

## Mahavir Education Trust's

## Shah & Anchor Kutchhi Engineering College, Chembur, Mumbai 400 088 UG Program in Information Technology

## Academic Year 2020-21 Semester - III

|     |                   | Λ.                | Information To |  |
|-----|-------------------|-------------------|----------------|--|
|     | 1                 | A                 |                |  |
|     |                   |                   | 1.ITC101.1     | Understand the concept of Laplace transform                        |
|     |                   |                   |                | and its application to solve the                                   |
|     |                   |                   | 1.1770101.0    | real integrals in engineering problems.                            |
|     |                   |                   | 1.ITC101.2     | Understand the concept of inverse Laplace                          |
|     |                   |                   |                | transform of various functions                                     |
|     |                   |                   | 1.1770101.2    | and its applications in engineering problems.                      |
|     |                   |                   | 1.ITC101.3     | Expand the periodic function by using the                          |
|     |                   |                   |                | Fourier series for real-life                                       |
|     |                   |                   | 1 ITC101 4     | problems and complex engineering problems.                         |
|     |                   |                   | 1.ITC101.4     | Understand complex variable theory,                                |
|     |                   |                   |                | application of harmonic conjugate to                               |
|     |                   |                   |                | get orthogonal trajectories and analytic functions.                |
|     |                   |                   | 1 ITC101 5     |  |
|     |                   |                   | 1.ITC101.5     | Apply the concept of Correlation and Regression to the engineering |
|     |                   |                   |                | problems in data science, machine learning, and                    |
|     |                   |                   |                | AI.  |
|     |                   |                   | 1.ITC101.6     |  |
|     |                   | En sin s snin s   | 1.110101.0     | Understand the concepts of probability and                         |
| 111 | ITC101            | Engineering       |                | expectation for getting the spread                                 |
| III | ITC101            | Mathematics - III | ITTC202 1      | of the data and distribution of probabilities.                     |
|     |                   |                   | ITC302.1       | Classify and Apply the concepts of stacks,                         |
|     |                   |                   |                | queues and linked list in real life problem                        |
|     |                   |                   |                | solving.   |
|     |                   |                   | ITC302.2       | Classify, apply and analyze the concepts                           |
|     |                   |                   |                | trees in real life problem solving.                                |
|     |                   |                   | ITC302.3       | Illustrate and justify the concepts of graphs                      |
|     |                   |                   |                | in real life problem solving.                                      |
|     |                   |                   | ITC302.4       | List and examine the concepts of sorting,                          |
|     |                   |                   |                | searching techniques in real life problem                          |
|     |                   |                   |                | solving.   |
|     |                   |                   | ITC302.5       | Use and identify the concepts of recursion,                        |
|     |                   |                   | 110302.3       | hashing in real life problem solving.                              |
|     |                   |                   | ITC302.6       |  |
|     |                   | Data Character of | 11C302.0       | Examine and justify different methods of                           |
| TTT | ITC202            | Data Structures & |                | stacks, queues, linked list, trees and graphs                      |
| III | ITC302            | Analysis          |                | to various applications.   |
|     |                   |                   | 2.ITC303.1     | Identify the need of Database Management                           |
|     |                   |                   | 2 IEC202 2     | System.  |
|     |                   |                   | 2.ITC303.2     | Design conceptual model for real life                              |
|     |                   |                   | 2 ITEG202 2    | applications.  |
|     |                   |                   | 2.ITC303.3     | Create Relational Model for real life                              |
|     |                   |                   | 2 ITC202 4     | applications   |
|     |                   |                   | 2.ITC303.4     | Formulate query using SQL commands.kn                              |
|     |                   | D 4 1             | 2.ITC303.5     | Apply the concept of normalization to relational                   |
|     |                   | Database          |                | database design.   |
|     |                   | Management        | 2.ITC303.6     | Demonstrate the concept of transaction,                            |
| III | ITC303            | System            |                | concurrency and recovery.  |
|     | <b>TTT CS 2 :</b> |                   | C TITL CO. L.  | Describe analog and digital communication                          |
| III | ITC304            | Principle of      | 6.ITC304.1     | systems  |

