



# DADI INSTITUTE OF ENGINEERING & TECHNOLOGY (AN AUTONOMOUS INSTITUTE)

(Approved by A.I.C.T.E., New Delhi & Permanently Affiliated to JNTU GV)  
Accredited by NAAC with 'A' Grade and Inclusion u/s 2(f) & 12(B) of UGC Act  
An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute.

DR23

I B. TECH I SEM

CO'S

## COMMUNICATIVE ENGLISH

### Course Outcomes

- **By the end of the course the students will have** Learned how to understand the context, topic, and specific information from social or transactional dialogues.
- Remedially learn applying grammatical structures to formulate sentence sand use appropriate words and correct word forms.
- Using discourse markers to speak clearly on a specific topic in formal as well as informal discussions. (not required)
- Improved communicative competence in formal and informal contexts and for social and academic purposes.
- Critically comprehending and appreciating adding /listening texts and to write summaries based on global comprehension of these texts.
- Writing coherent paragraphs essays, letters/e-mails and resume.

## LINEAR ALGEBRA & CALCULUS

### Course Outcomes:

At the end of the course, the student will be able to:

- develop matrix algebra techniques that is needed by engineers for practical applications.
- to find the eigen values and eigen vectors and solve the problems by using linear transformation
- learn important tools of calculus in higher dimensions.
- familiarize with functions of several variables which is useful in optimization.
- familiarize with double and triple integrals of functions of several variables in two and three dimensions.

## INTRODUCTION TO PROGRAMMING

### Course Outcomes:

At the end of the Course, Student should be able to:

- i. Illustrate the Fundamental concepts of Computers and basics of computer programming and problem-solving approach
- ii. Understand the Control Structures, branching and looping statements
- iii. Use of Arrays and Pointers in solving complex problems.
- iv. Develop Modular program aspects and Strings fundamentals.
- v. Demonstrate the ideas of User Defined Data types, files. Solve real world problems using the concept of Structures, Unions and File operations.



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## ENGINEERING CHEMISTRY

**Course Outcomes:** At the end of the course, the students will be able to

- CO1:** Demonstrate the corrosion prevention methods and factors affecting corrosion.
- CO2:** Explain the preparation, properties, and applications of thermoplastics & thermosetting, elastomers & conducting polymers.
- CO3:** Explain calorific values, octane number, refining of petroleum and cracking of oils.
- CO4:** Explain the setting and hardening of cement.
- CO5:** Summarize the concepts of colloids, micelle and nanomaterials.

## ENGINEERING PHYSICS

**Course Outcomes:**

- CO1:** Analyse the intensity variation of light due to polarization, interference and diffraction.
- CO2:** Familiarize with the basics of crystals and their structures.
- CO3:** Explain fundamentals of quantum mechanics and apply it to one dimensional motion of particles.
- CO4:** Summarize various types of polarization of dielectrics and classify the magnetic materials.
- CO5:** Explain the basic concepts of Quantum Mechanics and the band theory of solids. And identify the type of semiconductor using Hall effect.

## CHEMISTRY

**Course Outcomes:** At the end of the course, the students will be able to:

- CO1:** Compare the materials of construction for battery and electrochemical sensors.
- CO2:** Explain the preparation, properties, and applications of thermoplastics & thermosetting & elastomers conducting polymers.
- CO3:** Explain the principles of spectrometry, slc in separation of solid and liquid mixtures.
- CO4:** Apply the principle of Band diagrams in the application of conductors and semiconductors.
- CO5:** Summarize the concepts of Instrumental methods



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## **BASIC CIVIL & MECHANICAL ENGINEERING**

**Course Outcomes:** On completion of the course, the student should be able to: CO1: Understand various sub-divisions of Civil Engineering and to appreciate their role in ensuring better society.

CO2: Know the concepts of surveying and to understand the measurement of distances, angles and levels through surveying.

CO3: Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation.

CO4: Understand the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated.

CO5: Understand the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.

## **ENGINEERING GRAPHICS**

### **Course Outcomes:**

CO1: Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.

CO2: Draw and interpret orthographic projections of points, lines, planes and solids in front, top and side views.

CO3: Understand and draw projection of solids in various positions in first quadrant. CO4: Explain principles behind development of surfaces.

CO5: Prepare isometric and perspective sections of simple solids.

## **BASIC ELECTRICAL & ELECTRONICS ENGINEERING**

### **Course Outcomes:**

**CO1:** Remember the fundamental laws, operating principles of motors, generators, MC and MI instruments.

**CO2:** Understand the problem solving concepts associated to AC and DC circuits, construction and operation of AC and DC machines, measuring instruments; different power generation mechanisms, Electricity billing concept and important safety measures related to electrical operations.

**CO3:** Apply mathematical tools and fundamental concepts to derive various equations related to machines, circuits and measuring instruments; electricity bill calculations and layout representation of electrical power systems.

**CO4:** Analyze different electrical circuits, performance of machines and measuring instruments.

**CO5:** Evaluate different circuit configurations, Machine performance and Power systems operation.



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## COMMUNICATIVE ENGLISH LAB

### Course Outcomes:

By the end of the course, the students will be have

- Understand the different aspects of the English language oral communication with emphasis on Listening and Speaking S skills.
- Apply communication skills through various language learning activities.
- Analyse the English speech sounds, stress, rhythm and intonation for better listening and speaking comprehension.
- Evaluate and exhibit professionalism in participating in debates and group discussions with polite turn taking strategies and sound more professional while communicating with others
- Create effective resonate and prepare them to face interviews communicate appropriately in corporate settings.

