

Sr. No.	Additional Information
1	Additional Information related Information related to Practice 1and 2
2	Practice 1: Lecture Guide
3	Practice 2: BTech Autonomy Programme Structure
4	Practice2:MMS Autonomy Programme Structure

6.5.1 Internal Quality Assurance Cell (IQAC) has contributed significantly for institutionalizing quality assurance strategies and processes visible in terms of incremental improvements made during the preceding year with regard to quality (in case of the First Cycle):

Incremental improvements made during the preceding year with regard to quality and post -accreditation quality initiatives (Second and subsequent cycles):

Describe two practices that have been institutionalized as a result of IQAC initiatives (within a maximum of 200 words).

File Description

- Upload any additional information
- Paste link for additional information

Additional Information: Practice 1 Lecture Guide:

Lecture guide prepared for courses aligns with the overall curriculum and program outcomes. It develops a detailed syllabus that outlines the topics to be covered in the course, including the order and timeline for each topic. This provides a roadmap for the entire semester. It incorporates active learning strategies like group discussions, problem-solving activities, case studies, and hands-on projects. It helps student engagement that enhances understanding and retention of the concept taught. It also helps to create a well-balanced assessment plan for the faculty that includes quizzes, exams, assignments, and projects. These assessments align with the course outcomes and provide opportunities for students to demonstrate their knowledge and skills.

Each faculty prepares the lecturer guide covering the following points related to their subject.

- Module Overview and Objectives
- Learning Outcomes and Assessment Criteria:
- Syllabus
- Resources
- Pedagogic Approach
 - Lectures
 - Laboratory Sessions
 - Private / Self studies
- Assessment

- Further Reading List

This dynamic guide evolves to meet the needs of both the students and the instructor to create a structured and engaging learning experience that helps students achieve the course objectives and, ultimately, excel in their field.

Additional Information Practice 2:GE and LE courses

The courses will be offered to students on “first come first serve basis”. Students will select the courses from available options and course categories. Each of the courses will be of 30 hours and will be conducted by experts from the field inclusive of assessment.

General Education Courses: Our curriculum also introduces Social Service Internship and Internship with institutes abroad along with courses like Design Thinking, Wellness – Body, Mind & Spirit, Indian Traditional Knowledge system under General Education category.

These general education courses aim to create

- Improve learners’ clarity in thoughts and responses due to balance in brain hemisphere.
- To facilitate holistic and multidisciplinary education
- To develop proactive thinking to apply the knowledge in the dynamic and socio-economic business ecosystem.

Life Enrichment Courses: The curriculum is augmented with Life Enrichment audit courses for knowledge inspiring experience.

These courses are offered to support learners’

- Physical, social, emotional, and cognitive well-being in addition to the academic and general education courses.
- The life enrichment courses will foster learners’ personal growth and creativity as these courses are essential for their overall quality of life.

Honors/ Minor degree: Learner can avail this degree by completing requirement of additional 15 credits.

List of General Education Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	GE01	Design Thinking	2	-	1	3	2
2	GE02	Social Service Internship/ Project	-	6	-	3	3
3	GE03	Internship with other Institutes (Credit Transfer)	2	4	-	4	SE Break
4	GE04	Wellness – Body, Mind & Spirit	1	2	-	2	Any
5	GE05	Basics of Finance & Legal aspects for Business	2	-	-	2	Any
6	GE06	Indian Constitution	2	-	-	2	Any
7	GE07	Universal Human Values	2	-	-	2	Any
8	GE08	Indian Traditional Knowledge System	2	-	-	2	Any
9	GE09	Corporate and Social Etiquettes	2	-	-	2	Any
10	GE10	Global Citizenship Education	2	-	-	2	Any

First Year MMS General Education Courses (GE):

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Lecture	Practical	Tutorial	Lecture	Practical	Tutorial	Total
MSGEO1	Indian Cinema Global Perspective	3	-	-	2	-	-	2
MSGEO2	Corporate Etiquettes	3	-	-	2	-	-	2
MSGEO3	Waste Management - Process, Concept and Working	3	-	-	2	-	-	2

First Year MMS Life Enrichment Courses (LE):

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Lecture	Practical	Tutorial	Lecture	Practical	Tutorial	Total
MSLE01	Local History and Culture	3	-	-	Grade will be assigned			
MSLE02	Film Appreciation	3	-	-				
MSLE02	Mindfulness and Resilience	3	-	-				
MSLE04	Performing Arts	3	-	-				

Fundamentals of Logic Circuits (ES07)

Lecturer Guide

Category: Engineering Sciences

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MODULE OVERVIEW

1. Module Overview and Objectives:

This course introduces learners to the understanding of fundamental of Number systems, basic analog-digital circuits like diode, BJT, Gates etc. and their applications. It also gives the insights of Boolean algebra. It will motivate the learners to design combinational logic circuits and demonstrates them during practical.

2. Learning Outcomes and Assessment Criteria:

Learning Outcomes: The Learner will:	Assessment Criteria: The Learner can:
1. Understand the various Number System.	1.1 Explain the different number systems. 1.2 Perform interconversion of different number systems.
2. Apply the knowledge of Number System to perform Arithmetic operations.	2.1 Explain different codes. 2.2 Perform binary arithmetic operations using 1's & 2's Complement method. 2.3 Perform BCD Addition.
3. Understand the basic electronics circuits & their applications.	3.1 Explain the working of Diode and Bipolar junction transistor. 3.2 Draw & explain C-E configuration of BJT & Input output characteristics. 3.3 Discuss applications of BJT.
4. Illustrate the working principle of logic gates.	4.1 Explain working of Logic gates using truth table. 4.2 Design & implement logic gates using universal gates.
5. Apply the knowledge of Boolean algebra for reduction of Boolean function.	5.1 Explain theorems & properties of Boolean Algebra. 5.2 Write Boolean function in standard SOP & POS formats. 5.3 Perform reduction of complex Boolean functions using Boolean theorems & properties.
6. Design and implement various combinational & sequential logic circuits.	6.1 Compare combinational circuits & Sequential circuits. 6.2 Explain working of half & full Adder & Subtractor, MUX, DEMUX, Encoder, Decoder. 6.3 Explain working of SR, JK, D & T flipflops using truth table. 6.4 Discuss various applications of flip flops.

3. Syllabus:

Syllabus			
Topic No	Title	Proportion	Content
1	Number Systems and Codes	13.33% 4 Hours of Lectures 2 Hours of Laboratory sessions	Introduction to Number systems, Binary Number systems, Signed Binary Numbers, Binary, Octal, Decimal and Hexadecimal number and their interconversion. Learning outcome: 1
2	Codes & Arithmetic Operations	16.67% 5 Hours of Lectures 4 Hours of Laboratory sessions	Codes: Grey, BCD, Excess-3, ASCII, Parity Code, Hamming Code, Binary arithmetic operations using 1's and 2's complement, BCD addition. Learning outcome: 2
3	Basic Electronics Circuits	16.67% 5 Hours of Lectures 2 Hours of Laboratory sessions	Diode as a switch, Introduction to Bipolar Junction transistor, C-E configuration, Input output characteristics of BJT, Applications of BJT as a Switch. Learning outcome: 3
4	Logic Gates	20% 6 Hours of Lectures 4 Hours of Laboratory sessions	Logic Gates: AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR, Implementation of gates using universal gates, Tri-state buffer. Learning outcome: 4
5	Boolean Algebra	13.33% 4 Hours of Lectures 2 Hours of Laboratory sessions	Theorems and Properties of Boolean Algebra, Standard SOP and POS form, Reduction of Boolean functions using Algebraic method. Learning outcome: 5
6	Combinational Circuits	20% 6 Hours of Lectures 8 Hours of Laboratory sessions	Introduction to combinational circuits, Half Adder, Full Adder, MUX, DEMUX, Encoder, Decoder, Introduction to Flip Flop: SR, JK, D, T (Truth table), Application of Flip-flop as a memory unit. Learning outcome: 6

4. Resources:

Lecturer Guide: This guide contains notes for lecturers on the organisation and delivery of each topic, and suggested use of the resources. It also contains guidance on

assessing formative activities and providing feedback to students. Where appropriate, model answers for the activities presented in the Student Guide are included.

PowerPoint Slides: These are presented for each topic for use in the lectures. They contain many examples which can be used to explain the key concepts. There are brief notes with some slides, suggesting activities that the lecturer might direct the students to look at in private study. It is suggested that the slides are made available to the students as part of their study material, either before the lecture or at the end of the lecture as appropriate.

Student Guide: This guides the student through the module and presents details of the tasks they should undertake during the laboratory sessions. It also includes the activities which have been provided for private study time. Student Guide will consist of set of Assignment tasks and optional additional activities including chart / model making. These instructions and documentation will be provided to the students on periodic basis.

All laboratory sessions require some setting up before the student can start. It is important for lecturers to review all the lab sessions before the module starts and to ensure that the appropriate facilities are available for each session. For few of the laboratory sessions, some simulation software packages will be used for demonstration.

5. Pedagogic Approach

Suggested Learning Hours						
Guided Learning Hours				Assessment	Private Study	Total
Lectures	Tutorial	Seminar	Laboratory			
30	--	--	20	10 hours (5 Assignments)	30 hours	80

5.1 Lectures

The PowerPoint slides are presented for use during this time. Students should also be encouraged to be active during this time, engaging in discussions and practising the concepts covered. Students should take notes and maintain their own individual copy of separate note book for this subject. The PowerPoint slides can be made available before the lecture, to allow students to prepare, or after the lecture as an aid to further study.

5.2 Laboratory Sessions

These sessions take a task-based approach to student learning, The details of the practical tutorials and exercises which students should work through are provided in the Student Guide / Lab Manual. The level of the detail at which tasks are specified varies. This is to encourage

students to develop independent study and work skills. Additional information on the approach to each lab task is given in these notes for lecturers.

5.3 Private Study

In addition to the taught portion of the module, students will also be expected to undertake private study. Exercises are provided in the student guide for students to complete during this time. Teachers will need to set deadlines for the completion of this work and then review the solution with the students. Most of the private study ties in the lab sessions and involves further research to understand the lab activities and the time spent writing up the lab reports, which are assessed.

6. Assessment

Total of five assignments comprising of questions designed on all the six modules will be given to the student on periodic interval basis with clear mention of issue and submission of assignment exercises. Each assignment is designed to be completed in normal of 2 hours of duration with standard practice of learning. The submitted assignments will be reviewed along with the students and term work marks will be calculated based on performance of student in each assignment. Assignment work will be combined with the laboratory reports completed during the lab sessions.

7. Further Reading List

The following textbooks and reference books provide suggestions of suitable sources of further reading for this module. These books are made available in the institute's library.

- R. P. Jain "Modern Digital Electronics", Tata McGraw Hill (Textbook)
- Donald A. Neamen "Electronic Circuit Analysis and Design", Tata McGraw Hill 2nd Ed. (Textbook)
- M. Morris Mano "Digital Logic and Computer Design" PHI (Reference Book)
- Robert L. Boylestad, Louis Nashelsky "Electronic Devices and Circuit Theory" PHI (Reference Book)
- Donald P Leach, Albert Paul Malvino "Digital Principles and Applications" TMH (Reference Book)

Topic 1: Number Systems and Codes

1.1 Learning Objectives

This topic provides an overview of the module and introduction to different types of number system convention used in computer systems. The module also covers different codes and binary arithmetic operations. On completion of this topic, students will be able to:

- Outline the structure of this module
- Identify different number system conventions used in digital computation
- Compare different types of binary codes and their usages
- Perform binary arithmetic operations

1.2 Pedagogic Approach

This topic will be delivered through four hours and laboratory sessions of two hours. The information will be communicated to the students during the lectures. Lectures are designed to be as interactive and engaging as possible. Student will maintain their own individual note book copy and undertake practical activities to reinforce and deepen their understanding of the module introduced in the lecture. Finally private study will be used to consolidate learning and explore some aspects in greater details.

1.3 Timings

Lectures: 4 Hours

Laboratory Sessions: 2 Hours

Private Study: 4 Hours

1.4 Lecture Notes – PowerPoint presentation will be shared beforehand or after the completion of module and intermittent write up on important topics will be given during the lecture sessions. Student will maintain given lecture notes in their individual class note book.

- Staff and student introduction
- Explanation of learning outcomes
- Module syllabus
- Module Delivery mechanism
- Assessment and evaluation mechanism
- Introduction to the number systems
- Interconversion of number systems
- Introduction to different binary codes and their usages
- Performing arithmetic operations

1.4.1 Guidance on the Use of the Slides

- Student will be demonstrated slides on each topic of the module during the lecture session
- Lecturer will explain and elaborate the concept through slide and additionally will make use of blackboard and chalk if necessary
- Student can jot down important content and example demonstration illustrated by the lecturer

1.5 Laboratory Sessions

The laboratory session consists of one lab exercise for module – 1 based on number systems and codes and arithmetic operation. Number conversion exercises will be included in lab sessions (for details refer **Table 3 Syllabus**)

1.5.1 Task Guidance

Task 1 – Study the different number systems used in digital circuits and understand and perform their interconversion

- Number system representation for digital logic circuit
- Base system study – Binary, Decimal, Octal, and Hexadecimal
- Interconversion techniques for base system for transformation

Examples of each number base system will be provided during the laboratory session. Student will use their skills to convert the numbers from one base system to another using the theory concept and procedures learned in theory class.

