

MECHANICAL ENGINEERING

SEC (A)

1st Year

FROM :17/08/2026 TO :17/04/2027

NAME OF THE FACULTY : Mr. SHUBHAKANTA BEHERA

SUBJECT : Fundamentals of Computing and Artificial Intelligence

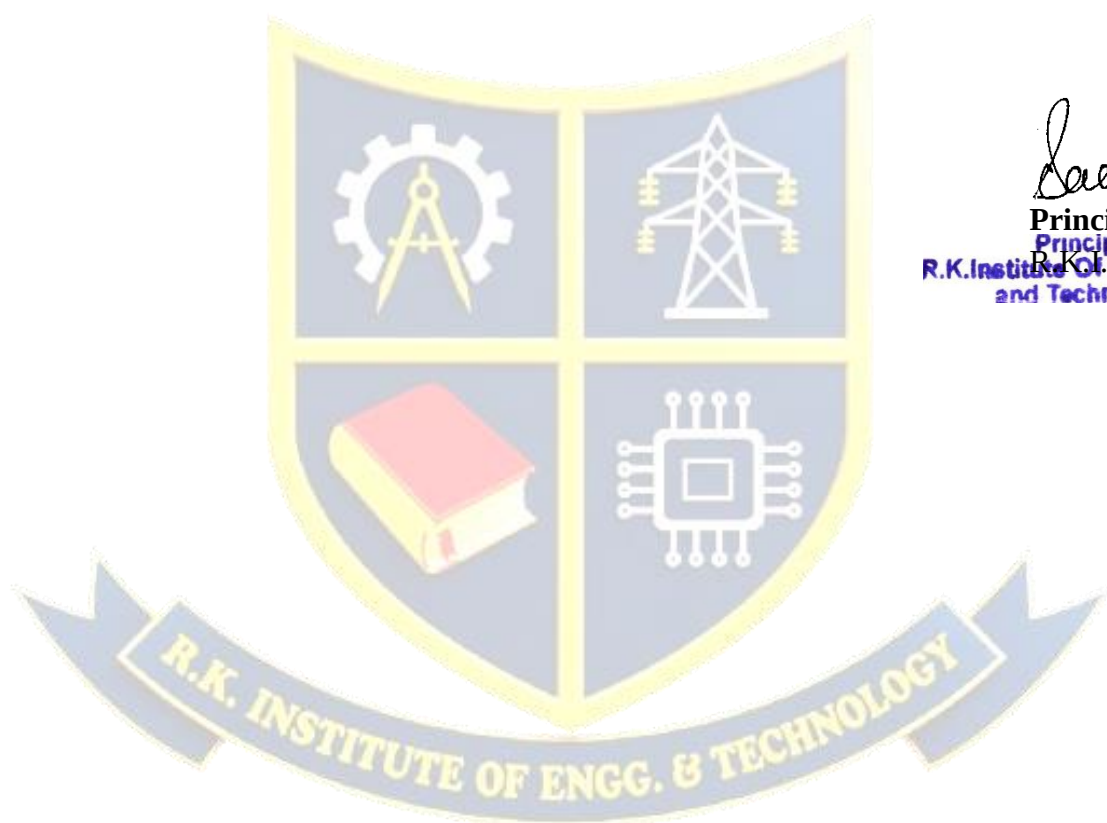
TOTAL CLASS AVAILABLE IN SEMESTER: 64 nos

