



# R.M.K. ENGINEERING COLLEGE (An Autonomous Institution)

R.S.M Nagar, Kavaraipettai, Gummidipoondi Taluk, Thiruvallur Dt- 601206.

(Affiliated to Anna University, Chennai/Approved by AICTE, New Delhi/ ISO 9001:2015 Certified Institution/  
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## DEPARTMENT OF SCIENCE & HUMANITIES

Course Outcomes – Even semester - 2022 -23

**B.E., - Civil Engineering – Even semester**

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	2	22ME201	Engineering Mechanics
<b>THEORY COURSES WITH LABORATORY COMPONENT</b>			
2	2	22MA201	Transforms and Numerical Methods
3	2	22CH102	Chemistry for Civil Engineering
4	2	22CE201	Construction and Building Materials
5	2	22IT201	Problem solving and Python Programming
<b>LABORATORY COURSES WITH THEORY COMPONENT</b>			
6	2	22ME202	Computer Aided Engineering Graphics
<b>LABORATORY COURSES</b>			
7	2	22ME211	Product Development Lab-2
<b>AUDIT COURSES</b>			
8	2		Yoga for Stress Management

## Second Semester B.E., / CE

### Theory courses

22ME201- Engineering Mechanics	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Illustrate the scalar representation of forces and moments
<b>CO2</b>	Analyze the rigid body in equilibrium
<b>CO3</b>	Evaluate the properties of surfaces and solids
<b>CO4</b>	Apply dynamic forces exerted in the bodies under motion
<b>CO5</b>	Solve the friction and the effects by the laws of friction
<b>CO6</b>	Apply the effort of forces and moments in the various design functions.

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

22CH103- Chemistry for Civil Engineering	
<b>COs</b>	<b>Course Outcomes:</b> On successful completion of this course, the students will be able to:
<b>CO1</b>	Analyze water quality parameters and suggest appropriate water treatment methods.
<b>CO2</b>	Identify types of polymeric materials and their applications in construction industry.
<b>CO3</b>	Assess the causes of corrosion and their corrosion control methods.
<b>CO4</b>	Classify the types of cements and uses of composites in construction fields.
<b>CO5</b>	Evaluate the importance of engineering materials.

### 22CE201- Construction and Building Materials

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Apply the knowledge for the selection of different materials for masonry.
<b>CO2</b>	Compare the properties of various binding materials.
<b>CO3</b>	Analyze the physical properties of aggregates.
<b>CO4</b>	Examine the various applications of timber and steel.
<b>CO5</b>	Identify various building finishes and applications of modern building materials.
<b>CO6</b>	Perform experiments to verify the properties of bricks, cement and aggregates as per Indian Standards.

### 22IT201-Problem Solving and Python Programming

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, students will be able to:
<b>CO1</b>	Implement simple Python programs.
<b>CO2</b>	Develop Python programs using functions.
<b>CO3</b>	Represent and solve compound data using Python lists, tuples, dictionaries.
<b>CO4</b>	Implement and perform operations on files, modules and packages.
<b>CO5</b>	Apply Exceptions, Standard Libraries and IDE for application development.

### Laboratory Course with Theory Component

### 22ME202- Computer Aided Engineering Graphics

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Explain the various engineering standards required for drafting and explore knowledge in conic sections.
<b>CO2</b>	Draw the orthographic views of 3D primitive objects.
<b>CO3</b>	Describe the projection of plane surfaces by the rotating plane method.
<b>CO4</b>	Apply the projection concepts and drafting tools to draw projections of solids.
<b>CO5</b>	Sketch the pictorial views of the objects using CAD tools.

## Laboratory Courses

22ME211 - Product Development Lab - 2	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.



