd Edition, PHI, 1982.
6.	Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, “Introduction to Algorithms” 3 <sup>rd</sup> Edition, The MIT Press Cambridge, Massachusetts London, England, 2009.
7.	Steven S. Skiena, “The Algorithm Design Module”, 2 <sup>nd</sup> Edition, Springer-Verlag London Limited, 2008.
8.	Donald E. Knuth, The Art of Computer Programming, Volume 1: Fundamental Algorithms, 3 <sup>rd</sup> Edition, Addison Wesley Longman, 1997.

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Course Code	<b>US02IDCSC02</b>	Title of the Course	<b>Practical Based on US02IDCSC01</b>
Total Credits of the Course	<b>2</b>	Hours per Week	<b>4</b>

Course Objectives:	<ol style="list-style-type: none"><li>1. To provide basic understanding of information and parallel instruction execution.</li><li>2. To impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra.</li></ol>
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Course Content		
	Description	Weightage* (%)
	Practical based on US02IDCSC01	100%

Teaching-Learning Methodology	Hands on training through required ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CCSC R.6.8.3)	-
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CCSC R.6.8.3)	-
3.	University Examination	100%





**B.Sc. (Computer Science)**  
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Course Outcomes: Having completed this course, the learner will be able to

- |    |   |
|----|---|
| 1. | understanding the fundamentals of information and parallel instruction execution.         |
| 2. | impart knowledge on Problem Solving Through Logic Development, Gates and Boolean Algebra. |

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