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## Shah & Anchor Kutchhi Engineering College, Chembur, Mumbai 400 088 UG Program in Information Technology Differentiate types of poise, an

|     |         | Communication   |            | Differentiate types of noise, analyses the   |
|-----|---------|-----------------|------------|--|
|     |         |                 |            | Fourier transform of time and frequency  |
|     |         |                 | 6.ITC304.2 | domain.  |
|     |         |                 |            | Design transmitter and receiver of AM, DSB,  |
|     |         |                 | 6.ITC304.3 | SSB and FM.  |
|     |         |                 |            | Describe Sampling theorem and pulse  |
|     |         |                 | 6.ITC304.4 | modulation systems.  |
|     |         |                 |            | Explain multiplexing and digital band pass   |
|     |         |                 | 6.ITC304.5 | modulation techniques.   |
|     |         |                 |            | Describe electromagnetic radiation and   |
|     |         |                 | 6.ITC304.6 | propagation of waves.  |
|     |         |                 | 2.ITC305.1 | Understand and Compare different   |
|     |         |                 |            | programming paradigms.   |
|     |         |                 | 2.ITC305.2 | Understand the Object Oriented Constructs and  |
|     |         |                 |            | use them in program design.  |
|     |         |                 | 2.ITC305.3 | Understand the concepts of declarative   |
|     |         |                 |            | programming paradigms through functional and   |
|     |         |                 |            | logic programming  |
|     |         |                 | 2.ITC305.4 | Design and Develop programs based on   |
|     |         |                 |            | declarative programming paradigm using   |
|     |         | D 11 1          |            | functional and/or logic programming  |
|     |         | Paradigms and   | 2.ITC305.5 | Understand the role of concurrency in parallel                                       |
|     |         | Computer        |            | and distributed programming  |
|     |         | Programming     | 2.ITC305.6 | Understand different application domains for   |
| III | ITC305  | Fundamentals    |            | use of scripting languages.  |
|     |         |                 |            | Understand and use the basic concepts and  |
|     |         |                 |            | principles of various linked lists, stacks and                                       |
|     |         |                 | ITL301.1   | queues.  |
|     |         |                 |            | Understand the concepts and apply the  |
|     |         |                 | ITL301.2   | methods in basic trees.  |
|     |         |                 | 11200112   | Use and identify the methods in advanced   |
|     |         |                 | ITL301.3   | trees.   |
|     |         |                 | 1112301.3  |  |
|     |         |                 | ITI 201 4  | Understand the concepts and apply the  |
|     |         |                 | ITL301.4   | methods in graphs.   |
|     |         |                 |            | Understand the concepts and apply the  |
|     |         |                 |            | techniques of searching, hashing and   |
|     |         |                 | ITL301.5   | Sorting.   |
|     |         |                 |            | Illustrate and examine the methods of linked   |
|     |         | Data Structures |            | lists, stacks, queues, trees and graphs to   |
| III | ITL301  | Lab             | ITL301.6   | various real time problems.  |
|     |         |                 |            | Define problem statements and Construct the  |
|     |         |                 | ITL302.1   | conceptual model for real life application.  |
|     |         |                 | ITL302.2   | Create and populate a RDBMS using SQL.   |
|     |         |                 |            | Formulate and write SQL queries for efficient  |
|     |         |                 | ITL302.3   | information retrieval  |
|     |         |                 |            | Apply view, triggers and procedures to   |
|     |         |                 | ITL302.4   | demonstrate specific event handling.   |
|     |         |                 | ITL302.5   | Demonstrate database connectivity using JDBC.  |
|     |         |                 | 111202.3   | Demonstrate database connectivity using JDBC.  Demonstrate the concept of concurrent |
| III | ITL302  | SQL Lab         | ITL302.6   | transactions.  |
| 111 | 1112302 | SQL Lau         |            |  |
|     |         | Computer        | ITL303.1   | Implement Object Oriented concepts in C++.   |
|     |         | Computer        |            | Design and Develop solution based on   |
| TTT | ITI 202 | Programming     | ITI 202 2  | declarative programming paradigm using   |
| III | ITL303  | Paradigms LAB   | ITL303.2   | functional and logic programming.  |

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# Shah & Anchor Kutchhi Engineering College, Chembur, Mumbai 400 088 UG Program in Information Technology Understand the multi threaded programs in Java