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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Even semester - 2022 -23

### **B.E., - Computer Science Engineering – Even semester**

THEORY COURSES WITH LABORATORY COMPONENT			
S.No	Semester	Course code	Course Name
1	2	22MA201	Transforms and Numerical Methods
2	2	22CS201	Data Structures
3	2	22PH201	Physics for Computer Science and Information Technology
4	2	22HS101	Professional Communication
5	2	22CS202	Java Programming
6	2	22IT202	Database Management System
<b>LABORATORY COURSES</b>			
7	2	22ME211	Product Development Lab - 2
<b>MANDATORY COURSES</b>			
8	2	22CH104	Environmental Sciences and Sustainability (Non-Credit)
<b>AUDIT COURSES</b>			
9	2		Yoga for Stress Management

## Second Semester B.E., / CSE

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

22CS201- Data Structures	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Implement abstract data types for list.
<b>CO2</b>	Solve real world problems using appropriate linear data structures.
<b>CO3</b>	Apply appropriate tree data structures in problem solving.
<b>CO4</b>	Implement appropriate Graph representations and solve real-world applications.
<b>CO5</b>	Implement various searching and sorting algorithms.

<b>22PH201 - Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcomes:</b> On completion of this course, the students will be able to:
<b>CO1</b>	Discuss the basic principles of working of laser and their applications in fibre optic communication
<b>CO2</b>	Summarize the classical and quantum electron theories and energy band structures
<b>CO3</b>	Describe the conductivity in intrinsic and extrinsic semiconductors and importance of Hall effect measurements
<b>CO4</b>	Associate the properties of nanoscale materials and their applications in quantum computing
<b>CO5</b>	Interpret the properties of magnetic and superconducting materials and their applications in computer data storage

<b>22HS101- Professional Communication</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Comprehend conversations and short talks delivered in English
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques
<b>CO3</b>	Read articles of a general kind in magazines and newspapers efficiently
<b>CO4</b>	Write short general essays, personal letters and E-mails in English
<b>CO5</b>	Develop vocabulary of a general kind by enriching reading skills

<b>22CS202- Java Programming</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

<b>22IT202- Database Management Systems</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Map ER model to Relational model to perform database design effectively.
<b>CO2</b>	Implement SQL and effective relational database design concepts.
<b>CO3</b>	Apply relational algebra, calculus and normalization techniques in database design.
<b>CO4</b>	Understand the concepts of transaction processing, concurrency control, recovery procedure and data storage techniques.
<b>CO5</b>	Apply query optimization techniques and understand advanced databases.

### **Laboratory Courses**

<b>22ME211 - Product Development Lab - 2</b>	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.

### **Mandatory Courses**

<b>22CH104 - Environmental Sciences and Sustainability</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to
<b>CO1</b>	Investigate and use conservational practices to protect natural resources.
<b>CO2</b>	Identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	Adapt the values of biodiversity and its conservation methods.
<b>CO4</b>	Recognize suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	Assess the impacts of human population and suggest suitable solutions.





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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Even semester - 2022 -23

### **B.E., - Electrical and Electronics Engineering – Even semester**

THEORY COURSES WITH LABORATORY COMPONENT			
S.No	Semester	Course code	Course Name
1	2	22MA201	Transforms and Numerical Methods
2	2	22CS201	Data Structures
3	2	22CH101	Engineering Chemistry
4	2	22IT202	Database Management System
5	2	22CS202	Java Programming
LABORATORY COURSES WITH THEORY COMPONENT			
6	2	22ME202	Computer Aided Engineering Graphics
LABORATORY COURSES			
7	2	22ME211	Product Development Lab- 2
AUDIT COURSES			
8	2		Yoga for Stress Management

## Second Semester B.E., / EEE

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

22CS201- Data Structures	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Implement abstract data types for list.
<b>CO2</b>	Solve real world problems using appropriate linear data structures.
<b>CO3</b>	Apply appropriate tree data structures in problem solving.
<b>CO4</b>	Implement appropriate Graph representations and solve real-world applications.
<b>CO5</b>	Implement various searching and sorting algorithms.

22CH101- Engineering Chemistry	
<b>COs</b>	<b>Course Outcomes:</b> On successful completion of this course, the students will be able to:
<b>CO1</b>	Interpret the water quality parameters and explain the various water treatment methods.
<b>CO2</b>	Construct the electro chemical cells and sensors.
<b>CO3</b>	Compare different energy storage devices and predict their relevance in electric vehicles.
<b>CO4</b>	Classify different types of smart materials, their properties and applications in Engineering and Technology.
<b>CO5</b>	Integrate the concepts of nano chemistry and enumerate its applications in various fields.