1.6 Private Study Activities

Assignment 1 will be based on module-1. The details of assignment-1 will be notified to the student group through Outlook account. Assignment soft copy will be distributed with clear mention of date of submission to the student beforehand. Every student should complete the assignment and submit it in the given time schedule. This assignment will be counted towards grade credit of in semester activities. Assignment will be treated directly under the assessment head. Apart from assignment, student should perform following activities as their private studies:

- Survey different books and material available in the library with personal visit to the library
- Individual notes making using the class note book and discuss with lecturer during theory and lab sessions
- Design and development of relevant charts / models related to the module (optional and includes extra consideration)

Assignment - 1

Task

Q1. Convert following octal numbers to corresponding decimal equivalents: 65, 216, 4073. Elaborate what is the necessity of using different base or radixes for number system?

Q2. Convert following binary numbers to corresponding octal numbers: 10101111, 1101.0110111. Take an example of vehicle odometer (decimal number system by default), find out how the readings of the odometer will change when the base system of number is considered in octal.

1.6.1 Private Study Follow-up

Every student will be provided with guidance to solve the given assignment exercise. During individual review the student is also assessed for his / her understanding of the topic with simple interaction and discussion. All students should review their lecture material including their own write up notes in class note book.

Exercise – Refer algorithmic procedures to convert number systems from one base to another base covered under theory class. Use these taught techniques to solve given example exercises in assignment-1

Topic 2: Codes & Arithmetic Operations

2.1 Learning Objectives

This topic provides an overview of the different types of Codes like Grey, BCD, Excess-3, ASCII, Parity Code, Hamming Code and Binary arithmetic operations using 1's and 2's complement, BCD addition.

students will be able to:

- Apply the knowledge of Number system to perform Arithmetic operations.
- Application of codes in computer communications

2.2 Pedagogic Approach

This topic will be delivered through five hours and laboratory sessions of four hours. The information will be communicated to the students during the lectures. Lectures are designed to be as interactive and engaging as possible. Student will maintain their own individual note book copy and undertake practical activities to reinforce and deepen their understanding of the module introduced in the lecture. Finally private study will be used to consolidate learning and explore some aspects in greater details.

2.3 Timings

Lectures: 5 Hours

Laboratory Sessions: 4 Hours

Private Study: 5 Hours

2.4 Lecture Notes – PowerPoint presentation will be shared beforehand or after the completion of module and intermittent write up on important topics will be given during the lecture sessions. Student will maintain given lecture notes in their individual class note book.

- Explanation of learning outcomes
- Module syllabus
- Module Delivery mechanism
- Assessment and evaluation mechanism
- Introduction to various codes: Grey, BCD, Excess-3, ASCII, Parity Code, Hamming Code
- Binary arithmetic operations using 1's and 2's complement, BCD addition.

2.4.1 Guidance on the Use of the Slides

- Student will be demonstrated slides on each topic of the module during the lecture session
- Lecturer will explain and elaborate the concept through slide and additionally will make use of blackboard and chalk if necessary
- Student can jot down important content and example demonstration illustrated by the lecturer

2.5 Laboratory Sessions

The laboratory session consists of three lab exercises for module – 2 based on logic families and logic gates. (For details refer **Table 3 Syllabus**)

2.5.1 Task Guidance

Task 1 – Design 1's complement circuit for 4-bit number

Task 2 – Study the different coding convention used in digital electronics and understand their usage

- Representation of data into structured formats (Code Representation)
- Binary Coded Decimal (BCD) codes
- Grey Codes
- Applications and usages

The binary code of the data is represented by two values 0s and 1s. The grey code increments differently from one number to the next number. The MSB bit of grey code is same as MSB bit of binary code. Use the method of conversion taught in the class theory and convert the grey code to corresponding binary code.

2.6 Private Study Activities

Assignment 2 will be based on module-2. The details of assignment-2 will be notified to the student group through Outlook account. Assignment soft copy will be distributed with clear mention of date of submission to the student beforehand. Every student should complete the assignment and submit it in the given time schedule. This assignment will be counted towards grade credit of in semester activities. Assignment will be treated directly under the assessment head. Apart from assignment, student should perform following activities as their private studies:

- Survey different books and material available in the library with personal visit to the library
- Individual notes making using the class note book and discuss with lecturer during theory and lab sessions
- Design and development of relevant charts / models related to the module (optional and includes extra consideration)

Assignment - 2

Task

Q1. Write short note on grey code. Explain typical application making use of grey code. Find out motor revolution mechanism in RPM. Can we apply unique property of the grey code to encode the RPM readings of motor rotation speed?

Q2. Explain Hamming Code procedure with two examples. For what fundamental reasons, the Hamming Code procedure is essential in digital computers?

2.6.1 Private Study Follow-up

Every student will be provided with guidance to solve the given assignment exercise. During individual review the student is also assessed for his / her understanding of the topic with simple interaction and discussion. All students should review their lecture material including their own write up notes in class note book.

Exercise – Find out the significance and usage of BCD and grey codes in digital application.

Topic 3: Basic Electronics Circuits

3.1 Learning Objectives

This topic provides an overview of the diode and transistor circuits

Students will be able to:

- Understand use of diodes and transistors in digital circuits

3.2 Pedagogic Approach

This topic will be delivered through five hours and laboratory sessions of two hours. The information will be communicated to the students during the lectures. Lectures are designed to be as interactive and engaging as possible. Student will maintain their own individual note book copy and undertake practical activities to reinforce and deepen their understanding of the module introduced in the lecture. Finally private study will be used to consolidate learning and explore some aspects in greater details.

3.3 Timings

Lectures: 5 Hours

Laboratory Sessions: 2 Hours

Private Study: 5 Hours

3.4 Lecture Notes – PowerPoint presentation will be shared beforehand or after the completion of module and intermittent write up on important topics will be given during the lecture sessions. Student will maintain given lecture notes in their individual class note book.

- Explanation of learning outcomes
- Module syllabus
- Module Delivery mechanism
- Assessment and evaluation mechanism
- Introduction to diode and its use as a switch
- Introduction to BJT in C-E configuration
- Input-Output characteristics of BJT

3.4.1 Guidance on the Use of the Slides

- Student will be demonstrated slides on each topic of the module during the lecture session
- Lecturer will explain and elaborate the concept through slide and additionally will make use of blackboard and chalk if necessary
- Student can jot down important content and example demonstration illustrated by the lecturer

3.5 Laboratory Sessions

The laboratory session consists of three lab exercises for module – 3 based on Combinational Logic Circuits. (For details refer **Table 3 Syllabus**)

3.5.1 Task Guidance

Task 1 – Implement NOT gate using Transistor

3.6 Private Study Activities

Assignment 3 will be based on module-3. The details of assignment-3 will be notified to the student group through Outlook account. Assignment soft copy will be distributed with clear mention of date of submission to the student beforehand. Every student should complete the assignment and submit it in the given time schedule. This assignment will be counted towards grade credit of in semester activities. Assignment will be treated directly under the assessment head. Apart from assignment, student should perform following activities as their private studies:

- Survey different books and material available in the library with personal visit to the library
- Individual notes making using the class note book and discuss with lecturer during theory and lab sessions
- Design and development of relevant charts / models related to the module (optional and includes extra consideration)

Assignment - 3

Task

Q1. Explain input characteristics of BJT in C-E configuration.

Q2. Explain output characteristics of BJT in C-E configuration.

3.6.1 Private Study Follow-up

Every student will be provided with guidance to solve the given assignment exercise. During individual review the student is also assessed for his / her understanding of the topic with simple interaction and discussion. All students should review their lecture material including their own write up notes in class note book.

Exercise – Explain any one real-life application of BJT as a switch with neat diagram.

Topic 4: Logic Gates

4.1 Learning Objectives

This topic provides an overview of the module and introduction to different types of logic gates used in digital computer systems. Basic logic gates (AND, OR, NOT) and mutual exclusive gates (EX-OR, EX-NOR) will be covered in this module. On completion of this topic, students will be able to:

- Study different basic gates and exclusive gates

4.2 Pedagogic Approach

This topic will be delivered through six hours and laboratory sessions of four hours. The information will be communicated to the students during the lectures. Lectures are designed to be as interactive and engaging as possible. Student will maintain their own individual note book copy and undertake practical activities to reinforce and deepen their understanding of the module introduced in the lecture. Finally private study will be used to consolidate learning and explore some aspects in greater details.

4.3 Timings

Lectures: 6 Hours

Laboratory Sessions: 4 Hours

Private Study: 6 Hours

4.4 Lecture Notes – PowerPoint presentation will be shared beforehand or after the completion of module and intermittent write up on important topics will be given during the lecture sessions. Student will maintain given lecture notes in their individual class note book.

- Explanation of learning outcomes
- Module syllabus
- Module Delivery mechanism
- Assessment and evaluation mechanism
- Introduction to Logic gates: Basic gates – AND, OR, NOT and Exclusive gates – EXOR, EXNOR truth table
- Realize universal gates (NAND, NOR) gates

4.4.1 Guidance on the Use of the Slides

- Student will be demonstrated slides on each topic of the module during the lecture session
- Lecturer will explain and elaborate the concept through slide and additionally will make use of blackboard and chalk if necessary
- Student can jot down important content and example demonstration illustrated by the lecturer

4.5 Laboratory Sessions

The laboratory session consists of two lab exercises logic gates. (For details refer **Table 3 Syllabus**)

4.5.1 Task Guidance

Task 1 – Verification of truth table for various logic gates

Logic gate packages are available in the form of integrated circuits (ICs). In this experiment student will verify the Boolean logic working for these different basic gates, universal gates and exclusive gates.

Student will verify the truth table for following gates. Student will verify the truth table using logic trainer board available in the lab.

Logic Gate Type	IC Number (TTL)
AND	7408
OR	7432
NOT	7404
NOR	7402
NAND	7400
EX-OR	7486
EX-NOR	74266

Task 2 – Implement basic and exclusive gates using Universal gates

In this experiment universal logic gates: NAND and NOR only used to implement functions of basic gates as well as exclusive gates. Specific arrangement of these universal gates are accomplished to obtain the functionality of basic and exclusive gates operations and thus validate their reason to be called as universal gates. Student groups will try combinations of NAND and NOR gates in IC package to implement above functions and realize that, these universal gates will form basic building blocks in the digital electronics circuits.

4.6 Private Study Activities

Assignment 4 will be based on module-4. The details of assignment-4 will be notified to the student group through Outlook account. Assignment soft copy will be distributed with clear mention of date of submission to the student beforehand. Every student should complete the assignment and submit it in the given time schedule. This assignment will be counted towards grade credit of in semester activities. Assignment will be treated directly under the assessment head. Apart from assignment, student should perform following activities as their private studies:

- Survey different books and material available in the library with personal visit to the library
- Individual notes making using the class note book and discuss with lecturer during theory and lab sessions
- Design and development of relevant charts / models related to the module (optional and includes extra consideration)

Assignment – 4

Task-1

Q1. Why NAND and NOR gates are called as universal gates and how they can be used to implement other gates?

4.6.1 Private Study Follow-up

Every student will be provided with guidance to solve the given assignment exercise. During individual review the student is also assessed for his / her understanding of the topic with simple interaction and discussion. All students should review their lecture material including their own write up notes in class note book.

Exercise – Describe any real-life application using logic gates.

Exercise 2 – Realize basic gates using universal gates NOR and NAND

Topic 5: Boolean Algebra

5.1 Learning Objectives

This topic provides an overview of the module and introduction to Boolean Algebra used in digital computer systems. On completion of this topic, students will be able to:

- Use Boolean Algebra and De Morgan's theorem to design simple logic using gates

5.2 Pedagogic Approach

This topic will be delivered through four hours and laboratory sessions of two hours. The information will be communicated to the students during the lectures. Lectures are designed to be as interactive and engaging as possible. Student will maintain their own individual note book copy and undertake practical activities to reinforce and deepen their understanding of the module introduced in the lecture. Finally private study will be used to consolidate learning and explore some aspects in greater details.

5.3 Timings

Lectures: 4 Hours

Laboratory Sessions: 2 Hours

Private Study: 4 Hours

5.4 Lecture Notes – PowerPoint presentation will be shared beforehand or after the completion of module and intermittent write up on important topics will be given during the lecture sessions. Student will maintain given lecture notes in their individual class note book.