| Understand the need and use of exception handling and garbage collection in C++ and JAVA  Implement a solution to the same problem using multiple paradigms.  Compare the implementations in multiple paradigms.  Compare the implementations in multiple paradigms at coding and execution level.  To understand the concepts of object-oriented paradigm in the Java programming language  To understand the importance of Classes & objects along with constructors, Arrays, Strings and vectors  To learn the principles of inheritance, interface and packages and demonstrate the concept of reusability for faster development.  To recognize usage of Exception Handling, Multithreading, Input Output streams in various applications  To learn designing, implementing, testing, and debugging graphical user interfaces in Java using Swings and AWT components that can react to different user events.  To develop graphical user interfaces using JavaFX controls.  To identify and Apply Knowledge to solve societal problems and research needs  To summarize the proper inferences from available results through theoretical/experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  Mini Project - 1  A for Front end /backend Application using  |     |        |                   |            | Understand the multi threaded programs in Java |
|---|-----|--------|-------------------|------------|--|
| ITL303.4   JAVA   Implement a solution to the same problem using multiple paradigms.   Compare the implementations in multiple paradigms at coding and execution level.   |     |        |                   | ITL303.3   | and C++  |
| ITL303.4 Implement a solution to the same problem using multiple paradigms.  Compare the implementations in multiple paradigms.  Compare the implementations in multiple paradigms at coding and execution level.  To understand the concepts of object-oriented paradigm in the Java programming language  To understand the concepts of object-oriented paradigm in the Java programming language  To understand the importance of classes & objects along with constructors, Arrays ,Strings and vectors  To learn the principles of inheritance, interface and packages and demonstrate the concept of reusability for faster development.  To recognize usage of Exception Handling, Multithreading, Input Output streams in various applications  To learn designing, implementing, testing, and debugging graphical user interfaces in Java using Swings and AWT components that can react to different user events.  To develop graphical user interfaces using JavaFX controls.  To develop graphical user interfaces using JavaFX controls.  To identify and Apply Knowledge to solve societal problems and research needs  To summarize the proper inferences from available results through theoretical/experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group,or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  Mini Project – 1  A for Front end /backend Application using  |     |        |                   |            |  |
| ITL303.5   Implement a solution to the same problem using multiple paradigms.   |     |        |                   |            | handling and garbage collection in C++ and     |
| ITL303.5   multiple paradigms.  |     |        |                   | ITL303.4   |  |
| ITL303.5   multiple paradigms.  |     |        |                   |            | Implement a solution to the same problem using |
| ITL303.6   paradigms at coding and execution level.   |     |        |                   | ITL303.5   |  |
| ITL303.6   paradigms at coding and execution level.   |     |        |                   |            | Compare the implementations in multiple        |
| ITL304.1   paradigm in the Java programming language   To understand the importance of Classes & objects along with constructors, Arrays, Strings and vectors   |     |        |                   | ITL303.6   |  |
| To understand the importance of Classes & objects along with constructors, Arrays, Strings and vectors   To learn the principles of inheritance, interface and packages and demonstrate the concept of reusability for faster development.   To recognize usage of Exception Handling, Multithreading, Input Output streams in various applications   To learn designing, implementing, testing, and debugging graphical user interfaces in Java using Swings and AWT components that can react to different user events.   To develop graphical user interfaces using JavaFX controls.     To identify and Apply Knowledge to solve societal problems and research needs   |     |        |                   |            | To understand the concepts of object-oriented  |
| To understand the importance of Classes & objects along with constructors, Arrays, Strings and vectors   To learn the principles of inheritance, interface and packages and demonstrate the concept of reusability for faster development.   To recognize usage of Exception Handling, Multithreading, Input Output streams in various applications   To learn designing, implementing, testing, and debugging graphical user interfaces in Java using Swings and AWT components that can react to different user events.   To develop graphical user interfaces using JavaFX controls.     To identify and Apply Knowledge to solve societal problems and research needs   |     |        |                   | ITL304.1   | paradigm in the Java programming language      |
| ITL304.2   Strings and vectors  |     |        |                   |            |  |
| ITL304.2   and vectors  |     |        |                   |            | •  |
| To learn the principles of inheritance, interface and packages and demonstrate the concept of reusability for faster development.  To recognize usage of Exception Handling, Multithreading, Input Output streams in various applications  To learn designing, implementing, testing, and debugging graphical user interfaces in Java using Swings and AWT components that can react to different user events.  To develop graphical user interfaces using JavaFX controls.  To identify and Apply Knowledge to solve societal problems and research needs  To summarize the proper inferences from available results through theoretical/experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  Mini Project – 1 A for Front end /backend Application using  |     |        |                   | ITL304.2   |  |
| ITL304.3   ITL304.3   ITL304.3   ITL304.4   ITL304.4   ITL304.4   ITL304.4   ITL304.4   ITL304.4   ITL304.5   ITL304.5   ITL304.6   ITL304.6 |     |        |                   | 112002     |  |
| ITL304.3 reusability for faster development.  To recognize usage of Exception Handling, Multithreading, Input Output streams in various applications  To learn designing, implementing, testing, and debugging graphical user interfaces in Java using Swings and AWT components that can react to different user events.  To develop graphical user interfaces using JavaFX controls.  To identify and Apply Knowledge to solve societal problems and research needs  To summarize the proper inferences from available results through theoretical/experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group,or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  Mini Project – 1 A for Front end/backend Application using   |     |        |                   |            |  |