<b>22IT202- Database Management Systems</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Map ER model to Relational model to perform database design effectively.
<b>CO2</b>	Implement SQL and effective relational database design concepts.
<b>CO3</b>	Apply relational algebra, calculus and normalization techniques in database design.
<b>CO4</b>	Understand the concepts of transaction processing, concurrency control, recovery procedure and data storage techniques.
<b>CO5</b>	Apply query optimization techniques and understand advanced databases.

<b>22CS202- Java Programming</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

### **Laboratory Courses with Theory Component**

<b>22ME202 - Computer Aided Engineering Graphics</b>	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Explain the various engineering standards required for drafting and explore knowledge in conic sections.
<b>CO2</b>	Draw the orthographic views of 3D primitive objects.
<b>CO3</b>	Describe the projection of plane surfaces by the rotating plane method.
<b>CO4</b>	Apply the projection concepts and drafting tools to draw projections of solids.
<b>CO5</b>	Sketch the pictorial views of the objects using CAD tools.

## Laboratory Courses

22ME211 - Product Development Lab - 2	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.



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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Even semester - 2022 -23

### **B.E., - Electronics and Communication Engineering – Even semester**

THEORY COURSES WITH LABORATORY COMPONENT			
S.No	Semester	Course code	Course Name
1	2	22MA201	Transforms and Numerical Methods
2	2	22EC201	Electron Devices and Circuit Theory
3	2	22CH101	Engineering Chemistry
4	2	22CS201	Data Structures
5	2	22CS202	Java Programming
LABORATORY COURSES WITH THEORY COMPONENT			
6	2	22ME202	Computer Aided Engineering Graphics
LABORATORY COURSES			
7	2	22ME211	Product Development Lab- 2
AUDIT COURSES			
8	2		Yoga for Stress Management

## Second Semester B.E., / ECE

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

22EC201- Electron Devices and Circuit Theory	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Examine the performance of electronic circuits using PN junction diode and Zener diode.
<b>CO2</b>	Construct electronic circuits using BJT and FET to sketch the input and output characteristics.
<b>CO3</b>	Demonstrate the behavior of special semiconductor devices in various applications.
<b>CO4</b>	Comprehend the impact of voltage and current in electric circuits using Mesh & Nodal methods.
<b>CO5</b>	Relate various network theorems to determine the response of the electric circuits.
<b>CO6</b>	Perform practical exercises as an individual and / or team member to manage the task in time.
<b>CO7</b>	Express the experimental results with effective presentation and report.

### 22CH101- Engineering Chemistry

<b>COs</b>	<b>Course Outcomes:</b> On successful completion of this course, the students will be able to
<b>CO1</b>	Interpret the water quality parameters and explain the various water treatment methods.
<b>CO2</b>	Construct the electro chemical cells and sensors.
<b>CO3</b>	Compare different energy storage devices and predict their relevance in electric vehicles.
<b>CO4</b>	Classify different types of smart materials, their properties and applications in Engineering and Technology.
<b>CO5</b>	Integrate the concepts of nano chemistry and enumerate its applications in various fields.

### 22CS201- Data Structures

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Implement abstract data types for list.
<b>CO2</b>	Solve real world problems using appropriate linear data structures.
<b>CO3</b>	Apply appropriate tree data structures in problem solving.
<b>CO4</b>	Implement appropriate Graph representations and solve real-world applications.
<b>CO5</b>	Implement various searching and sorting algorithms.

### 22CS202- Java Programming

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

## Laboratory Courses with Theory Component

22ME202 - Computer Aided Engineering Graphics	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to
<b>CO1</b>	Explain the various engineering standards required for drafting and explore knowledge in conic sections.
<b>CO2</b>	Draw the orthographic views of 3D primitive objects.
<b>CO3</b>	Describe the projection of plane surfaces by the rotating plane method.
<b>CO4</b>	Apply the projection concepts and drafting tools to draw projections of solids.
<b>CO5</b>	Sketch the pictorial views of the objects using CAD tools.

## Laboratory Courses

22ME211 - Product Development Lab - 2	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.