- Explanation of learning outcomes
- Module syllabus
- Module Delivery mechanism
- Assessment and evaluation mechanism
- Introduction to Boolean Algebra and De Morgan's theorem

5.4.1 Guidance on the Use of the Slides

- Student will be demonstrated slides on each topic of the module during the lecture session
- Lecturer will explain and elaborate the concept through slide and additionally will make use of blackboard and chalk if necessary
- Student can jot down important content and example demonstration illustrated by the lecturer

5.5 Laboratory Sessions

The laboratory session consists of one lab exercises for module – 5 based on Boolean Algebra. (For details refer **Table 3 Syllabus**)

5.5.1 Task Guidance

Task – Reduction of the Boolean expression using Boolean laws & realize it using basic gates

In this experiment maximum up to four variable Boolean logic function reduction techniques will be implemented using either K map method and Quine McClusky method. The reduced logical function then realized with combination of gates or only with universal gates and circuit truth table is verified using digital logic trainer boards. Student will first reduce the logical expression with both methods and

then verify their answers within a multiple group. Upon verification of common reduced logical expression, the group will conduct experiment on logic trainer to implement it using available gates IC.

5.6 Private Study Activities

Assignment 5 will be based on module-5. The details of assignment-5 will be notified to the student group through Outlook account. Assignment soft copy will be distributed with clear mention of date of submission to the student beforehand. Every student should complete the assignment and submit it in the given time schedule. This assignment will be counted towards grade credit of in semester activities. Assignment will be treated directly under the assessment head. Apart from assignment, student should perform following activities as their private studies:

- Survey different books and material available in the library with personal visit to the library
- Individual notes making using the class note book and discuss with lecturer during theory and lab sessions
- Design and development of relevant charts / models related to the module (optional and includes extra consideration)

Assignment – 5

Task

Q1. State the basic identities of Boolean algebra. How Boolean algebra is used to formulate the digital function?

5.6.1 Private Study Follow-up

Every student will be provided with guidance to solve the given assignment exercise. During individual review the student is also assessed for his / her understanding of the topic with simple interaction and discussion. All students should review their lecture material including their own write up notes in class note book.

Exercise – Reduction of Boolean functions using Algebraic method.

Topic 6: Combinational Circuits

6.1 Learning Objectives

This topic provides an overview of the module and introduction to combinational digital logic circuits and their applications. The module contains simple arithmetic circuit without memory element. On completion of this topic, students will be able to:

- Design simple arithmetic logic circuits
- Design multiplexer and demultiplexer circuits
- Design encoder and decoder logic circuits

6.2 Pedagogic Approach

This topic will be delivered through six hours and laboratory sessions of two hours. The information will be communicated to the students during the lectures. Lectures are designed to be as interactive and engaging as possible. Student will maintain their own individual note book copy and undertake practical activities to reinforce and deepen their understanding of the module introduced in the lecture. Finally private study will be used to consolidate learning and explore some aspects in greater details.

6.3 Timings

Lectures: 6 Hours

Laboratory Sessions: 2 Hours

Private Study: 6 Hours

6.4 Lecture Notes – PowerPoint presentation will be shared beforehand or after the completion of module and intermittent write up on important topics will be given during the lecture sessions. Student will maintain given lecture notes in their individual class note book.

- Explanation of learning outcomes
- Module syllabus
- Module Delivery mechanism
- Assessment and evaluation mechanism
- Design and realize simple arithmetic circuits (adder and subtractors)
- Design and realize multiplexer and demultiplexer circuits
- Design and realize Encoder and Decoder circuits

6.4.1 Guidance on the Use of the Slides

- Student will be demonstrated slides on each topic of the module during the lecture session
- Lecturer will explain and elaborate the concept through slide and additionally will make use of blackboard and chalk if necessary
- Student can jot down important content and example demonstration illustrated by the lecturer

6.5 Laboratory Sessions

The laboratory session consists of one lab exercises for module – 5 based on Boolean Algebra. (For details refer **Table 3 Syllabus**)

6.5.1 Task Guidance

Task 1 – Design and implement half and full adder logic circuit using gates

Remember the procedure of binary addition and subtraction. Use basic gates (AND, OR) with exclusive gates (EXOR) to implement half adder circuit as covered in theory. Standard Boolean expressions are applied to perform addition of two numbers represented in binary format. First implement half adder circuit generating sum (with EXOR) and carry by the AND gate for two digital inputs A and B. Replace the basic gates with NAND gates only and count how many NAND universal gates are required. Repeat these steps to implement the full adder circuit also. Verify the truth table of half adder and full adder circuit implemented with basic and exclusive gates and with universal NAND gates.

Task 2 – Design and implement Multiplexer and Demultiplexer circuits

Multiplexers are combinational logic devices which are used to route the input signal to the one of the multiple output paths based on particular select control. In the laboratory the multiplexer devices are available in the form of standard IC package 74139. IC 74139 is a two channel 2 pin-controlled multiplexer device. The two control pins are used to route the input signal (enable signal – which is active low) to one of the four outputs. Verify both the channels for the truth table of combination of select control pins. Below is the truth table for single channel of IC74139.

Input Enable pin	Select or control Pins		Output pins / Channels of multiplexer			
	S1	S0	Y0	Y1	Y2	Y3
En (Active Low)						
1	X	X	1	1	1	1
0	0	0	0	1	1	1
0	0	1	1	0	1	1
0	1	0	1	1	0	1
0	1	1	1	1	1	0

Task 3 – Implement the given logical function using Multiplexers

The combinational logic circuit can be implemented and designed using multiplexer devices. Standard ICs like 74152 (8:1 MUX), 74150 (16:1 MUX) are available in the laboratory to design the combinational circuit. The combinational logic design using multiplexer provide many advantages like reduction of IC packaging, simplified logic design, and does not require simplification of logical expression in the circuit. The logical function $F(A, B, C, D) = \sum m(0, 1, 3, 4, 8, 9, 15)$ will be implemented using 8:1 multiplexer. First task is to find out required number of select lines and input line followed with development of implementation table as per the terms in the given logic function. The final step is to implement the given logical function by 8:1 multiplexer. For reference follow the link given below in the description:

<https://www.electronicengineeringconcepts.com/2020/12/implementation-of-boolean-function.html>

Task 4 – Verification of truth tables for different flip flop circuits

Flip flop is memory based sequential logic device which provides two stable states. Recall from the theory lecture the different types of flip flops and their characteristics and inter conversion methods. IC 7476 is natively configured as master slave J-K flip flop. Using the conversion technique of flip flop convert this master slave JK flip flop into D and T flip flop with additional required NAND / NOR gates and verify the truth table for each of these flip flops. Draw the timing diagrams for all these flip flop operation. Use the logic trainer board in the group and activate the preset and clear terminal for each flip flop and note down the output logic levels for each combination of input excitations.

6.6 Private Study Activities

Assignment 6 will be based on module 6. The details of assignment-6 will be notified to the student group through Outlook account. Assignment soft copy will be distributed with clear mention of date of submission to the student beforehand. Every student should complete the assignment and submit it in the given time schedule. This assignment will be counted towards grade credit of in semester activities. Assignment will be treated directly under the assessment head. Apart from assignment, student should perform following activities as their private studies:

- Survey different books and material available in the library with personal visit to the library
- Individual notes making using the class note book and discuss with lecturer during theory and lab sessions
- Design and development of relevant charts / models related to the module (optional and includes extra consideration)

Assignment – 6

Task-1

Q1. Draw and explain the basic half adder and full adder circuit with typical examples. Find out what are Fast Adder circuits and how they are different from conventional logic adder circuits?

Q2. List the applications of multiplexing devices. What is the significance of control terminal in MUX devices? Can we make use of Multiplexer devices to control the vehicle traffic conditions? Elaborate how will you use MUX devices for this application.

Q3. Write a short note on fast adder circuits. How do you construct a combined adder with subtractor circuit?

Q4. Verification of truth tables for different flip flop circuits.

Q5. Convert T flip-flop to D flip-flop. What is the basic electrical building block behind the construction of flip flops?

Q6. A D flip flop has set up time of 5 ns and hold time of 10 ns and propagation time of 15 ns. Find out how far ahead of the triggering clock edge must the data to be applied?

6.5.1 Private Study Follow-up

Every student will be provided with guidance to solve the given assignment exercise. During individual review the student is also assessed for his / her understanding of the topic with simple interaction and discussion. All students should review their lecture material including their own write up notes in class note book.

Exercise 1 – Implement Full Adder using Multiplexer and Demultiplexer.

Exercise 2 – Study the truth table of the flip flops.



Vidyalankar Institute of Technology

An Autonomous Institute affiliated to University of Mumbai

Bachelor of Technology

in

Electronics and Computer Science

Programme Structure

(As per AICTE guidelines, with effect from the Academic Year 2022-23)

Preamble

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated, and taken forward in a systematic manner. Therefore, autonomy for Vidyalankar Institute of Technology is not merely a transition from pre-cooked syllabi to self-designed curriculum. Autonomy curriculum of the Institute offers required academic flexibility with emphasis on industry requirements and market trends, employability and problem-solving approach which leads to improving competency level of learners with diverse strengths. In line with this, the curriculum framework designed is **Choice Based Credit and Grading System (CBCGS)**. Number of credits for each category of courses learnt by learners, internships and projects is finalized considering the scope of study and the ability that a learner should gain through the Programme. The overall credits and approach of curriculum proposed is in line with AICTE model curriculum.

The curriculum comprises courses from various categories like basic sciences, humanities and social sciences, engineering sciences, general education and branch specific courses including professional electives and open electives. The curriculum has core courses of branch of engineering positioned and sequenced to achieve sequential and integral learning of the entire breadth of the specific branch. These courses are completed by third year of the engineering Programme that enables learners to prepare for higher education during their final year. Professional elective courses, that begin from third year of Programme, offer flexibility and diversity to learners to choose specialization from a basket of recent developments in their field of technology. The selection of unique professional elective courses based on industrial requirements and organizing them into tracks is a salient feature of this curricula ensuring employability. Open Elective courses cover multi-disciplinary, special skill development, project management and similar knowledge that make learner capable to work in industrial environment.

For holistic development of learners, apart from technical courses, Humanities and Social Science courses develop the required soft-skills and attitude amongst learners. Our curriculum also introduces Social Service Internship and Internship with institutes abroad along with courses like Design Thinking, Wellness – Body, Mind & Spirit, Indian Traditional Knowledge system under General Education category. These general education courses aim to create balance in brain hemispheres and hence improve learners' clarity in thoughts and responses. In addition to this, the curriculum is augmented with Life Enrichment audit courses for knowledge inspiring experience.

Additionally, curriculum provides add-on Honours/Minor degree that involves field/ domain study. Learner can avail this degree by completing requirement of additional 15 credits.

Thus, the academic plan of VIT envisages a shift from summative to formative and competency-based learning system which will enhance learner's ability towards higher education, employability and entrepreneurship.

Chairman, Board of Studies
Department of Electronics and Computer Science
Vidyalankar Institute of Technology

Chairman, Academic Council
Vidyalankar Institute of Technology

COMPETENCE BASED CATEGORIES AND CREDIT ALLOTMENT

Sr. No.	Competence	Course Category	Credits / Audit
I	Knowledge	Basic Science	21
II		Engineering Science	15
III		Core	51
IV	Skill	Professional Elective	18
V		Open Elective	15
VI		Project and Internship	15
VII	Attitude	Humanities, Social Sciences and Management	12
VIII		General Education	14
XI		Life Enrichment	Audit
Total			161

Learner is expected to complete requirement of 160 credits (with minimum credits under each category as mentioned above) for B.Tech. degree in Electronics and Computer Science.

Additionally, learners can choose to avail Minor Degree by completing requirements of 15 credits, which will be over and above the 160 credits required for B.Tech. degree.

