



LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA'S

PRIYADARSHINI COLLEGE OF ENGINEERING

(Recognised by A.I.C.T.E. New Delhi & Govt. of Maharashtra Affiliated to R.T.M. Nagpur University)

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AN AUTONOMOUS INSTITUTE



B.Tech First Year

CURRICULUM

(Civil Engineering/Electrical Engineering)

WITH EFFECT FROM THE ACADEMIC YEAR 2024-2025.

LOKMANYA TILAK JANKALYAN SHIKSHAN SANSTHA

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SCHEME OF EXAMINATION

FIRST SEMESTER B. TECH. (CV/EE)

Sr. No.	Course Code	Course Category	BOS/ Dept	Course	Contact Hours				Marks				Total Marks
									Theory		Practical		
					L	T	P	Credits	CE	ESE	CE	ESE	
1	24UFY1C1T	BSC	ASH	Advanced Calculus & Statistics	3	1	0	4	40	60	--	--	100
2	24UFY1A2T	BSC	ASH	Engineering Chemistry	3	0	0	3	40	60	--	--	100
3	24UFY1A2P	BSC	ASH	Lab: Engineering Chemistry	0	0	2	1	--	--	25	25	50
4	24UFY1B3T	ESC	CSE	Computer Programming	2	0	0	2	20	30			50
5	24UFY1B3P	ESC	CSE	Lab: Computer Programming	0	0	2	1	--	--	25	25	50
6	24UFY1A4T	ESC	EE	Basics of Electrical & Electronics Engineering	3	0	0	3	40	60	--	--	100
7	24UFY1A4P	ESC	EE	Lab: Basics of Electrical & Electronics Engineering	0	0	2	1	--	--	25	25	50
8	24UFY1A5T	IKS	ASH	Indian Traditional knowledge	2	0	0	2	20	30	--	--	50
9	24UFY1A6P	SEC1	ASH	Skill Enhancement in Instrumental Techniques	0	1	2	2	--	--	25	25	50
10	24UFY121T	PCC	CV	Building Materials & Elements	2	0	0	2	20	30	--	--	50
	EE		Renewable Energy Sources										
11	24UFY111P	CC1	ASH	Liberal Learning Course: Yoga and Meditation	--	--	--	2	--	--	50	--	50
	24UFY112P			Liberal Learning Course: Physical Education(Sports)									
	24UFY113P			Liberal Learning Course:Music									
	24UFY114P			Liberal Learning Course:National Service Scheme(NSS)									
					15	2	8	23	180	270	150	100	700

SECOND SEMESTER B. TECH. (CV/EE)

Sr. No.	Course Code	Course Category	BOS/ Dept	Course Name	Contact Hours				Marks				Total Marks
					L	T	P	Credits	Theory		Practical		
									CE	ESE	CE	ESE	
1	24UFY2A1T	BSC	ASH	Basic calculus & differential equations	3	1	0	4	40	60	--	--	100
2	24UFY2B2T	BSC	ASH	Engineering Physics	3	0	0	3	40	60			100
3	24UFY2B2P	BSC	ASH	Lab: Engineering Physics	0	0	2	1			25	25	50
4	24UFY2D3T	ESC	CV	Engineering Mechanics	3	0	0	3	40	60			100
5	24UFY2D3P	ESC	CV	Lab: Engineering Mechanics	0	0	2	1			25	25	50
6	24UFY2B4T	ESC	ME	Computer Aided Graphics.	1	0	0	1	20	30			50
7	24UFY2B4P	ESC	ME	Lab: Computer Aided Graphics	0	0	2	1			25	25	50
8	24UFY2A5P	ESC	ME	Lab: Engineering Workshop	0	0	2	1	--	-	25	25	50
9	24UFY2B6T	AEC	ASH	Communication skills	1	0	0	1	20	30			50
10	24UFY2B6P	AEC	ASH	Lab: Communicationskills	0	0	2	1			25	25	50
11	24UFY2A7P	SEC2	ASH	Skill Enhancement in Analytical Techniques	0	1	2	2	--	-	25	25	50
12	24UFY211P	CC2	ASH	Liberal Learning Course: Creative Arts	--	--	2	2	--	-	50	--	50
	24UFY212P			Liberal Learning Course: Professional Skills									
	24UFY213P			Liberal Learning Course: Photography & Film making									
	24UFY214P			Liberal Learning Course: Foreign Language (German or French)									
					11	2	14	21	160	240	200	150	750




Principal




Dean Academic

Course Title- Advanced Calculus and Statistics
Course Code- 24UFY1C1T
Teaching Scheme: L-T-P
3 -1- 0

Semester -I
Course Category: BSC
Total Credits: 3+1

Course Outcome:

On successful completion of the course, the students will learn:

CO1: To analyse length area volume using knowledge of curve tracing.