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## DEPARTMENT OF SCIENCE & HUMANITIES

Course Outcomes – Even semester - 2022 -23

**B.E., - Mechanical Engineering – Even semester**

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	2	22ME201	Engineering Mechanics
<b>THEORY COURSES WITH LABORATORY COMPONENT</b>			
2	2	22MA201	Transforms and Numerical Methods
3	2	22CH103	Chemistry for Mechanical Engineering
4	2	22IT203	Data Structures and Algorithms
5	2	22CS202	Java Programming
<b>LABORATORY COURSES WITH THEORY COMPONENT</b>			
6	2	22ME202	Computer Aided Engineering Graphics
<b>LABORATORY COURSES</b>			
7	2	22ME211	Product Development Lab-2
<b>AUDIT COURSES</b>			
8	2		Yoga for Stress Management

## Second Semester B.E., / MECH

### Theory courses

22ME201- Engineering Mechanics	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Illustrate the scalar representation of forces and moments
<b>CO2</b>	Analyze the rigid body in equilibrium
<b>CO3</b>	Evaluate the properties of surfaces and solids
<b>CO4</b>	Apply dynamic forces exerted in the bodies under motion
<b>CO5</b>	Solve the friction and the effects by the laws of friction
<b>CO6</b>	Apply the effort of forces and moments in the various design functions.

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

### 22CH103- Chemistry for Mechanical Engineering

<b>COs</b>	<b>Course Outcomes:</b> On successful completion of this course, the students will be able to:
<b>CO1</b>	Analyze water quality parameters and suggest appropriate water treatment methods.
<b>CO2</b>	Construct electro chemical cells and sensors.
<b>CO3</b>	Investigate the types of fuel and combustion process.
<b>CO4</b>	Evaluate the importance of engineering materials.
<b>CO5</b>	Assess phase equilibrium diagram and alloys.

### 22IT203- Data Structures and Algorithms

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the concepts of basic data structures such as array and Linked List.
<b>CO2</b>	Applying a suitable algorithm for searching and sorting.
<b>CO3</b>	Analyze the various tree algorithms for solving real time computing problems.
<b>CO4</b>	Understanding graph algorithms, operations, and applications
<b>CO5</b>	Understanding the importance of hashing

### 22CS202- Java Programming

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

## Laboratory Course with Theory Component

22ME202- Computer Aided Engineering Graphics	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Explain the various engineering standards required for drafting and explore knowledge in conic sections.
<b>CO2</b>	Draw the orthographic views of 3D primitive objects.
<b>CO3</b>	Describe the projection of plane surfaces by the rotating plane method.
<b>CO4</b>	Apply the projection concepts and drafting tools to draw projections of solids.
<b>CO5</b>	Sketch the pictorial views of the objects using CAD tools.

## Laboratory Courses

22ME211 - Product Development Lab - 2	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.



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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Even semester - 2022 -23

### **B.E., - Computer Science and Design – Even semester**

THEORY COURSES WITH LABORATORY COMPONENT			
S.No	Semester	Course code	Course Name
1	2	22MA201	Transforms and Numerical Methods
2	2	22CS201	Data Structures
3	2	22PH201	Physics for Computer Science and Information Technology
4	2	22HS101	Professional Communication
5	2	22CS202	Java Programming
6	2	22IT202	Database Management System
<b>LABORATORY COURSES</b>			
7	2	22ME211	Product Development Lab - 2
<b>MANDATORY COURSES</b>			
8	2	22CH104	Environmental Sciences and Sustainability (Non-Credit)
<b>AUDIT COURSES</b>			
9	2		Yoga for Stress Management

## Second Semester B.E., / CSD

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

22CS201- Data Structures	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Implement abstract data types for list.
<b>CO2</b>	Solve real world problems using appropriate linear data structures.
<b>CO3</b>	Apply appropriate tree data structures in problem solving.
<b>CO4</b>	Implement appropriate Graph representations and solve real-world applications.
<b>CO5</b>	Implement various searching and sorting algorithms.