Structure of Honours/ Minor Degree

Sr. No.	Category	Credits
1	Course Work	9
2	Industrial Interaction	1
3	Survey Report / Paper	1
4	Seminar	1
5	Capstone Project	3
Total		15

Definition of Credit

Duration	Credit
1 Hr. Lecture (L) per week	1
1 Hr. Tutorial (T) per week	1
1 Hr. Practical (P) per week	0.5

Courses Under Various Categories

I. Basic Science Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	BS15	Engineering Physics	2	2	-	3	1
2	BS02	Engineering Mathematics-I	3	-	-	3	1
3	BS16	Engineering Chemistry	2	2	-	3	2
4	BS04	Engineering Mathematics-II	3	-	-	3	2
5	BS06	Engineering Mathematics-III	3	-	-	3	3
6	BS08	Engineering Mathematics-IV	3	-	-	3	4
7	BS12	Engineering Mathematics-V	2	-	1	3	5

II. Engineering Science Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	ES01	Engineering Graphics	2	2	-	3	1
2	ES02	Engineering Mechanics	2	2	-	3	1
3	ES03	Digital Electronics	2	2	-	3	1
4	ES04	Structured Programming	2	2	-	3	2
5	ES05	Object Oriented Programming	2	2	-	3	2

III. Core Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	EC01	Electronic Devices and Circuits	2	2	-	3	3
2	EC02	Electrical Circuit Analysis	2	2	-	3	3
3	EC03	Data Structures and Algorithms	2	2	-	3	3
4	EC04	Computer Organization and Architecture	2	2	-	3	4
5	EC05	Control Systems Engineering	2	2	-	3	4
6	EC06	Signals and Systems	2	-	1	3	4
7	EC07	Web Technology	2	2	-	3	4
8	EC08	Database Management	2	2	-	3	4

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
		System					
9	EC09	Python Programming	2	2	-	3	4
10	EC10	Basic VLSI Design	2	2	-	3	5
11	EC11	Microprocessor and Microcontroller	2	2	-	3	5
12	EC12	Analog & Digital Communications	2	2	-	3	5
13	EC13	Analysis of Algorithms	2	2	-	3	5
14	EC14	Embedded Systems and RTOS	2	2	-	3	6
15	EC15	Data Warehousing and Mining	2	2	-	3	6
16	EC16	Computer Networks	2	2	-	3	6
17	EC17	IC Technology	2	2	-	3	6

IV. Professional Elective Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	EC21	Neural Network & Fuzzy Logic	2	2	-	3	5
2	EC22	R- programming	2	2	-	3	5
3	EC23	Automated Systems	2	2	-	3	5
4	EC24	Digital Control Systems	2	2	-	3	5
5	EC25	Machine Learning	2	2	-	3	6
6	EC26	IoT Architecture and Protocols	2	2	-	3	6
7	EC27	Digital Image Processing	2	2	-	3	6
8	EC28	Soft Computing	2	2	-	3	6
9	EC29	Management Information System	2	2	-	3	6
10	EC30	Programming with IoT Boards	2	2	-	3	6
11	EC31	Analog and Mixed signal VLSI Design	2	2	-	3	6
12	EC32	Deep learning	2	2	-	3	7
13	EC33	Information Retrieval	2	2	-	3	7
14	EC34	IoT Design	2	2	-	3	7
15	EC35	Robotics	2	2	-	3	7
16	EC36	Natural Language Processing	2	2	-	3	7
17	EC37	Big Data Analytics	2	2	-	3	7

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
18	EC38	IoT and Cloud Security	2	2	-	3	7
19	EC39	Advanced Semiconductor Technologies and Novel Devices	2	2	-	3	7
20	EC40	Adaptive Business Intelligence Systems	2	2	-	3	7
21	EC41	Data Visualization	2	2	-	3	7
22	EC42	Machine Learning for IoT	2	2	-	3	7
23	EC43	Advanced Computer Network	2	2	-	3	7

V. Open Elective Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	OE01	Cyber Law	3	-	-	3	7
2	OE02	Project Management	3	-	-	3	7
3	OE03	Product Lifecycle Management	3	-	-	3	7
4	OE04	Sustainability Management	3	-	-	3	7
5	OE05	Operation Research	3	-	-	3	7
6	OE06	IPR and Patenting	3	-	-	3	8
7	OE07	Research Methodology	3	-	-	3	8
8	OE08	Renewable Energy Management	3	-	-	3	8
9	OE09	Energy Audit and Management	3	-	-	3	8
10	OE10	E-Farming	3	-	-	3	8
11	OE11	Bioinformatics	3	-	-	3	8
12	OE12	Nanotechnology	3	-	-	3	8

VI. Project and Internship

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	EC45	Mini Project	-	4	-	2	5
2	EC46	Industry Internship	-	120(total)	-	4	TE Break
3	EC47	Project-1 (Synopsis)	3	-	-	3	7
4	EC48	Project-2 (Final)	1	6	-	4	8
5	EC49	Publication	2	-	-	2	8

VII. Humanities, Social Sciences and Management Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	HS01	Effective Communication	2	2	-	3	1
2	HS02	Professional Skills	2	2	-	3	2
3	HS03	Technical and Business Writing	-	4*	-	2	3
4	HS06	Principles of Economics and Management	2	-	1	3	4
5	HS04	Presentation Skills	-	2	-	1	5

*2 hrs. practical class-wise + 2 hrs. of practical batch-wise

VIII. General Education

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	GE01	Design Thinking	2	-	1	3	2
2	GE02	Social Service Internship/ Project	-	6	-	3	3
3	GE03	Internship with other Institutes (Credit Transfer)	2	4	-	4	SE Break
4	GE04	Wellness – Body, Mind & Spirit	1	2	-	2	Any
5	GE05	Basics of Finance & Legal Aspects for Business	2	-	-	2	Any
6	GE06	Indian Constitution	2	-	-	2	Any
7	GE07	Universal Human Values	2	-	-	2	Any
8	GE08	Indian Traditional Knowledge System	2	-	-	2	Any
9	GE09	Corporate and Social Etiquettes	2	-	-	2	Any
10	GE10	Global Citizenship Education	2	-	-	2	Any

IX. Life Enrichment Courses

Sr. No.	Course Code	Course Title	Hours Per Week Lecture /Practical/ Tutorials	Credits	Preferred Semester
1	LE01	Photography	2	-	-
2	LE02	Indian Folk Dances	2	-	-
3	LE03	Understanding Indian Classical Music	2	-	-
4	LE04	Wildlife And Conservation	2	-	-
5	LE05	Indian Ancient Education System	2	-	-
6	LE06	Indian Sports	2	-	-
7	LE07	Indian Ancient Medicinal Therapies: Ayurveda	2	-	-
8	LE08	Indian Post: Connecting People	2	-	-
9	LE09	Great Entrepreneurs	2	-	-
10	LE10	Success Stories of Indian Space Mission	2	-	-
11	LE11	Weather And Environment	2	-	-
12	LE12	Unconventional Energy	2	-	-

Honours/ Minor Degree Courses

Sr. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			Lecture	Practical	Tutorial		
1	EC50	Industry Interaction	15 (total)	-	-	1	Break of Sem5 and Sem6
2	EC54	MultimediaSystem	2	2	-	3	6
3	EC55	Machine Learning	2	2	-	3	6
4	EC56	Cyber PhysicalSystems	2	2	-	3	6
5	EC57	Electronic Product Design	2	2	-	3	6
6	EC51	Survey Report/ Paper	15 (total)	-	-	1	Break of Sem6 and Sem7
7	EC58	Game Architectureand Programming	2	2	-	3	7
8	EC59	Deep Learning	2	2	-	3	7
9	EC60	Neural Network & Fussy Logic	2	2	-	3	7
10	EC61	Automated Systems	2	2	-	3	7
11	EC52	Seminar	15 (total)	-	-	1	Break of Sem7 and Sem8
12	EC53	Capstone Project	-	6	-	3	8
13	EC62	Augmented andVirtual Reality	2	2	-	3	8
14	EC63	Adaptive Business Intelligence Systems	2	2	-	3	8
15	EC64	Enabling Technologies and Sustainable Smart Cities	2	2	-	3	8
16	EC65	Microelectromechanical Systems	2	2	-	3	8

Course Structure and Evaluation Scheme
for
Bachelor of Technology
in
Electronics and Computer Science

First Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme

Semester: I

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	HS01	C	Effective Communication	Theory	2	15	20	40	075
		T	Effective Communication	Practical	1	25	-	25	050
2	BS02	C	Engineering Mathematics-I	Theory	3	20	30	50	100
3	BS15	C	Engineering Physics	Theory	2	15	20	40	075
		T	Engineering Physics	Practical	1	25	-	25	050
4	ES04	C	Structured Programming	Theory	2	15	20	40	075
		T	Structured Programming	Practical	1	25	-	25	050
5	ES03	C	Digital Electronics	Theory	2	15	20	40	075
		T	Digital Electronics	Practical	1	25	-	25	050
6	ES02	C	Engineering Mechanics	Theory	2	15	20	40	075
		T	Engineering Mechanics	Practical	1	25	-	25	050
7	GEXX	E	Any GE course from GE04 onwards	As per course	2	25	-	50	075
Total Credits					20	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination
 C=Compulsory, T=Tandem, E=Elective, A=Audit

**First Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme**

Semester: II

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	HS02	C	Professional Skills	Theory	2	15	20	40	075
		T	Professional Skills	Practical	1	25	-	25	050
2	BS04	C	Engineering Mathematics-II	Theory	3	20	30	50	100
3	BS16	C	Engineering Chemistry	Theory	2	15	20	40	075
		T	Engineering Chemistry	Practical	1	25	-	25	050
4	ES01	C	Engineering Graphics	Theory	2	15	20	40	075
		T	Engineering Graphics	Practical	1	25	-	25	050
5	ES05	C	Object Oriented Programming	Theory	2	15	20	40	075
		T	Object Oriented Programming	Practical	1	25	-	25	050
6	GE01	C	Design Thinking	Theory	2	15	20	40	075
		T	Design Thinking	Tutorial	1	50	-	-	050
7	GEXX	E	Any GE course from GE04 onwards	As per course	2	25	-	50	075
Total Credits					20	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination
C=Compulsory, T=Tandem, E=Elective, A=Audit

Second Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme

Semester: III

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	HS03	C	Technical and Business Writing	Theory	2	15	20	40	075
2	BS06	C	Engineering Mathematics-III	Theory	3	20	30	50	100
3	EC01	C	Electronic Devices and Circuits	Theory	2	15	20	40	075
		T	Electronic Devices and Circuits	Practical	1	25	-	25	050
4	EC02	C	Electrical Circuit Analysis	Theory	2	15	20	40	075
		T	Electrical Circuit Analysis	Practical	1	25	-	25	050
5	EC03	C	Data Structures and Algorithms	Theory	2	15	20	40	075
		T	Data Structures and Algorithms	Practical	1	25	-	25	050
6	EC09	C	Python Programming	Theory	2	15	20	40	075
		T	Python Programming	Practical	1	25	-	25	050
7	GE02	C	Social Service – Project/Internship	Practical	3#	75	-	-	075
Total Credits					20	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination

C=Compulsory, T=Tandem, E=Elective, A=Audit

#For Social Service Internship/ Project, 2 hours / week slot will be provided during the semester (in regular timetable). Additional work of 90 hours needs to be completed during the semester (besides regular timetable) or after the semester (during inter semester break).

Second Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme

Semester: IV

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	HS06	C	Principles of Economics and Management	Theory	2	15	20	40	075
		T	Principles of Economics and Management	Tutorial	1	50	-	-	050
2	BS08	C	Engineering Mathematics-IV	Theory	3	20	30	50	100
3	EC04	C	Computer Organization & Architecture	Theory	2	15	20	40	075
		T	Computer Organization & Architecture	Practical	1	25	-	25	050
4	EC05	C	Control Systems Engineering	Theory	2	15	20	40	075
		T	Control Systems Engineering	Practical	1	25	-	25	050
5	EC06	C	Signals and Systems	Theory	2	15	20	40	075
		T	Signals and Systems	Practical	1	25	-	25	050
6	EC07	C	Web Technology	Theory	2	15	20	40	075
		T	Web Technology	Practical	1	25	-	25	050
7	EC08	C	Database Management System	Theory	2	15	20	40	075
		T	Database Management System	Practical	1	25	-	25	050
Total Credits					21	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination
 C=Compulsory, T=Tandem, E=Elective, A=Audit

Second Year B. Tech. Electronics and Computer Science - Summer Break

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)		Total marks (Passing@40% of total marks)
	Code	Nature	Name			Internal	External	
1	GE03	C	Internship with other Institutes (Credit Transfer)	Theory	2	25	25	050
		T	Internship with other Institutes (Credit Transfer)	Practical	2	25	25	050
Total Credits					4	-	-	-

**Third Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme**

Semester: V

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	HS04	C	PresentationSkills	Tutorial	1	50	-	-	050
2	BS12	C	Engineering Mathematics-V	Theory	3	25	40	60	125
3	EC10	C	Basic VLSI Design	Theory	2	15	20	40	075
		T	Basic VLSI Design	Practical	1	25	-	25	050
4	EC11	C	Microprocessor and Microcontroller	Theory	2	15	20	40	075
		T	Microprocessor and Microcontroller	Practical	1	25	-	25	050
5	EC12	C	Analog & Digital Communications	Theory	2	15	20	40	075
		T	Analog & Digital Communications	Practical	1	25	-	25	050
6	EC13	C	Analysis of Algorithms	Theory	2	15	20	40	075
		T	Analysis of Algorithms	Practical	1	25	-	25	050
7	ECXX	E	Professional Elective-1	Theory	2	15	20	40	075
		T	Professional Elective-1	Practical	1	25	-	25	050
8	EC45	C	Mini Project	Practical	2	25	-	50	075
Total Credits					21	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination
C=Compulsory, T=Tandem, E=Elective, A=Audit

Guidelines for Professional Elective Courses and Specialization Certificate – Refer Appendix-A

Important Note 1: Learners are required to go through the Appendix-A carefully before selecting the Professional Elective courses. Detailed guidelines regarding Professional Elective courses, specialization tracks and courses relevant to each track are given in Appendix-A.