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| ITL304.4   Multithreading, Input Output streams in various applications   |     |        |                   | 1112504.5  | ·  |
| ITL304.4   various applications   |     |        |                   |            |  |
| To learn designing, implementing, testing, and debugging graphical user interfaces in Java using Swings and AWT components that can react to different user events.  To develop graphical user interfaces using JavaFX controls.  ITL304.6 Java Lab (SBL)  ITL304.6 To identify and Apply Knowledge to solve societal problems and research needs  To summarize the proper inferences from available results through theoretical/experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  Mini Project – 1 A for Front end /backend Application using   |     |        |                   | ITI 204 4  | , , ,  |
| ITL304.5   ITL304.5   ITL304.5   ITL304.5   ITL304.5   ITL304.6   ITL304.6   ITL304.6   ITL304.6   ITL304.6   ITL304.6   ITL304.6   ITM301.1   ITM301.1   ITM301.2   ITM301.2   ITM301.3   ITM301.3   ITM301.3   ITM301.3   ITM301.4   ITM301.4   ITM301.4   ITM301.4   ITM301.4   ITM301.4   ITM301.5   ITM301.5   ITM301.5   ITM301.5   ITM301.5   ITM301.5   ITM301.6   ITM301.6 |     |        |                   | 111.304.4  |  |
| III   ITL304   Java Lab (SBL)   ITL304.5   To develop graphical user interfaces using JavaFX controls.   To identify and Apply Knowledge to solve societal problems and research needs   To summarize the proper inferences from available results through theoretical/ experimental/simulations   To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.   To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.   ITM301.4   To develop written and oral communication skills.   To demonstrate project management principles during project work.  |     |        |                   |            |  |
| ITL304  |     |        |                   |            | 1 0 0 0  |
| ITL304  |     |        |                   |            |  |
| III   ITL304   Java Lab (SBL)   ITL304.6   JavaFX controls.   |     |        |                   | ITL304.5   |  |
| To identify and Apply Knowledge to solve societal problems and research needs  To summarize the proper inferences from available results through theoretical/experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To develop written and oral communication skill  To demonstrate project management principles during project work.   |     |        |                   |            |  |
| ITM301.1 societal problems and research needs  To summarize the proper inferences from available results through theoretical/ experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To develop written and oral communication skill  To demonstrate project management principles during project work.  | III | ITL304 | Java Lab (SBL)    | ITL304.6   |  |
| To summarize the proper inferences from available results through theoretical/ experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To develop written and oral communication skill  To demonstrate project management principles during project work.   |     |        |                   |            | To identify and Apply Knowledge to solve       |
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| available results through theoretical/ experimental/simulations  To acquire interpersonal Skills, capabilities of self-learning in a group,or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To develop written and oral communication skill  To demonstrate project management principles during project work.  |     |        |                   |            | To summarize the proper inferences from        |
| ITM301.2   experimental/simulations     To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.     To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.     To develop written and oral communication skill     To develop written and oral communication skill     To demonstrate project management principles during project work.  |     |        |                   |            |  |
| To acquire interpersonal Skills, capabilities of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To develop written and oral communication skill  To demonstrate project management principles during project work.  |     |        |                   | ITM301.2   |  |
| of self-learning in a group, or as a member or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To demonstrate project management principles during project work.   |     |        |                   |            | *  |
| ITM301.3 or a leader which leads to life long learning.  To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To demonstrate project management principles during project work.  |     |        |                   |            |  |
| To apply standard norms of engineering practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To demonstrate project management principles during project work.   |     |        |                   | ITM301 3   |  |
| practices to Analyse the impact of solutions in a societal and environmental contexts for sustainable development.  To develop written and oral communication skill  To demonstrate project management principles during project work.  |     |        |                   | 11111301.5 |  |
| ITM301.4   In a societal and environmental contexts for sustainable development.   To develop written and oral communication skill   To demonstrate project management principles during project work.   To demonstrate project work.   |     |        |                   |            |  |
| ITM301.4   sustainable development.   To develop written and oral communication   Skill   To demonstrate project management   To demonstrate project management   principles during project work.   |     |        |                   |            |  |
| To develop written and oral communication skill  A for Front end /backend Application using  To develop written and oral communication skill  To demonstrate project management principles during project work.   |     |        |                   | ITM 1201 4 |  |
| Mini Project – 1 A for Front end /backend Application using  ITM301.5 skill  To demonstrate project management principles during project work.  |     |        |                   | 11M301.4   | sustainable development.                       |
| Mini Project – 1 A for Front end /backend Application using  ITM301.5 skill  To demonstrate project management principles during project work.  |     |        |                   |            |  |
| Mini Project – 1 A for Front end /backend Application using  ITM301.5 skill  To demonstrate project management principles during project work.  |     |        |                   |            |  |
| A for Front end /backend /backend Application using To demonstrate project management principles during project work.   |     |        |                   |            | _  |
| /backend Application using principles during project work.  |     |        |                   | ITM301.5   |  |
| Application using Application using   |     |        | A for Front end   |            | To demonstrate project management              |
| Application using Application using   |     |        | /backend          |            | principles during project work.                |
|   | i   |        | Application using |            |  |
| III  ITM301  JAVA  ITM301.6   |     |        | Application using |            |  |