<b>22PH201 - Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcomes:</b> On completion of this course, the students will be able to:
<b>CO1</b>	Discuss the basic principles of working of laser and their applications in fibre optic communication
<b>CO2</b>	Summarize the classical and quantum electron theories and energy band structures
<b>CO3</b>	Describe the conductivity in intrinsic and extrinsic semiconductors and importance of Hall effect measurements
<b>CO4</b>	Associate the properties of nanoscale materials and their applications in quantum computing
<b>CO5</b>	Interpret the properties of magnetic and superconducting materials and their applications in computer data storage

<b>22HS101- Professional Communication</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Comprehend conversations and short talks delivered in English
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques
<b>CO3</b>	Read articles of a general kind in magazines and newspapers efficiently
<b>CO4</b>	Write short general essays, personal letters and E-mails in English
<b>CO5</b>	Develop vocabulary of a general kind by enriching reading skills

<b>22CS202- Java Programming</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

### 22IT202- Database Management Systems

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Map ER model to Relational model to perform database design effectively.
<b>CO2</b>	Implement SQL and effective relational database design concepts.
<b>CO3</b>	Apply relational algebra, calculus and normalization techniques in database design.
<b>CO4</b>	Understand the concepts of transaction processing, concurrency control, recovery procedure and data storage techniques.
<b>CO5</b>	Apply query optimization techniques and understand advanced databases.

### Laboratory Courses

#### 22ME211 - Product Development Lab - 2

<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.

### Mandatory Courses

#### 22CH104 - Environmental Sciences and Sustainability

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to
<b>CO1</b>	Investigate and use conservational practices to protect natural resources.
<b>CO2</b>	Identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	Adapt the values of biodiversity and its conservation methods.
<b>CO4</b>	Recognize suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	Assess the impacts of human population and suggest suitable solutions.





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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Even semester - 2022 -23

### **B.Tech. - Artificial Intelligence & Data Science – Even semester**

#### THEORY COURSES WITH LABORATORY COMPONENT

S.No	Semester	Course code	Course Name
1	2	22MA201	Transforms and Numerical Methods
2	2	22CS201	Data Structures
3	2	22PH201	Physics for Computer Science and Information Technology
4	2	22HS101	Professional Communication
5	2	22CS202	Java Programming
6	2	22IT202	Database Management System
<b>LABORATORY COURSES</b>			
7	2	22ME211	Product Development Lab - 2
<b>MANDATORY COURSES</b>			
8	2	22CH104	Environmental Sciences and Sustainability (Non-Credit)
<b>AUDIT COURSES</b>			
9	2		Yoga for Stress Management

## Second Semester B.Tech. / ADS

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

22CS201- Data Structures	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Implement abstract data types for list.
<b>CO2</b>	Solve real world problems using appropriate linear data structures.
<b>CO3</b>	Apply appropriate tree data structures in problem solving.
<b>CO4</b>	Implement appropriate Graph representations and solve real-world applications.
<b>CO5</b>	Implement various searching and sorting algorithms.

<b>22PH201 - Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcomes:</b> On completion of this course, the students will be able to:
<b>CO1</b>	Discuss the basic principles of working of laser and their applications in fibre optic communication
<b>CO2</b>	Summarize the classical and quantum electron theories and energy band structures
<b>CO3</b>	Describe the conductivity in intrinsic and extrinsic semiconductors and importance of Hall effect measurements
<b>CO4</b>	Associate the properties of nanoscale materials and their applications in quantum computing
<b>CO5</b>	Interpret the properties of magnetic and superconducting materials and their applications in computer data storage

<b>22HS101- Professional Communication</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Comprehend conversations and short talks delivered in English
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques
<b>CO3</b>	Read articles of a general kind in magazines and newspapers efficiently
<b>CO4</b>	Write short general essays, personal letters and E-mails in English
<b>CO5</b>	Develop vocabulary of a general kind by enriching reading skills

<b>22CS202- Java Programming</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

<b>22IT202- Database Management Systems</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Map ER model to Relational model to perform database design effectively.
<b>CO2</b>	Implement SQL and effective relational database design concepts.
<b>CO3</b>	Apply relational algebra, calculus and normalization techniques in database design.
<b>CO4</b>	Understand the concepts of transaction processing, concurrency control, recovery procedure and data storage techniques.
<b>CO5</b>	Apply query optimization techniques and understand advanced databases.

### **Laboratory Courses**

<b>22ME211 - Product Development Lab - 2</b>	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.

### **Mandatory Courses**

<b>22CH104 - Environmental Sciences and Sustainability</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to
<b>CO1</b>	Investigate and use conservational practices to protect natural resources.
<b>CO2</b>	Identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	Adapt the values of biodiversity and its conservation methods.
<b>CO4</b>	Recognize suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	Assess the impacts of human population and suggest suitable solutions.