Professional Elective -1 Courses (ECXX)

Course Code	Course Name	Specialization Track Name#
EC21	Neural Network and Fuzzy Logic	Artificial Intelligence & Machine Learning
EC22	R-Programming	Data Analytics
EC23	Automated Systems	Internet of Things/Internet of Everything
EC24	Digital Control Systems	Advanced Electronic Technologies

#For details of Specialization Certificate, refer Appendix-A

Guidelines for Award of Honours/ Minor Degree – Refer Appendix-B

Important Note 2: Before the end of Semester 5, learners are required to go through the Appendix-B carefully to opt for Honours/ Minor Degree Programme. The Honours/ Minor Degree Programme will span from the end of semester 5 to the end of Semester 8. Learners willing to opt for Honours/ Minor Degree Programme are required to satisfactorily complete the course titled "Industry Interaction" of 1 credit during the break of the semester 5 and semester 6 which will facilitate them to select Honours/ Minor Degree Programme of their choice. Detailed guidelines regarding the Honours/ Minor Degree Programmes of all the departments, Eligibility criterion and Credit requirements are given in Appendix-B. Courses relevant to Honours/ Minor Degree Programmes offered by Department of Electronics and Computer Science are given in Appendix-C.

Third Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme

Semester: VI

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	EC14	C	Embedded Systems and RTOS	Theory	2	15	20	40	075
		T	Embedded Systems and RTOS	Practical	1	25	-	25	050
2	EC15	C	Data Warehousing and Mining	Theory	2	15	20	40	075
		T	Data Warehousing and Mining	Practical	1	25	-	25	050
3	EC16	C	Computer Networks	Theory	2	15	20	40	075
		T	Computer Networks	Practical	1	25	-	25	050
4	EC17	C	IC Technology	Theory	2	15	20	40	075
		T	IC Technology	Practical	1	25	-	25	050
5	ECXX	E	Professional Elective-2	Theory	2	15	20	40	075
		T	Professional Elective-2	Practical	1	25	-	25	050
6	ECXX	E	Professional Elective-3	Theory	2	15	20	40	075
		T	Professional Elective-3	Practical	1	25	-	25	050
Total Credits					18	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination
 C=Compulsory, T=Tandem, E=Elective, A=Audit

Professional Elective - 2 Courses (ECXX)

Course Code	Course Name	Specialization Track Name#
EC25	Machine Learning	Artificial Intelligence & Machine Learning
EC25	Machine Learning	Data Analytics
EC26	IoT Architecture and Protocols	Internet of Things/Internet of Everything
EC27	Digital Image Processing	Advanced Electronic Technologies

#For details of Specialization Certificate, refer Appendix-A

Professional Elective - 3 Courses (ECXX)

Course Code	Course Name	Specialization Track Name#
EC28	Soft Computing	Artificial Intelligence & Machine Learning
EC29	Management Information System	Data Analytics
EC30	Programming with IOT Boards	Internet of Things/Internet of Everything
EC31	Analog and Mixed signal VLSI Design	Advanced Electronic Technologies

#For details of Specialization Certificate, refer Appendix-A

Third Year B. Tech. Electronics and Computer Science - Summer Break

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)		Total marks (Passing@40% of total marks)
	Code	Nature	Name			Internal	External	
1	EC46	C	Industry Internship	Practical	4	50	50	100
Total Credits					4	-	-	-

Final Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme

Semester: VII

Sr. No.	Course			Head of Learning	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	ECXX	E	Professional Elective-4	Theory	2	15	20	40	075
		T	Professional Elective-4	Practical	1	25	-	25	050
2	ECXX	E	Professional Elective-5	Theory	2	15	20	40	075
		T	Professional Elective-5	Practical	1	25	-	25	050
3	ECXX	E	Professional Elective-6	Theory	2	15	20	40	075
		T	Professional Elective-6	Practical	1	25	-	25	050
4	OEXX	E	Any two from the offered Open Elective courses.	Theory	3	20	30	50	100
5	OEXX	E		Theory	3	20	30	50	100
6	EC47	C	Project-1 (Synopsis)	Theory	3	50	-	50	100
Total Credits					18	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination
C=Compulsory, T=Tandem, E=Elective, A=Audit

Professional Elective - 4 Courses (ECXX)

Course Code	Course Name	Specialization Track Name#
EC32	Deep learning	Artificial Intelligence & Machine Learning
EC33	Information Retrieval	Data Analytics
EC34	IOT Design	Internet of Things/Internet of Everything
EC35	Robotics	Advanced Electronic Technologies

#For details of Specialization Certificate, refer Appendix-A

Professional Elective - 5 Courses (ECXX)

Course Code	Course Name	Specialization Track Name#
EC36	Natural language processing	Artificial Intelligence & Machine Learning
EC37	Big Data Analytics	Data Analytics
EC38	IOT and Cloud Security	Internet of Things/Internet of Everything
EC39	Advanced Semiconductor Technologies and Novel Devices	Advanced Electronic Technologies

#For details of Specialization Certificate, refer Appendix-A

Professional Elective - 6 Courses (ECXX)

Course Code	Course Name	Specialization Track Name#
EC40	Adaptive Business Intelligence Systems	AI/ML
EC41	Data Visualization	Data Analytics
EC42	Machine Learning for IoT	IoT/IoE
EC43	Advanced Computer Network	Advanced Electronic Technologies

#For details of Specialization Certificate, refer Appendix-A

Final Year B. Tech. Electronics and Computer Science
Course Structure and Evaluation Scheme

Semester: VIII

Sr. No.	Course			Head of Learner	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name			ISA	MSE	ESE	
1	OEXX	E	Open Elective-3	Theory	3	20	30	50	100
2	OEXX	E	Open Elective-4	Theory	3	20	30	50	100
3	OEXX	E	Open Elective-5	Theory	3	20	30	50	100
4	EC48	C	Project 2 – (Final)	Theory	1	25	-	-	025
		T	Project 2 – (Final)	Practical	3	50	-	50	100
5	EC49	C	Publication / Patent	Theory	2	25	-	50	075
Total Credits					15	-	-	-	-

ISA=In Semester Assessment, MSE= Mid Semester Examination, ESE= End Semester Examination
 C=Compulsory, T=Tandem, E=Elective, A=Audit

Appendix-A

Guidelines for Professional Elective Courses and Specialization Certificate

Professional Elective courses are designed to meet industrial requirements. All learners must opt for 6 professional elective courses (1 course in Semester 5, 2 courses in Semester 6 and 3 courses in Semester 7) as a part of requirement for B.Tech. Degree.

Specialization Certificate is introduced in order to build competency of learners in the chosen domain. Department of Computer Engineering offers the following specialization tracks:

1. Artificial Intelligence and Machine Learning (AIML)
2. Data Analytics (DA)
3. Internet of Things (IoT)/Internet of Everything (IoE)
4. Advanced Electronic Technologies (AET)

From semester 5 to semester 7, learners can take courses from any track. **However, if learners complete all Professional Elective courses from the same chosen track from semester 5 to semester 7, they will be eligible to receive a Specialization Certificate from the Institute.**

Learners who choose professional elective courses from different specialization tracks from semester 5 to semester 7 will not be eligible for a Specialization Certificate.

It should be noted that there are no additional credit requirements for these specializations.

AIML track: Courses to be chosen for specialization in Artificial Intelligence and Machine Learning

Semester	Course Code	Course Name
V	EC21	Neural Network and Fussy Systems
VI	EC25	Machine Learning
VI	EC29	Soft Computing
VII	EC33	Deep learning
VII	EC37	Natural language processing
VII	EC41	Adaptive Business Intelligence Systems

DA track: Courses to be chosen for specialization in Data Analytics

Semester	Course Code	Course Name
V	EC22	R-Programming
VI	EC26	Machine Learning
VI	EC30	Management Information System
VII	EC34	Information Retrieval
VII	EC38	Big Data Analytics
VII	EC41	Data Visualization

IoT/IoE track: Courses to be chosen for specialization in Internet of Things/Everything

Semester	Course Code	Course Name
V	EC23	Automated Systems
VI	EC27	IoT Architecture and Protocols
VI	EC31	Programming with IoT Boards
VII	EC35	IoT Design
VII	EC39	IoT and Cloud Security
VII	EC42	Machine Learning for IoT

AET track: Courses to be chosen for specialization in Advanced Electronic Technologies

Semester	Course Code	Course Name
V	EC24	Digital Control Systems
VI	EC28	Digital Image Processing
VI	EC32	Analog and Mixed signal VLSI Design
VII	EC36	Robotics
VII	EC40	Advanced Semiconductor Technologies and Novel Devices
VII	EC43	Advanced Computer Network

Appendix-B

Guidelines for Award of Honours/ Minor Degree Programme

Honours and Minor Degree programme is introduced in order to facilitate learners to enhance the depth of knowledge, diversity, breadth and skills in emerging fields. An Honours or Minor Degree typically refers to a higher level of academic achievement either for research orientation or for improving employability. Learners can select any Honours or Minor Degree programme as per his/her choice.

In our curriculum, learners can choose to avail Honours/ Minor Degree programme by completing requirements of 15 credits, which will be over and above the credits required for B.Tech. Degree. Learner shall opt for Honours or Minor specializations during the break of Semester 5 and Semester 6. **Learner may complete the B.Tech. Degree programme without opting for Honours or Minor Degree programme** i.e. opting for Honours / Minor Degree programme is not mandatory as a part of B.Tech. degree programme.

For Honours Degree, learner shall select Honours programme offered by his/her own department. Alternatively, for Minor Degree, learner shall select Honours programme offered by any other department.

Eligibility Criteria

- Learner should have no backlog in Semester 1,2,3 and 4.
- The CGPI (based on Semester 1,2,3 and 4) of the learner must be 6.75 and above.
- Learner can opt for only one Honours/ Minor degree programme.
- Learners cannot opt for those Honours/ Minor degree programmes which include courses that he/she has chosen under Professional Elective Courses and /or under any other Category of courses.
- Honours/ Minor degree programme can only be opted by a learner during their regular engineering studies.
- Learner must complete the Honours/ Minor degree programme in the stipulated time of 3 semesters only i.e. from end of Semester 5 to end of Semester 8.

Syllabus Scheme Template

Sr. No.	Course			Head of Learning	Sem	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name				ISA	MSE	ESE	
1	XXXX	C	Industry Interaction	Theory	Break of Sem5 and Sem6	1	25	-	-	025
2	XXXX	E	Honours / Minor Degree Course 1	Theory	6	2	15	20	40	075

Sr. No.	Course			Head of Learning	Sem	Credits	Evaluation Scheme (Marks)			Total marks (Passing@40% of total marks)
	Code	Nature	Name				ISA	MSE	ESE	
		T	Honours / Minor Degree Course 1	Practical	6	1	25	-	25	050
3	XXXX	C	Survey Report/ Paper	Theory	Break of Sem6 and Sem7	1	25	-	-	025
4	XXXX	E	Honours / Minor Degree Course 2	Theory	7	2	15	20	40	075
		T	Honours / Minor Degree Course 2	Practical	7	1	25	-	25	050
5	XXXX	C	Seminar	Theory	Break of Sem7 and Sem8	1	25	-	-	025
6	XXXX	E	Honours / Minor Degree Course 3	Theory	8	2	15	20	40	075
		T	Honours / Minor Degree Course 3	Practical	8	1	25	-	25	050
7	XXXX	C	Capstone Project	Practical	8	3	50	-	50	100
Total Credits						15	-	-	-	-

Honours/ Minor Degree Programmes offered by all Departments

Sr.No.	Honours/ Minor Degree Programme	Department offering Honours	Department offering Minor
1	Data Analytics	Information Technology	<ul style="list-style-type: none"> • Computer Engineering • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
2	Social Media Insights	Information Technology	<ul style="list-style-type: none"> • Computer Engineering • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
3	Advanced IoT	Information Technology	<ul style="list-style-type: none"> • Computer Engineering • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
4	Advanced Cyber Security	Information Technology	<ul style="list-style-type: none"> • Computer Engineering • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
5	Intelligent Game Development	Computer Engineering	<ul style="list-style-type: none"> • Information Technology • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
6	Data Science and Machine Learning	Computer Engineering	<ul style="list-style-type: none"> • Information Technology • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
7	Artificial Intelligence and Data Analysis	Computer Engineering	<ul style="list-style-type: none"> • Information Technology • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
8	Data Science and Forecasting	Computer Engineering	<ul style="list-style-type: none"> • Information Technology • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
9	Smart City Management	Computer Engineering	<ul style="list-style-type: none"> • Information Technology • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
10	Cyber Forensic and Penetration	Computer Engineering	<ul style="list-style-type: none"> • Information Technology • Electronics and Computer Science • Electronics and Telecommunication • Biomedical
11	Crypto Currency	Computer Engineering	<ul style="list-style-type: none"> • Information Technology • Electronics and Computer Science