CO2: To solve multiple integral problems and apply it to various engineering problem.

CO3: Apply the process of vector differential in real world.

CO4: To interpret and analyse the statistical data.

CO5: To relate various difference operator for evaluation of difference equation.

CO6: To determine various functions of complex numbers.

Course Title: Engineering Chemistry
Course Code: 24UFY1A2T
Teaching Scheme: L – T – P
3 – 0 – 0

Semester I
Course Category: BSC
Total Credits:3

Course outcomes: After completion of the course the students will be able to,

CO1: Apply knowledge of science, mathematics and engineering techniques for assessing the energy of various sources for sustainable uses.

CO2: Enable the students to upgrade the knowledge of water technologies and to enhance the thinking capabilities in line with the modern trends in engineering and technology

CO3 :Demonstrate the knowledge of alternative combinations of materials and design improvements to complex engineering problems.

CO4 : Know the contribution to advanced materials in engineering through innovative chemical solutions and technologies.

CO5 : Apply fundamental theories of molecular structures in analytical tools.

CO6 : Apply the knowledge of green chemistry in providing solution to impact of existing technologies on environment.

Course Title: Lab-Engineering Chemistry
Course Code: 24UFY1A2P
Teaching Scheme: L – T – P
0– 0 – 2

Semester I
Course Category: BSC
Total Credits:1

Outcome: After completion of this course, the students will develop competencies in

1. Practical knowledge of handling chemical methods in skilled way.
 2. Estimation of soluble impurities present in water sample.
 3. Strengthening their theoretical knowledge while performing virtual lab experiments.
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Course Title: Computer Programming
Course Code : 24UFY1B3T
Teaching Scheme: L – T – P
2 – 0 – 0

Semester: I
Course Category: ESC
Total Credits: 2

Course Outcomes:

After completion of this course, students will able to:

CO1: Defining the Fundamentals for C Programming.

CO2: Explain programming fundamental, including statement and control flow.

CO3: Solve the given problem keeping in mind in Array, function and String approach.

CO4: Analyze Structure and pointer concept during the development solution

Course Title: Computer Programming
Course Code : 24UFY1B3P
Teaching Scheme: L – T – P
0 – 0 – 2

Semester: I
Course Category: ESC
Total Credits: 1

Course Outcomes

After the completion of the course **students will be able to**

CO 1: Illustrate the flowchart to design and develop C programs using Operators

CO 2: Develop conditional and iterative statements to write C programs

CO 3: Develop C programs that use Pointers to access arrays, strings and functions

Course Title: Basics of Electrical & Electronics Engineering
Course Code: 24UFY1A4T
Teaching Scheme: L – T – P
3 – 0 – 0

Semester: I
Course Category: ESC
Total Credits: 03

Course Outcomes: After the completion of this course, the students shall be able to:

- CO1** Acquire basic concepts of electric and magnetic circuit.
- CO2** Analyze ac series circuits
- CO3** Explain construction, working and applications of single-phase transformers and electric machines.
- CO4** Discuss 3-phase power generation and basic power system.
- CO5** Explain operation and applications of semiconducting devices – diode and BJT.
- CO6** Comprehend with number system and logic gates.

Course Title: Lab Basics of Electrical & Electronics Engineering
Course Code: 24UFY1A4P
Teaching Scheme: L – T – P
0 – 0 – 2

Semester: I
Course Category: ESC
Total Credits: 01

Course Outcomes:

After the completion of this course, the students shall be able to:

CO1	Apply the fundamental concepts of Kirchoff's Laws and RLC series circuit to differentiate between AC and DC circuits.
CO2	Determine efficiency and voltage regulation of transformer by direct loading test and behaviour of transformer material by B-H curve.
CO3	Verify Truth table of Logic Gates and operation of Half wave and Full wave rectifier.
CO4	Perform computer simulation practical based (virtual lab) on Basic Electronics circuit.