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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Even semester - 2022 -23

### **B.Tech. - Computer Science and Business systems – Even semester**

THEORY COURSES			
S.No	Semester	Course code	Course Name
1	2	22MA202	Linear Algebra
<b>LAB INTEGRATED THEORY COURSES</b>			
2	2	22MA203	Statistical Methods
3	2	22CB201	Data Structures and Algorithms
4	2	22CS202	Java Programming
5	2	22EC202	Principles of Electronics Engineering
6	2	22HS101	Professional Communication
<b>LABORATORY COURSES</b>			
7	2	22ME211	Product Development Lab-2
<b>MANDATORY COURSES</b>			
8	2	22CH104	Environmental Sciences (Non-Credit)
<b>AUDIT COURSES</b>			
9	2		Yoga for Stress Management

## Second Semester B.Tech. / CSBS

### Theory courses

22MA202 – Linear Algebra	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	solve the system of linear equations using Cramer's rule.
<b>CO2</b>	solve the system of equations using LU Decomposition method.
<b>CO3</b>	compute QR decomposition for a given matrix.
<b>CO4</b>	represent the linear transformations in matrix and to find Eigenvalues and Eigenvectors.
<b>CO5</b>	apply the concept of linear combinations in image processing and Machine learning.

### Lab Integrated Theory Courses

22MA203- Statistical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	find the standard error and sample mean of the sampling distributions.
<b>CO2</b>	identify and evaluate the unbiased estimators.
<b>CO3</b>	compute correlation and regression curve.
<b>CO4</b>	apply testing of hypotheses to real-life problems.
<b>CO5</b>	analyze the ARIMA model and apply it to real-life situations.

22CB201 - Data Structures and Algorithms	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Analyse the various data structure concepts.
<b>CO2</b>	Apply the different linear data structures to problem solutions.
<b>CO3</b>	Apply the tree non-linear data structures to problem solutions.
<b>CO4</b>	Apply the graph and file non-linear data structures to problem solutions
<b>CO5</b>	Critically analyse the various sorting algorithms.

### 22CS202- Java Programming

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

### 22EC202- Principles of Electronics Engineering

<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to:
<b>CO1</b>	Examine the performance of electronic circuits using PN junction diode and Zener diodes
<b>CO2</b>	Construct electronic circuits using BJT and to sketch the input and output characteristics.
<b>CO3</b>	Examine the terminal characteristics of FET and MOSFET
<b>CO4</b>	Acquire the knowledge on feedback amplifiers and operational amplifiers.
<b>CO5</b>	Design of simple Digital Logic Circuits.
<b>CO6</b>	Perform practical exercises as an individual and / or team member to manage the task in time.
<b>CO7</b>	Express the experimental results with effective presentation and report.

### 22HS101- Professional Communication

<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Comprehend conversations and short talks delivered in English
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques
<b>CO3</b>	Read articles of a general kind in magazines and newspapers efficiently
<b>CO4</b>	Write short general essays, personal letters and E-mails in English
<b>CO5</b>	Develop vocabulary of a general kind by enriching reading skills

## Laboratory Courses

22ME211 - Product Development Lab - 2	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.

## Mandatory Courses

22CH104 - Environmental Sciences and Sustainability	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to
<b>CO1</b>	Investigate and use conservational practices to protect natural resources.
<b>CO2</b>	Identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	Adapt the values of biodiversity and its conservation methods.
<b>CO4</b>	Recognize suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	Assess the impacts of human population and suggest suitable solutions.





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## DEPARTMENT OF SCIENCE & HUMANITIES

### Course Outcomes – Even semester – 2022-23

### **B.Tech. - Information Technology – Even semester**

THEORY COURSES WITH LABORATORY COMPONENT			
S.No	Semester	Course code	Course Name
1	2	22MA201	Transforms and Numerical Methods
2	2	22CS201	Data Structures
3	2	22PH201	Physics for Computer Science and Information Technology
4	2	22HS101	Professional Communication
5	2	22CS202	Java Programming
6	2	22IT202	Database Management System
<b>LABORATORY COURSES</b>			
7	2	22ME211	Product Development Lab - 2
<b>MANDATORY COURSES</b>			
8	2	22CH104	Environmental Sciences and Sustainability (Non-Credit)
<b>AUDIT COURSES</b>			
9	2		Yoga for Stress Management