Sr.No.	Honours/ Minor Degree Programme	Department offering Honours	Department offering Minor
			<ul style="list-style-type: none"> • Electronics and Telecommunication • Biomedical
12	Intelligent Game Development	Electronics and Computer Science	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Telecommunication • Biomedical
13	Data Engineering	Electronics and Computer Science	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Telecommunication • Biomedical
14	Smart City-Design and Development	Electronics and Computer Science	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Telecommunication • Biomedical
15	Electronic Product Development	Electronics and Computer Science	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Telecommunication • Biomedical
16	Advanced Embedded System	Electronics and Telecommunication	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Computer Science • Biomedical
17	Intelligent Game Development	Electronics and Telecommunication	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Computer Science • Biomedical
18	Sentiment Analytics and Data Forecasting	Electronics and Telecommunication	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Computer Science • Biomedical
19	Advanced Communication Technology	Electronics and Telecommunication	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Computer Science • Biomedical
20	Advanced VLSI Technology	Electronics and Telecommunication	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Computer Science • Biomedical
21	AI in Healthcare	Biomedical	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Computer Science • Electronics and Telecommunication
22	Medical IOT	Biomedical	<ul style="list-style-type: none"> • Information Technology • Computer Engineering

Sr.No.	Honours/ Minor Degree Programme	Department offering Honours	Department offering Minor
			<ul style="list-style-type: none"> • Electronics and Computer Science • Electronics and Telecommunication
23	Medical Imaging Technology	Biomedical	<ul style="list-style-type: none"> • Information Technology • Computer Engineering • Electronics and Computer Science • Electronics and Telecommunication

Detailed list of courses under each Honours/ Minor Degree Programme:

- Electronics and Computer Science Department learners can refer to the list of Honours Degree Programme and their corresponding courses in the Appendix-C.
- Learners of Electronics and Computer Science Department who wish to opt for Minor Degree Programme offered by other department can obtain details of these Programmes from Appendix-C of the respective department.

Appendix-C

Honours/ Minor Degree Programmes offered by Department of Electronics and Computer Science

Department of Electronics and Computer Science offers the below listed Honours Degree Programme for learners of Electronics and Computer Science these programs can be availed as Minor Degree Programme by learners of other departments.

1. Intelligent Game Development
2. Data Engineering
3. Smart City: Design and Development
4. Electronic Product Development

Courses to be successfully completed as a part of Honours/ Minor Degree Programme

1. Intelligent Game Development

Semester	Course Code	Course Name
VI	EC54	MultimediaSystem
VII	EC58	Game Architecture and Programming
VIII	EC62	Augmented and Virtual Reality

2. Data Engineering

Semester	Course Code	Course Name
VI	EC55	Machine Learning
VII	EC59	Deep Learning
VIII	EC63	Adaptive Business Intelligence Systems

3. Smart City: Design and Development

Semester	Course Code	Course Name
VI	EC56	Cyber Physical Systems
VII	EC60	Neural Network and Fussy Logic
VIII	EC64	Enabling Technologies and Sustainable Smart Cities

4. Electronic Product Development

Semester	Course Code	Course Name
VI	EC57	Electronic Product Design
VII	EC61	Automated Systems
VIII	EC65	Microelectromechanical Systems

(Draft copy of Programme Scheme (R-2022), Subject to approval of Academic Council, Vidyalankar Institute of Technology)



Vidyalankar Institute of Technology

An Autonomous Institute affiliated to University of Mumbai

Master of Management Studies

Programme Structure

(As per AICTE guidelines, with effect from the Academic Year 2022-23)

Preamble

Industry maintains trust in the higher education system, with employers continuing to require university degrees as a primary requirement for entry into the professional world. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, in the backdrop of the fast disruption and changing scenario, management education needs to be revisited and revised. Department of Management Studies recognizes the gap that is often manifested between the knowledge, skill sets and attitude requirements by the industry and what conventional management education imparts. To bridge this gap, we diligently mapped the existing curriculum against nationally and internationally acclaimed Top Tier Management Institutes. A new syllabus keeping in mind autonomy is proposed to remain in tandem with developments in the field of management education at the national and global levels.

The future of management and business can be sustained only if business is carried out in an ethical and responsible way. Sustainable development is no longer a choice but the only way of taking mankind forward. Sustainable development is not an isolated subject. It needs to be the underlying theme in every domain and practice. Also, the concept of lifelong learning is becoming a career necessity rather than a discretionary luxury. No longer is learning new skills something people do only when pursuing a significant career change, but simply being relevant, competitive, and in-demand requires an ongoing commitment to lifelong learning.

Chairman, Board of Studies

Department of Management Studies

Vidyalankar Institute of Technology

Chairman, Academic Council

Vidyalankar Institute of Technology

STRUCTURE OF POST GRADUATE MANAGEMENT PROGRAM:

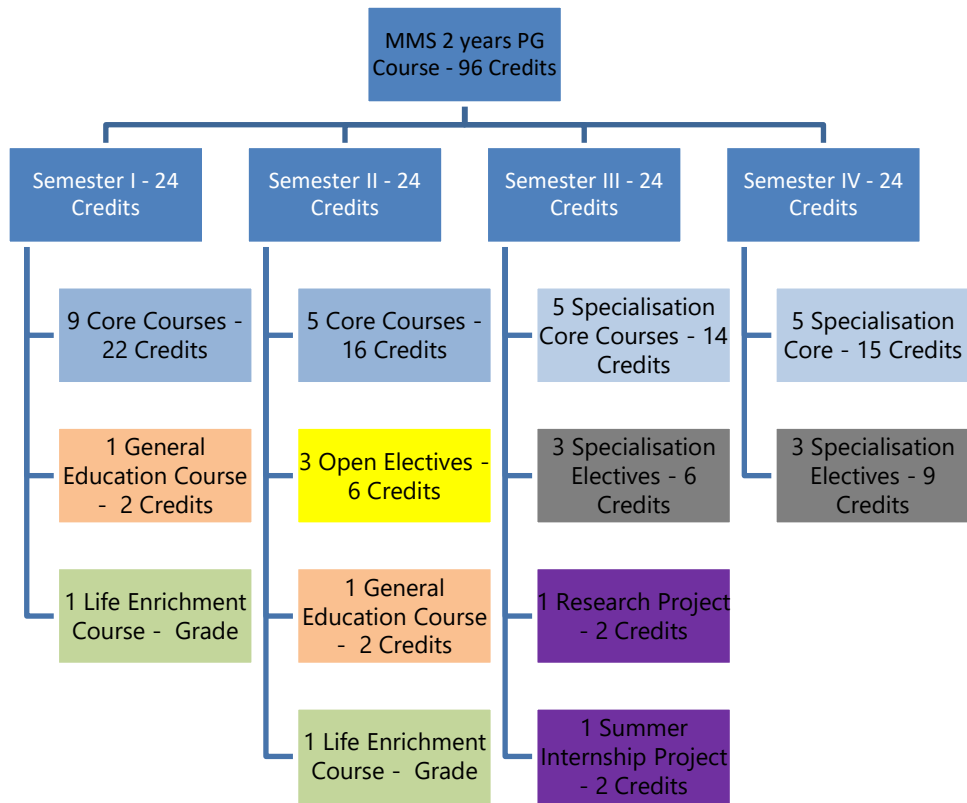
Sr. No	Category	Credits Proposed
1	Core	38
2	Open Electives	06
3	General Education	04
4	Life Enrichment	Audit Only
5	Specialisation Core	29
6	Specialisation Electives	15
7	Internship/Projects/Field Work	04
	Total	96

The Autonomous curriculum for MMS is developed considering the current industry needs in terms of skill sets demanded under new business environment. The course structure is designed keeping in mind learner aspirations and corporate expectations. The programme offers six types of courses spread across two years viz:

- Core Courses:** These are foundational and general management courses to help the learner to acquire tools, techniques, skills and concepts used in business. Core courses comprise of courses focusing on business administration areas like accounting, marketing, Communication, Leadership etc.
- Open Elective Courses:** These are courses offered in first year of the programme that allows learners to choose a bouquet of courses of their choice in the areas of general or functional management. These courses are offered keeping in mind industry needs for enabling the learners to position themselves in their areas of expertise during 2nd year.
- General Education Courses:** To facilitate holistic and multidisciplinary education, novel and engaging course options will be offered to learners, in addition to courses of 1st year. The emphasis of these courses is to develop proactive thinking to apply the knowledge in the dynamic and socio-economic business ecosystem.
- Life Enrichment Courses:** These courses are offered to support learners' physical, social, emotional, and cognitive well-being in addition to the academic and general education courses. The life enrichment courses will foster learners personal growth and creativity as these courses are essential for their overall quality of life.
- Specialisation Core:** Specialisation core courses focus on rigorous grounding corresponding to the area of selected specialisation. It helps the learners to develop proficiency in selected specialization after completing the core and open elective courses of business and management in 1st year.
- Specialisation Electives:** Learners can select the electives from their chosen specialisation to explore and strengthen their area of expertise. It endeavours to strengthen learners chosen specialisation by selecting these electives to build the skill sets for learners through an integrated framework of theoretical and practical training for gaining deeper understanding in their selected specialisation. Learner is expected to complete requirement of 96 credits (with minimum credits under each category as mentioned above) for MMS degree.

*Learners can opt to complete additional 09 credits by selecting 03 Minor Degree Electives from any one specialisation other than the existing specialisation of learner.

Courses proposed under various categories:



Department: Management Studies

Nature of the Programme: - MMS (Master of Management Studies) is a 2 years' full time Master's Degree course

Semester Structure:

- **Semester I:** August to Dec – A common base of knowledge essential for all management professionals. The first semester shall be consisting of 10 courses - nine core and one general education course.
- **Semester II:** - Jan to May - Learners in the second semester endeavour to attain further skill sets through an integrated framework, which guides them towards their desired field through subtle introduction of relevant courses. The second semester would consist of 10 courses of which six courses would be core, three courses would be open electives and one general education course. It shall offer courses in the area of general management as well as specialisation to provide the foundation for finalizing their functional specialisation.
- **Summer Training in Corporate** – June and July 8 Weeks – It is most influential source of practical managerial insights, validation of management concepts, and valuable market knowledge.
- **Semester III:** - August to Dec – Learners shall start the specialisation during the semester III. This semester shall provide the depth of functional specialisation post their summer training in corporate and dealing with the research project or field project during the semester. It shall consist of five specialisation core, three specialisation elective courses, one summer internship project and one Research Project/ Field Project in respective specialisation.
- **Semester IV:** Jan to May – It is the last semester of the professional course which consists of five specialisation core and three specialisation elective courses. Learners can opt to complete additional 09 credits by selecting 03 Minor Degree Electives from any one specialisation other than the existing specialisation of learner.

STRUCTURE OF POST GRADUATE MANAGEMENT PROGRAM

FYMMS - Semester I

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Lecture	Practical	Tutorial	Lecture	Practical	Tutorial	Total
MS01	Financial Accounting and Analysis	3	-	-	3	-	-	3
MS02	Organisational Behaviour	3	-	-	3	-	-	3
MS03	Operations Management	3	-	-	3	-	-	3
MS04	Marketing Management	3	-	-	3	-	-	3
MS05	Business Statistics	3	-	-	2	-	-	2
MS06	MS Office - Word, Excel and PowerPoint	-	3	-	-	2	-	2
MS07	Business Communication	3	-	-	2	-	-	2
MS08	Managerial Economics	3	-	-	2	-	-	2
MS09	Business Ethics & Corporate Governance	3	-	-	2	-	-	2
MSGEXX	General Education Course 1	3	-	-	2	-	-	2
MSLEXX	Life Enrichment Course 1	3	-	-	Grade will be assigned			
Total		33	3	-	22	2	-	24

FYMMS - Semester II

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Lecture	Practical	Tutorial	Lecture	Practical	Tutorial	Total
MS10	Corporate Finance	3	-	-	3	-	-	3
MS11	Business Research	3	-	-	3	-	-	3
MS12	Strategic Management	3	-	-	3	-	-	3
MS13	Decision Making Through Simulation ® BizLab	3	-	-	3	-	-	3
MS14	Leadership	3	-	-	2	-	-	2
MS15	Design Thinking and Innovation	3	-	-	-	2	-	2
MSOEXX	Open Elective I	3	-	-	2	-	-	2
MSOEXX	Open Elective II	3	-	-	2	-	-	2
MSOEXX	Open Elective III	3	-	-	2	-	-	2
MSGEXX	General Education Course 1	3	-	-	2	-	-	2
MSLEXX	Life Enrichment Course 1	3	-	-	Grade will be assigned			
Total		33	-	-	22	2	-	24

First Year Second Semester Open Electives (OE):