Course Title: Indian Traditional Knowledge
Course Code: 24UFY1A5T
Teaching Scheme: L – T – P
2 – 0 – 0

Semester: I
Course Category: IKS
Total Credits: 2

Course Outcomes: On completion of the course, students will be able to-

1. Interpret basics of Indian Knowledge system.
 2. Integrate the teaching of Indian culture and civilization.
 3. Appreciate Indian artistic tradition.
 4. Acquire the knowledge of Indian architectural system.
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Course Title: Skill Enhancement in Instrumental Techniques
Course Code: 24UFY1A6P
Teaching Scheme: L – T – P
0 – 1 – 2

Semester: I
Course Category: SEC1
Total Credits: 2

COURSE OUTCOMES: After the completion of the course students will be able -

- 1] To strengthen the skill by hands-on experimentation using concepts and ideas in Physics to explain world around us.
- 2] To execute Experimental Physics which has the most striking impact on the industry and research because of its vast applications.
- 3] To craft Physics goals for students that boost natural curiosity for ease in real life.

Course Title: Building Materials and Elements
Course Code: 24UFY121T
Teaching Scheme: L – T – P
2 – 0 – 0

Semester: I
Course Category: PCC
Total Credits: 02

COURSE OUTCOMES:

After the completion of the course student should be able to

CO1 To distinguish different types of building materials and its uses

CO2 To describe different types of concrete and their properties

CO3 To recognize necessity of different building components

CO4 To explain different types of estimates and measurement of building quantities

Course Title: Renewable Energy Sources
Course Code: 24UFY122T
Teaching Scheme: L – T – P
2 – 0 – 0

Semester: I
Course Category: PCC
Total Credits: 02

COURSE OUTCOMES:

After the completion of this course, the students shall be able to:

- CO1** Classify types of renewable energy sources and different factors associated with a generating station
 - CO2** Explain various parameters related to selection and application of Solar and Wind Energy.
 - CO3** Describe various parameters for Hydro, Ocean and wave energy.
 - CO4** Discuss environmental issues related to use of conventional energy sources.
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SECOND SEMESTER B. TECH. (EE/CV)

Course Title- Basic Calculus and Differential Equations

Course Code- 24UFY2A1T

**Teaching Scheme: L-T-P
3 -1- 0**

Semester -II

Course Category: BSC

Total Credits: 3+1

COURSE OUTCOMES:

On successful completion of the course, the students will learn:

CO1: To apply knowledge of matrices and linear algebra in a comprehensive manner.

CO2: To solve engineering problem by using knowledge of differentiation.

CO3: To Use the derivatives of functions of several variables and develop the mathematical equation.

CO4: To analyse sequence and series on basis of types and their convergence

CO5: To distinguish and solve differential equation that model physical process

CO6: To Solve higher order differential equation used in various engineering field.

Course Title: Engineering Physics

Course Code: 24UFY2B2T

**Teaching Scheme: L – T – P
3 – 0 – 0**

Semester II

Course Category: BSC

Total Credits: 3

COURSE OUTCOMES: On successful completion of the course students will be able to

CO	CO Statement
CO 1	Apply concepts in interference and diffraction to relevant engineering applications.
CO 2	Apply the concepts of Quantum Mechanics and analyse relevant phenomena.
CO 3	Apply the knowledge of band theory of solids to describe the process of electrical conduction in solids and semiconductor devices along with their applications.
CO 4	Apply the concept of quantum transition processes to describe the working of lasers.
CO 5	Apply the basic concepts of motion of charged particles in electric and magnetic fields with its applications in electron optic devices.
CO 6	Apply the knowledge of optical fibre structure, different modes, types, and optical fibre parameters to describe its engineering applications.

Course Title: Lab-Engineering Physics
Course Code: 24UFY2B2P
Teaching Scheme: L – T – P
0 – 0 – 2

Semester II
Course Category: BSC
Total Credits: 1

Course Outcomes:

On successful completion of the course, the students will learn:

- CO1** Measure the radius of curvature of plano convex lens using phenomenon of interference in Newtons Rings Experiment.
- CO2** Measure experimental value of Planks constant on the basis of planks quantum hypothesis using different wavelength /frequency of radiation
- CO3** Measure the energy band gap of semiconductor material.
- CO4** Analyse V -I characteristic and of a semiconductor devices like diodes and transistors
- CO5** Measure unknown frequency of a signal using CRO

Course Title: Engineering Mechanics
Course Code: 24UFY2D3T
Teaching Scheme: L – T – P
3 – 0 – 0

Semester II
Course Category: ESC
Total Credits: 3

COURSE OUTCOMES:

On successful completion of the course the students will be able to

- CO1: Illustrate the concept of force, moment and apply the concept of mechanics for solving problems.
 - CO2 :Apply the concept of equilibrium in two- and three-dimensional systems with the help of free bodydiagram.
 - CO3: Correlate real life application to specific type of friction and estimate required force to overcomeFriction.
 - CO4: Understand the properties of surface and can find centroid and moment of inertia.
 - CO5: Illustrate different types of motions and apply the principles of dynamics to solve the various engineering problems of particle.
 - CO6: Analyse body in motion using force and acceleration,work-energy,impulse-momentum principles.
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Course Title: Lab Engineering Mechanics
Course Code : 24UFY2D3P
Teaching Scheme: L – T – P
0 – 0 – 2

Semester II
Course Category: ESC
Total Credits: 1

COURSE OUTCOMES:

On successful completion of the course the students will be able to

- CO1 Prove the concepts related to engineering mechanics.
- CO2 Calculate lifting machine parameters.

Course Title: Computer Aided Graphics
Course Code: 24UFY2B4T
Teaching Scheme: L – T – P
1 – 0 – 0

Semester:II
Course Category: ESC
Total Credits:1

COURSE OUTCOMES:After the completion of the course the student will be able to

- CO1 **Construct** curves and draw the projections of points and straight lines located in first quadrant.
- CO2 **Interpret** multi view orthographic projections of different planes and solids by visualizing them in different positions and draw sectional views and develop surfaces of a given object.
- CO3 **Convert** pictorial view to orthographic views and prepare isometric drawings using the principles of isometric projection to visualize objects in three dimensions.
- CO4 **Practice** the use of CAD software tools to draw multiview orthographic projections and solid models of objects.

Course Title: Lab: Computer Aided Graphics
Course Code: 24UFY2B4P
Teaching Scheme: L- T- P
0 - 0 - 2

Semester: II
Course Category:ESC
Total Credit: 1

Course Outcomes:

On successful completion of the course, the students will learn:

- CO1** Construct engineering curves and draw the projections of a point straight line plane located in first quadrant.
- CO2** Analyse multi view projection of different solid by visualizing them in different positions, draw sectional views and develop surfaces of solid by applying CAD software tool
- CO3** Convert pictorial view into orthographic views,visualize object in three dimensions and able to draw isometric drawing using the principle of isometric projection with the help of CAD software tool
- CO4** Apply the knowledge of CAD software tool to draw solid models of objects.

Course Title: Lab: Engineering Workshop
Course Code: 24UFY2A5P
Teaching Scheme: L – T – P
0 – 0 – 2

Semester: II
Course Category: ESC
Total Credits: 1

Course Outcomes:

On successful completion of the course, the students will learn:

- CO1** Read and interpret job drawing and plan operation.
- CO2** Identify and select proper materials, tools, equipment, machines and proper operational parameters.
- CO3** Set tools, work piece and machines for desired operations.
- CO4** Complete job of Carpentry, Fitting, Welding and Smithy and Plumbing as per job drawing in allotted time.

Course Title: Communication Skills
Course Code: 24UFY2B6T
Teaching Scheme: L – T – P
1 – 0 – 0

Semester II
Course Category: AEC
Total Credits: 1

Course Outcomes: On completion of the course, students will be able to-

1. Construct grammatically correct sentences
2. Identify and overcome barriers of communication.
3. Demonstrate public speaking and presentation skills.
4. Prepare effective Presentations.

Course Title: Communication Skills
Course Code: 24UFY2B6P
Teaching Scheme: L – T – P
0 – 0 – 2

Semester II
Course Category: AEC
Total Credits: 1

Course Outcomes:

On completion of the course, students will be able to-

- CO1** Identify and overcome barriers of communication.
- CO2** Demonstrate public speaking and presentation skills.
- CO3** Prepare for effective Group Discussion.
- CO4** Develop interviews skills.

Course Title: Skill Enhancement in Analytical Techniques

Course Code: 24UFY2A7P

Teaching Scheme: L – T – P

0 – 1 – 2

Semester II

Course Category:SEC2

Total Credits: 2

Course Outcomes:

On completion of the course, students will be able to-

CO1 Emphasize the practical relevance of analytical technique in their professional field

CO2 Develop the critical thinking, hands on learning and the ability to connect theoretical knowledge to real world scenario

CO3 Handle major and minor equipment with safety measure