## Second Semester B.Tech. / IT

### Theory Courses with Laboratory Component

22MA201- Transforms & Numerical Methods	
<b>COs</b>	<b>Course Outcomes:</b> After the successful completion of the course, the student will be able to:
<b>CO1</b>	determine Laplace transform and inverse transform of simple functions.
<b>CO2</b>	determine Z- transform and inverse transform of simple functions.
<b>CO3</b>	solve ordinary differential equations using Laplace transform and difference equations using Z-Transform.
<b>CO4</b>	compute the solutions of algebraic, transcendental and the system of equations.
<b>CO5</b>	appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems

22CS201- Data Structures	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Implement abstract data types for list.
<b>CO2</b>	Solve real world problems using appropriate linear data structures.
<b>CO3</b>	Apply appropriate tree data structures in problem solving.
<b>CO4</b>	Implement appropriate Graph representations and solve real-world applications.
<b>CO5</b>	Implement various searching and sorting algorithms.

<b>22PH201 - Physics for Computer Science and Information Technology</b>	
<b>COs</b>	<b>Course Outcomes:</b> On completion of this course, the students will be able to:
<b>CO1</b>	Discuss the basic principles of working of laser and their applications in fibre optic communication
<b>CO2</b>	Summarize the classical and quantum electron theories and energy band structures
<b>CO3</b>	Describe the conductivity in intrinsic and extrinsic semiconductors and importance of Hall effect measurements
<b>CO4</b>	Associate the properties of nanoscale materials and their applications in quantum computing
<b>CO5</b>	Interpret the properties of magnetic and superconducting materials and their applications in computer data storage

<b>22HS101- Professional Communication</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Comprehend conversations and short talks delivered in English
<b>CO2</b>	Participate efficiently in informal conversations and develop an awareness of the self and apply well-defined techniques
<b>CO3</b>	Read articles of a general kind in magazines and newspapers efficiently
<b>CO4</b>	Write short general essays, personal letters and E-mails in English
<b>CO5</b>	Develop vocabulary of a general kind by enriching reading skills

<b>22CS202- Java Programming</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Understand the object-oriented programming concepts and fundamentals of Java.
<b>CO2</b>	Develop Java programs with the packages, interfaces and exceptions.
<b>CO3</b>	Build Java applications with I/O streams, threads and generics programming.
<b>CO4</b>	Apply strings and collections in developing applications.
<b>CO5</b>	Implement the concepts of JDBC.

<b>22IT202- Database Management Systems</b>	
<b>COs</b>	<b>Course Outcomes:</b> At the end of this course, the students will be able to:
<b>CO1</b>	Map ER model to Relational model to perform database design effectively.
<b>CO2</b>	Implement SQL and effective relational database design concepts.
<b>CO3</b>	Apply relational algebra, calculus and normalization techniques in database design.
<b>CO4</b>	Understand the concepts of transaction processing, concurrency control, recovery procedure and data storage techniques.
<b>CO5</b>	Apply query optimization techniques and understand advanced databases.

### **Laboratory Courses**

<b>22ME211 - Product Development Lab - 2</b>	
<b>COs</b>	<b>Course Outcomes:</b> After successful completion of the course, the students will be able to:
<b>CO1</b>	Understand the working and capacity of various engineering systems.
<b>CO2</b>	Infer the outcomes in the product development process.
<b>CO3</b>	Perform basic engineering and material characterization tests.
<b>CO4</b>	Demonstrate the ability to provide conceptual design strategies for a product.
<b>CO5</b>	Implement the Science, Engineering, Technology and Mathematics (STEM) for product design.

### **Mandatory Courses**

<b>22CH104 - Environmental Sciences and Sustainability</b>	
<b>COs</b>	<b>Course Outcomes:</b> Upon completion of the course, the students will be able to
<b>CO1</b>	Investigate and use conservational practices to protect natural resources.
<b>CO2</b>	Identify the causes of pollutants and illustrate suitable methods for pollution abatement.
<b>CO3</b>	Adapt the values of biodiversity and its conservation methods.
<b>CO4</b>	Recognize suitable sustainable development practices and apply it in day-to-day life.
<b>CO5</b>	Assess the impacts of human population and suggest suitable solutions.