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Lecture	Practical	Tutorial	Lecture	Practical	Tutorial	Total
MSOE01	Selling and Negotiation Skills	3	-	-	2	-	-	2
MSOE02	Human Resource Management	3	-	-	2	-	-	2
MSOE03	Corporate Sustainability	3	-	-	2	-	-	2
MSOE04	Management Information System	3	-	-	2	-	-	2
MSOE05	Cost and Management Accounting	3	-	-	2	-	-	2
MSOE06	Entrepreneurship Management	3	-	-	2	-	-	2
MSOE07	Operations Research	3	-	-	2	-	-	2
MSOE08	International Business	3	-	-	2	-	-	2

First Year General Education Courses (GE):

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Lecture	Practical	Tutorial	Lecture	Practical	Tutorial	Total
MSGE01	Indian Cinema Global Perspective	3	-	-	2	-	-	2
MSGE02	Corporate Etiquettes	3	-	-	2	-	-	2
MSGE03	Waste Management - Process, Concept and Working	3	-	-	2	-	-	2

First Year Life Enrichment Courses (LE):

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Lecture	Practical	Tutorial	Lecture	Practical	Tutorial	Total
MSLE01	Local History and Culture	3	-	-	Grade will be assigned			
MSLE02	Film Appreciation	3	-	-				
MSLE02	Mindfulness and Resilience	3	-	-				
MSLE04	Performing Arts	3	-	-				

SYMMS - Semester III – Finance (F)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MS16	Summer Internship Project	-	-	-	-	2	-	2
MS17	Research Project/ Live Project	-	-	-	-	2	-	2
MSF01	Financial Markets, Institutions and Products	3	-	-	3	-	-	3
MSF02	Investment Analysis and Portfolio Management	3	-	-	3	-	-	3
MSF03	Mergers, Acquisitions and Corporate Valuations	3	-	-	3	-	-	3
MSF04	Financial Regulations	3	-	-	3	-	-	3
MSF05	Financial Modelling and Equity Research	3	-	-	2	-	-	2
MSFXX	Specialisation Elective I	3	-	-	2	-	-	2
MSFXX	Specialisation Elective II	3	-	-	2	-	-	2
MSFXX	Specialisation Elective III	3	-	-	2	-	-	2
Total		24	-	-	20	4	-	24

Second Year Third Semester Specialisation Electives (SE): Finance (F)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSF06	Risk Management	3	-	-	2	-	-	2
MSF07	Project Appraisal and Financing	3	-	-	2	-	-	2
MSF08	Wealth Management	3	-	-	2	-	-	2
MSF09	Banking, Products and Services	3	-	-	2	-	-	2
MSF10	Insurance Products and Services	3	-	-	2	-	-	2
MSF11	Commodities Market	3	-	-	2	-	-	2
MSF12	Options, Futures & Other Derivatives	3	-	-	2	-	-	2
MSF13	Fixed Income Securities	3	-	-	2	-	-	2

SYMMS - Semester III – Marketing (M)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MS16	Summer Internship Project	-	-	-	-	2	-	2
MS17	Research Project/ Live Project	-	-	-	-	2	-	2
MSM01	Product and Brand Management	3	-	-	3	-	-	3
MSM02	Sales Management and Sales Promotion	3	-	-	3	-	-	3
MSM03	E-Commerce	3	-	-	3	-	-	3
MSM04	Consumer and Industrial Buying Behaviour	3	-	-	3	-	-	3
MSM05	Financial Aspect of Marketing	3	-	-	2	-	-	2
MSMXX	Specialisation Elective I	3	-	-	2	-	-	2
MSMXX	Specialisation Elective II	3	-	-	2	-	-	2
MSMXX	Specialisation Elective III	3	-	-	2	-	-	2
Total		24	-	-	20	4	-	24

Second Year Third Semester Specialisation Electives (SE): Marketing (M)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSM06	Sales Force and Channel Management	2	-	-	2	-	-	2
MSM07	Customer Driven Marketing Strategy	2	-	-	2	-	-	2
MSM08	Market Research	2	-	-	2	-	-	2
MSM09	Customer Relationship Management	2	-	-	2	-	-	2
MSM10	Hospital and Health Management	2	-	-	2	-	-	2
MSM11	Retail Management	2	-	-	2	-	-	2
MSM12	Event Management	2	-	-	2	-	-	2
MSM13	Market Analytics	2	-	-	2	-	-	2

SYMMS - Semester III - Human Resource (H)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MS16	Summer Internship Project	-	-	-	-	2	-	2
MS17	Research Project/ Live Project	-	-	-	-	2	-	2
MSH01	Training and Development	3	-	-	3	-	-	3
MSH02	Compensation and Benefits	3	-	-	3	-	-	3
MSH03	Performance Management	3	-	-	3	-	-	3
MSH04	Industrial Relations and Labour Laws	3	-	-	3	-	-	3
MSH05	Human Resource Planning, Recruitment and Selection	3	-	-	2	-	-	2
MSHXX	Specialisation Elective I	3	-	-	2	-	-	2
MSHXX	Specialisation Elective II	3	-	-	2	-	-	2
MSHXX	Specialisation Elective III	3	-	-	2	-	-	2
Total		24	-	-	20	4	-	24

Second Year Third Semester Specialisation Electives (SE): Human Resource (H)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSH06	Assessment Centre	2	-	-	2	-	-	2
MSH07	Psychometric Assessment	2	-	-	2	-	-	2
MSH08	Human Resource Management in Service Sector	2	-	-	2	-	-	2
MSH09	Competency based Human Resource Management	2	-	-	2	-	-	2
MSH10	Negotiation Management	2	-	-	2	-	-	2
MSH11	Human Resource Audit	2	-	-	2	-	-	2
MSH12	Human Resource Information System	2	-	-	2	-	-	2
MSH13	Executive Compensation/ Advanced Compensation & Benefits	2	-	-	2	-	-	2

SYMMS - Semester III – Operations (O)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MS16	Summer Internship Project	-	-	-	-	2	-	2
MS17	Research Project/ Live Project	-	-	-	-	2	-	2
MSO01	Services Operations Management	3	-	-	3	-	-	3
MSO02	Purchasing and Materials Management	3	-	-	3	-	-	3
MSO03	Total Quality Management	3	-	-	3	-	-	3
MSO04	Logistics Management	3	-	-	3	-	-	3
MSO05	Materials Management	3	-	-	2	-	-	2
MSOXX	Specialisation Elective I	3	-	-	2	-	-	2
MSOXX	Specialisation Elective II	3	-	-	2	-	-	2
MSOXX	Specialisation Elective III	3	-	-	2	-	-	2
Total		24	-	-	20	4	0	24

Second Year Third Semester Specialisation Electives (SE): Operations (O)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSO06	Supply Chain Analytics	2	-	-	2	-	-	2
MSO07	Retail Store Management	2	-	-	2	-	-	2
MSO08	Fundamentals of Shipping Management	2	-	-	2	-	-	2
MSO09	Supply Chain Information System	2	-	-	2	-	-	2
MSO10	Air Cargo Management	2	-	-	2	-	-	2
MSO11	Port and Terminal Management	2	-	-	2	-	-	2
MSO12	Containerization and Allied Business	2	-	-	2	-	-	2
MSO13	World Class Manufacturing	2	-	-	2	-	-	2

SYMMS - Semester III - Information System (I)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MS16	Summer Internship Project	-	-	-	-	2	-	2
MS17	Research Project/ Live Project	-	-	-	-	2	-	2
MSI01	Data Management & Warehousing	3	-	-	3	-	-	3
MSI02	Enterprise Management System	3	-	-	3	-	-	3
MSI03	Big Data and Analytics	3	-	-	3	-	-	3
MSI04	Knowledge Management	3	-	-	3	-	-	3
MSI05	Software Engineering	3	-	-	2	-	-	2
MSIXX	Specialisation Elective I	3	-	-	2	-	-	2
MSIXX	Specialisation Elective II	3	-	-	2	-	-	2
MSIXX	Specialisation Elective III	3	-	-	2	-	-	2
Total		24	-	-	20	4	-	24

Second Year Third Semester Specialisation Electives (SE): Information System (I)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSI06	Transforming Healthcare Delivery	2	-	-	2	-	-	2
MSI07	Technology and Innovations for Banking	2	-	-	2	-	-	2
MSI08	Technology Ventures	2	-	-	2	-	-	2
MSI09	Digital Innovation and Transformation	2	-	-	2	-	-	2
MSI10	Business Computing, Virtualization and Commercial Application	2	-	-	2	-	-	2
MSI11	Commercializing Science: Strategy for Science companies	2	-	-	2	-	-	2
MSI12	Gen. Business Value Through IT	2	-	-	2	-	-	2
MSI13	ANNFS: Apps to Finance & Strategy	2	-	-	2	-	-	2

SYMMS - Semester IV – Finance (F)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSF14	Advance Corporate Finance	3	-	-	3	-	-	3
MSF15	International Finance	3	-	-	3	-	-	3
MSF16	Treasury Management	3	-	-	3	-	-	3
MSF17	Financial Consulting	3	-	-	3	-	-	3
MSF18	Investment Banking	3	-	-	3	-	-	3
MSFXX	Specialisation Elective I	3	-	-	3	-	-	3
MSFXX	Specialisation Elective II	3	-	-	3	-	-	3
MSFXX	Specialisation Elective II	3	-	-	3	-	-	3

Second Year Forth Semester Specialisation Electives (SE) / Minor Degree Electives (MDE): Finance (F)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSF19	Management Control System	3	-	-	3	-	-	3
MSF20	Behavioural Finance	3	-	-	3	-	-	3
MSF21	Entrepreneurial Finance	3	-	-	3	-	-	3
MSF22	Venture Capital and Private Equity	3	-	-	3	-	-	3
MSF23	Bitcoin and the Block chain	3	-	-	3	-	-	3
MSF24	Strategic Cost Management	3	-	-	3	-	-	3
MSF25	Global Macro Economics and Financial Market	3	-	-	3	-	-	3
MSF26	Business Taxation	3	-	-	3	-	-	3

SYMMS - Semester IV – Marketing (M)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSM14	International Marketing	3	-	-	3	-	-	3
MSM15	Integrated Marketing Communication and Digital Marketing	3	-	-	3	-	-	3
MSM16	Media Planning & Strategy	3	-	-	3	-	-	3
MSM17	B 2 B Marketing	3	-	-	3	-	-	3
MSM18	Emerging Trends in Marketing (Case Study Approach)	3	-	-	3	-	-	3
MSMXX	Specialisation Elective I	3	-	-	3	-	-	3
MSMXX	Specialisation Elective II	3	-	-	3	-	-	3
MSMXX	Specialisation Elective II	3	-	-	3	-	-	3
Total		24	-	-	24	-	-	24

Second Year Forth Semester Specialisation Electives (SE) / Minor Degree Electives (MDE): (M)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSM19	Creativity & Innovation Management	3	-	-	3	-	-	3
MSM20	Services Marketing	3	-	-	3	-	-	3
MSM21	Customer Relationship Management	3	-	-	3	-	-	3
MSM22	Rural Marketing	3	-	-	3	-	-	3
MSM23	Retail Management	3	-	-	3	-	-	3
MSM24	Sales Management and Sales Process	3	-	-	3	-	-	3
MSM25	Negotiation Skills and Process	3	-	-	3	-	-	3
MSM26	Social Media Marketing	3	-	-	3	-	-	3

SYMMS - Semester IV - Human Resource (H)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSH14	Organisation Structure Theory and Design	3	-	-	3	-	-	3
MSH15	Strategic HRM	3	-	-	3	-	-	3
MSH16	OD and Change Management	3	-	-	3	-	-	3
MSH17	Talent Management	3	-	-	3	-	-	3
MSH18	Consulting in HR	3	-	-	3	-	-	3
MSHXX	Specialisation Elective I	3	-	-	3	-	-	3
MSHXX	Specialisation Elective II	3	-	-	3	-	-	3
MSHXX	Specialisation Elective III	3	-	-	3	-	-	3
Total		24	-	-	24	-	-	24

Second Year Forth Semester Specialisation Electives (SE) / Minor Degree Electives (MDE): Human Resource (H)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSH19	Employer Branding	3	-	-	3	-	-	3
MSH20	HR Analytics	3	-	-	3	-	-	3
MSH21	Global HRM	3	-	-	3	-	-	3
MSH22	Management of CSR in Organisation	3	-	-	3	-	-	3
MSH23	Gender and Diversity Management	3	-	-	3	-	-	3
MSH24	Creating High Performance Organisations	3	-	-	3	-	-	3
MSH25	Business Turnaround and Organisation Transformation	3	-	-	3	-	-	3
MSH26	Managerial Counselling	3	-	-	3	-	-	3