NO. OF PERIODS : 02/ WEEK

Class No.	Unit	Topic	Teaching Method	Learning Outcome
1	I	Course Introduction & Introduction to Computer	Lecture	Understand course objectives and computer basics
2	I	Characteristics and Applications of Computer	Lecture	Explain computer features and uses
3	I	Functional Block Diagram of Computer	PPT/Diagram	Identify major functional units
4	I	Input Devices – Keyboard, Mouse	Demonstration	Identify input devices
5	I	Input Devices – Scanner, Joystick	Demonstration	Explain functions of input devices
6	I	Output Devices – Monitor	Lecture	Explain monitor types and functions
7	I	Output Devices – Printer	Lecture	Differentiate printer types
8	I	Output Devices – Speaker	Discussion	Explain audio output devices
9	I	CPU – ALU & Control Unit	Diagram	Describe CPU components
10	I	Primary Memory (RAM & ROM)	Lecture	Explain primary memory
11	I	Secondary Memory (HDD & SSD)	PPT	Compare HDD and SSD
12	I	Memory Hierarchy	Lecture	Explain memory hierarchy
13	I	Revision & Unit Test-I	Quiz	Assess Unit-I learning
14	II	Introduction to Software	Lecture	Define software
15	II	System Software	Lecture	Explain system software
16	II	Application Software	Lecture	Identify application software
17	II	Utility Software	Lecture	Explain utility software
18	II	Introduction to Operating System	Lecture	Define operating system
19	II	Functions of Operating System	Lecture	Explain OS functions
20	II	Types of Operating Systems	PPT	Differentiate OS types
21	II	Computer Virus – Introduction	Lecture	Explain computer viruses
22	II	Types of Computer Virus	Lecture	Identify virus types
23	II	Antivirus Software & Virus Prevention	Demonstration	Explain protection methods
24	II	Revision & Unit Test-II	Quiz	Assess Unit-II learning
25	III	Introduction to Computer Networks	Lecture	Explain networking basics
26	III	Types of Networks (PAN, LAN)	PPT	Differentiate PAN and LAN

Class No.	Unit	Topic	Teaching Method	Learning Outcome
27	III	Types of Networks (MAN, WAN)	PPT	Differentiate MAN and WAN
28	III	Transmission Media – Wired	Lecture	Explain wired media
29	III	Transmission Media – Wireless	Lecture	Explain wireless media
30	III	Networking Devices – Hub, Switch	Lecture	Define networking devices
31	III	Networking Devices – Router	Lecture	Explain router function
32	III	Internet, ISP	Lecture	Explain Internet and ISP
33	III	Web Browser & Search Engine	Demonstration	Differentiate browser and search engine
34	III	Internet Services	Discussion	Explain common Internet services
35	III	Digital India Portals	Demonstration	Identify government digital services
36	III	Revision & Unit Test-III	Quiz	Assess Unit-III learning
37	IV	Problem Solving Methodology	Lecture	Explain problem-solving steps
38	IV	Algorithm – Concepts & Examples	Lecture	Develop simple algorithms
39	IV	Flowchart Symbols	Demonstration	Draw standard flowcharts
40	IV	Flowchart – Sum & Average of 5 Numbers	Practice	Develop flowcharts
41	IV	Flowchart – Greatest of Two Numbers	Practice	Solve comparison problems
42	IV	Flowchart – Even/Odd Number	Practice	Develop decision flowcharts
43	IV	Flowchart – Average of N Numbers	Practice	Apply loop concepts
44	IV	Flowchart – Factorial	Practice	Develop iterative flowcharts
45	IV	Revision & Unit Test-IV	Quiz	Assess Unit-IV learning
46	V	Introduction to Python	Demonstration	Understand Python basics
47	V	Python Syntax	Practical	Write simple Python statements
48	V	Input & Print Statements	Practical	Use input and output functions
49	V	Variables & Constants	Practical	Declare and use variables
50	V	Data Types	Practical	Identify Python data types
51	V	Arithmetic & Assignment Operators	Practical	Apply arithmetic operations
52	V	Logical & Comparison Operators	Practical	Use logical operations
53	V	Conditional Statements – if	Practical	Write simple decision programs
54	V	if...else Statement	Practical	Develop conditional programs
55	V	if...elif...else Statement	Practical	Solve multiple-condition problems
56	V	for Loop	Practical	Write loop-based programs
57	V	while Loop	Practical	Apply while loops
58	V	Python Practice Programs	Practical	Solve simple programming problems
59	V	Revision & Unit Test-V	Practical Test	Assess Python programming
60	VI	Introduction to Artificial Intelligence	Lecture	Define AI
61	VI	Goals & Characteristics of AI	Lecture	Explain AI objectives
62	VI	Applications of AI & AI in Daily Life	PPT	Identify AI applications
63	VI	Generative AI, Machine Learning & Deep Learning	Lecture	Differentiate AI, ML, DL and GenAI

Class No.	Unit	Topic	Teaching Method	Learning Outcome
64	VI	Course Revision & Model Test	Discussion + Test	Evaluate overall learning




Principal
 R.K.I.E.T.
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 and Technology