SYMMS - Semester IV – Operations (O)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSO14	Project Management	3	-	-	3	-	-	3
MSO15	Supply Chain Analytics	3	-	-	3	-	-	3
MSO16	Reverse and Contract Logistics	3	-	-	3	-	-	3
MSO17	Advance Business Analytics	3	-	-	3	-	-	3
MSO18	Product Design	3	-	-	3	-	-	3
MSOXX	Specialisation Elective I	3	-	-	3	-	-	3
MSOXX	Specialisation Elective II	3	-	-	3	-	-	3
MSOXX	Specialisation Elective III	3	-	-	3	-	-	3
Total		24	-	-	24	-	-	24

Second Year Forth Semester Specialisation Electives (SE) / Minor Degree Electives (MDE: Operations (O))

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSO19	Technological Excellence	3	-	-	3	-	-	3
MSO20	Retail Supply Chain Management	3	-	-	3	-	-	3
MSO21	Transportation and Distribution Management	3	-	-	3	-	-	3
MSO22	Warehouse Management	3	-	-	3	-	-	3
MSO23	Technology Management	3	-	-	3	-	-	3
MSO24	Outsourcing and Logistics Service Providers	3	-	-	3	-	-	3
MSO25	Logistics Information Systems	3	-	-	3	-	-	3
MSO26	Disaster Mitigation and Management	3	-	-	3	-	-	3

SYMMS - Semester IV (Information System)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSI14	Managing Technology Business and Resource Management	3	-	-	3	-	-	3
MSI15	Strategic I.T Management	3	-	-	3	-	-	3
MSI16	Systems Application and Case study	3	-	-	3	-	-	3
MSI17	Cloud Computing	3	-	-	3	-	-	3
MSI18	Information Security and Audit	3	-	-	3	-	-	3
MSIXX	Specialisation Elective I	3	-	-	3	-	-	3
MSIXX	Specialisation Elective II	3	-	-	3	-	-	3
MSIXX	Specialisation Elective III	3	-	-	3	-	-	3
Total		24	-	-	24	-	-	24

Second Year Forth Semester Specialisation Electives (SE) / Minor Degree Electives (MDE): Information System (I)

Course Code	Course Name	Hours Per Week			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
MSI19	Marketing Data Analytics	3	-	-	3	-	-	3
MSI20	Business Data Mining and Business Intelligence	3	-	-	3	-	-	3
MSI21	Technology of E-commerce	3	-	-	3	-	-	3
MSI22	Cyber laws	3	-	-	3	-	-	3
MSI23	Business Dynamics	3	-	-	3	-	-	3
MSI24	Supply Chain Management	3	-	-	3	-	-	3
MSI25	Social Network Analytics	3	-	-	3	-	-	3
MSI26	Creating and Managing IT Start Ups	3	-	-	3	-	-	3

Course Structure and Assessment Guidelines
for
Master
of
Management Studies

FYMMS – Semester I – Assessment Guidelines:

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MS01	Financial Accounting and Analysis	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS02	Organisational Behaviour	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS03	Operations Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS04	Marketing Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS05	Business Statistics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS06	MS Office - Word, Excel and PowerPoint	ISA	-	-	-	50	-	-
		MSE	-		-		-	-
		ESE	-		100		-	-
MS07	Business Communication	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS08	Managerial Economics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS09	Business Ethics and Corporate Governance	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSGEXX	General Education Course 1	As per course						
MSLEXX	Life Enrichment Course 1	As per course						

*ISA- In Semester Assessment, MSE – Mid Semester Examination, ESE – End Semester Examination

The assessment guidelines for the courses of different credits are mentioned above. Notwithstanding the above, each course faculty shall have the choice to propose her/his assessment methodology based on the nature of the course. However, the proposed assessment methodology shall be approved by a panel constituted at Institute level and published to the learners before the commencement of the semester.

FYMMS - Semester II – Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MS10	Corporate Finance	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS11	Business Research	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS12	Strategic Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS13	Decision Making Through Simulation ® BizLab	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MS14	Leadership	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MS15	Design Thinking and Innovation	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSOE01	Selling and Negotiation Skills	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSOE02	Human Resource Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSOE03	Corporate Sustainability	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSOE04	Management Information System	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSOE05	Cost & Management Accounting	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSOE06	Entrepreneurship Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSOE07	Operations Research	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
		ESE	60		-	-	-	-
MSOE08	International Business	ISA	30	50	-	-	-	-
		MSE	10					
		ESE	60		-	-	-	-
MSGE01	Indian Cinema Global Perspective	ISA	100	50	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		-	-	-	-
MSGE02	Corporate Etiquette	ISA	100	50	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		-	-	-	-
MSGE03	Waste Management - Process, Concept and Working	ISA	100	50	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		-	-	-	-
MSLE01	Mumbai Heritage Study and Visit	Audit Course						
MSLE02	Film Appreciation	Audit Course						
MSLE02	Mindfulness and Resilience	Audit Course						
MSLE04	Performing Arts	Audit Course						

*ISA- In Semester Assessment, MSE – Mid Semester Examination, ESE – End Semester Examination

The assessment guidelines for the courses of different credits are mentioned above. Notwithstanding the above, each course faculty shall have the choice to propose her/his assessment methodology based on the nature of the course. However, the proposed assessment methodology shall be approved by a panel constituted at Institute level and published to the learners before the commencement of the semester.

SYMMS - Semester III (Finance) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MS16	Summer Internship Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MS17	Research Project/ Live Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MSF01	Financial Markets, Institutions and Products	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF02	Investment Analysis and Portfolio Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF03	Mergers, Acquisitions and Corporate Valuations	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF04	Financial Regulations	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF05	Financial Modelling and Equity Research	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF06	Risk Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF07	Project Appraisal and Financing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF08	Wealth Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF09	Banking, Products and Services	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF10	Insurance Products and Services	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF11	Commodities Market	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MSF12	Options, Futures & Other Derivatives	ISA	30	50	-	-	-	-
		MSE	10					
		ESE	60		-	-	-	-
MSF13	Fixed Income Securities	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

*ISA- In Semester Assessment, MSE – Mid Semester Examination, ESE – End Semester Examination

The assessment guidelines for the courses of different credits are mentioned above. Notwithstanding the above, each course faculty shall have the choice to propose her/his assessment methodology based on the nature of the course. However, the proposed assessment methodology shall be approved by a panel constituted at Institute level and published to the learners before the commencement of the semester.

SYMMS - Semester III (Marketing) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MS16	Summer Internship Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MS17	Research Project/ Live Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MSM01	Product and Brand Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM02	Sales Management and Sales Promotion	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM03	E-Commerce	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM04	Consumer and Industrial Buying Behaviour	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM05	Financial Aspect of Marketing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM06		ISA	30	50	-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
	Sales Force and Channel Management	MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM07	Customer Driven Marketing Strategy	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM08	Market Research	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM09	Customer Relationship Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM10	Hospital and Health Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM11	Retail Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM12	Event Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM13	Market Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

*ISA- In Semester Assessment, MSE – Mid Semester Examination, ESE – End Semester Examination

The assessment guidelines for the courses of different credits are mentioned above. Notwithstanding the above, each course faculty shall have the choice to propose her/his assessment methodology based on the nature of the course. However, the proposed assessment methodology shall be approved by a panel constituted at Institute level and published to the learners before the commencement of the semester.

SYMMS - Semester III (Human Resource) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MS16	Summer Internship Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MS17	Research Project/ Live Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MSH01	Training and Development	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH02	Compensation and Benefits	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH03	Performance Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH04	Industrial Relations and Labour Laws	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH05	Human Resource Planning, Recruitment and Selection	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH06	Assessment Centre	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH07	Psychometric Assessment	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH08	Human Resource Management in Service Sector	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH09	Competency based Human Resource Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH10	Negotiation Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH11	Human Resource Audit	ISA	30	50	-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH12	Human Resource Information System	ISA	30	50	-	-	-	-
		MSE	10					
		ESE	60		-	-	-	-
MSH13	Executive Compensation/ Advanced Compensation & Benefits	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

*ISA- In Semester Assessment, MSE – Mid Semester Examination, ESE – End Semester Examination

The assessment guidelines for the courses of different credits are mentioned above. Notwithstanding the above, each course faculty shall have the choice to propose her/his assessment methodology based on the nature of the course. However, the proposed assessment methodology shall be approved by a panel constituted at Institute level and published to the learners before the commencement of the semester.

SYMMS - Semester III (Operations) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MS16	Summer Internship Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MS17	Research Project/ Live Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MSO01	Services Operations Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO02	Purchasing and Materials Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO03	Total Quality Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO04	Logistics Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO05	Materials Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
		ESE	60		-	-	-	-
MSO06	Supply Chain Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO07	Retail Store Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO08	Fundamentals of Shipping Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO09	Supply Chain Information System	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO10	Air Cargo Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO11	Port and Terminal Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO12	Containerization and Allied Business	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO13	World Class Manufacturing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

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SYMMS - Semester III (Information System) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MS16	Summer Internship Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MS17	Research Project/ Live Project	ISA	-	-	-	-	-	-
		MSE	-		-	-	-	-
		ESE	-		100	50	-	-
MSI01	Data Management & Warehousing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI02	Enterprise Management System	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI03	Big Data and Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI04	Knowledge Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI05	Software Engineering	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI06	Transforming Healthcare Delivery	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI07	Technology and Innovations for Banking	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI08	Technology Ventures	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI09	Digital Innovation and Transformation	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI10	Business Computing, Virtualization and Commercial Application	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI11		ISA	30	50	-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
	Commercializing Science: Strategy for Science companies	MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI12	Gen. Business Value Through IT	ISA	30	50	-	-	-	-
		MSE	10					
		ESE	60		-	-	-	-
MSI13	ANNFS: Apps to Finance & Strategy	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

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SYMMS - Semester IV (Finance) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MSF14	Advance Corporate Finance	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF15	International Finance	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF16	Treasury Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF17	Financial Consulting	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF18	Investment Banking	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF19	Management Control System	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF20	Behavioural Finance	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF21	Entrepreneurial Finance	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF22	Venture Capital and Private Equity	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF23	Bitcoin and the Block chain	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF24	Strategic Cost Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF25	Global Macro Economics and Financial Market	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSF26	Business Taxation	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

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SYMMS - Semester IV (Marketing) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MSM14	International Marketing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM15	Integrated Marketing Communication and Digital Marketing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM16	Media Planning & Strategy	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM17	B 2 B Marketing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM18	Emerging Trends in Marketing (Case Study Approach)	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM19	Creativity and Innovation Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM20	Services Marketing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM21	Customer Relationship Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM22	Rural Marketing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM23	Retail Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM24		ISA	30	50	-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
	Sales Management and Sales Process	MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM25	Negotiation Skills and Process	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSM26	Social Media Marketing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

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SYMMS - Semester IV (Human Resource) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MSH14	Organisation Structure Theory and Design	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH15	Strategic HRM	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH16	OD and Change Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH17	Talent Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH18	Consulting in HR	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH19	Employer Branding	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH20	HR Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH21	Global HRM	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
		ESE	60		-	-	-	-
MSH22	Management of CSR in Organisation	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH23	Gender and Diversity Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH24	Creating High Performance Organisations	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH25	Business Turnaround and Organisation Transformation	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSH26	Managerial Counselling	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

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SYMMS - Semester IV (Operations) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MSO14	Project Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO15	Supply Chain Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO16	Reverse and Contract Logistics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO17	Advance Business Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO18	Product Design	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO19	Technological Excellence	ISA	30	50	-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO20	Retail Supply Chain Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO21	Transportation and Distribution Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO22	Warehouse Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO23	Technology Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO24	Outsourcing and Logistics Service Providers	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO25	Logistics Information Systems	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSO26	Disaster Mitigation and Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

*ISA- In Semester Assessment, MSE – Mid Semester Examination, ESE – End Semester Examination

The assessment guidelines for the courses of different credits are mentioned above. Notwithstanding the above, each course faculty shall have the choice to propose her/his assessment methodology based on the nature of the course. However, the proposed assessment methodology shall be approved by a panel constituted at Institute level and published to the learners before the commencement of the semester.

SYMMS - Semester IV (Information System) - Assessment Guidelines

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
MSI14	Managing Technology Business and Resource Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI15	Strategic I.T Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI16		ISA	30	50	-	-	-	-

Programme Structure (2022) for Master of Management Studies (MMS)

Course Code	Course	Scheme	Assessment Guidelines					
			Lecture		Practical		Tutorial	
			Max Marks	Passing %	Max Marks	Passing %	Max Marks	Passing %
	Systems Application and Case study	MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI17	Cloud Computing	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI18	Information Security and Audit	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI19	Marketing Data Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI20	Business Data Mining and Business Intelligence	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI21	Technology of E-commerce	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI22	Cyber laws	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI23	Business Dynamics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI24	Supply Chain Management	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI25	Social Network Analytics	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-
MSI26	Creating and Managing IT Start Ups	ISA	30	50	-	-	-	-
		MSE	10		-	-	-	-
		ESE	60		-	-	-	-

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The assessment guidelines for the courses of different credits are mentioned above. Notwithstanding the above, each course faculty shall have the choice to propose her/his assessment methodology based on the nature of the course. However, the proposed assessment methodology shall be approved by a panel constituted at Institute level and published to the learners before the commencement of the semester.