## ENGINEERING PHYSICS LAB

### Course Outcomes:

The students will be able to

- Operate optical instruments like travelling microscope and spectrometer.
- Estimate the wavelengths of different colours using diffraction grating.
- Plot the intensity of the magnetic field of circular coil carrying current with distance.
- Evaluate dielectric constant and magnetic susceptibility for dielectric and magnetic materials respectively.
- Calculate the band gap of a given semiconductor.

## CHEMISTRY LAB

**Course Outcomes:** At the end of the course, the students will be able to

- CO1: Determine the cell constant and conductance of solutions.
- CO2: Prepare advanced polymer Bakelite materials.
- CO3: Measure the strength of an acid present in secondary batteries.
- CO4: Analyse the IR spectra of some organic compounds.
- CO5: Calculate strength of acid in Pb-Acid battery.

## ENGINEERING WORKSHOP

### Course Outcomes:

- Identify workshop tools and their operational capabilities.
- Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.
- Apply fitting operations in various applications.
- Apply basic electrical engineering knowledge for House Wiring Practice



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## IT WORKSHOP

### Course Outcomes:

- Perform Hardware troubleshooting.
- Understand Hardware components and inter dependencies.
- Safeguard computer systems from viruses/worms.
- Document/ Presentation preparation.
- Perform calculations using spreadsheets

## ELECTRICAL & ELECTRONICS ENGINEERING WORKSHOP

### Course Outcomes:

- **CO1:** Understand the Electrical circuit design concept; measurement of resistance, power, power factor; concept of wiring and operation of Electrical Machines and Transformer.
- **CO2:** Apply the theoretical concepts and operating principles to derive mathematical models for circuits, Electrical machines and measuring instruments; calculations for the measurement of resistance, power and power factor.
- **CO3:** Apply the theoretical concepts to obtain calculations for the measurement of resistance, power and power factor.
- **CO4:** Analyse various characteristics of electrical circuits, electrical machines and measuring instruments.
- **CO5:** Design suitable circuits and methodologies for the measurement of various electrical parameters; Household and commercial wiring

## COMPUTER PROGRAMMING LAB

### Course Outcomes:

- Read, understand, and trace the execution of programs written in C language.
- Select the right control structure for solving the problem.
- Develop C programs which utilize memory efficiently using programming constructs like pointers.
- Develop, Debug and Execute programs to demonstrate the applications of arrays, functions, basic concepts of pointers in C.

## HEALTH AND WELLNESS, YOGA AND SPORTS

### Course Outcomes: After completion of the course the student will be able to

- Understand the importance of yoga and sports for Physical fitness and sound health.
- Demonstrate an understanding of health-related fitness components.
- Compare and contrast various activities that help enhance their health.
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- Writing coherent paragraphs essays, letters/e-mails and resume.

## DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS

### Course Outcomes:

At the end of the course, the student will be able to:

- solve the differential equations related to various engineering fields.
- model engineering problems as higher order differential equations and solve analytically.
- identify solution methods for partial differential equations that model physical processes.
- interpret the physical meaning of different operators such as gradient, curl and divergence.
- estimate the work done against a field, circulation and flux using vector calculus.

## ENGINEERING MECHANICS

**Course Outcomes:** On Completion of the course, the student should be able to

**CO1:** Understand the fundamental concepts in mechanics and determine the frictional forces for bodies in contact.

**CO2:** Analyze different force systems such as concurrent, coplanar and spatial systems and calculate their resultant forces and moments.

**CO3:** Calculate the centroids, center of gravity and moment of inertia of different geometrical shapes.

**CO4:** Apply the principles of work-energy and impulse-momentum to solve the problems of rectilinear and curvilinear motion of a particle.

**CO5:** Solve the problems involving the translational and rotational motion of rigid bodies.



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## DATA STRUCTURES

**Course Outcomes: At the end of the course, Student will be able to**

- Explain the role of linear data structures in organizing and accessing data efficiently in algorithms.
- Design, implement, and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation.
- Develop programs using stacks to handle recursive algorithms, manage program states, and solve related problems.
- Apply queue-based algorithms for efficient task scheduling and breadth-first traversal in graphs and distinguish between deques and priority queues, and apply them appropriately to solve data management challenges.
- Devise novel solutions to small scale programming challenges involving data structures such as stacks, queues, Trees
- Recognize scenarios where hashing is advantageous, and design hash-based solutions for specific problems.

## ENGINEERING PHYSICS

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- CO3: Realize the importance of Transportation in nation's economy and the engineering measures related to Transportation.
- CO4: Understand the importance of Water Storage and Conveyance Structures so that the social responsibilities of water conservation will be appreciated.
- CO5: Understand the basic characteristics of Civil Engineering Materials and attain knowledge on prefabricated technology.

## NETWORK ANALYSIS

**Course Outcomes:** At the end of this course students will demonstrate the ability to

- CO1: Understand basic electrical circuits with nodal and mesh analysis.
- CO2: Analyze the circuit using network simplification theorems.
- CO3: Find Transient response and Steady state response of a network.
- CO4: Analyze electrical networks in the Laplace domain.
- CO5: Compute the parameters of a two-port network

## ENGINEERING GRAPHICS

**Course Outcomes:**

CO1: Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections.

CO2: Draw and interpret orthographic projections of points, lines, planes and solids in front, top and side views.

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## BASIC ELECTRICAL & ELECTRONICS ENGINEERING

**Course Outcomes:**

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**CO2:** Understand the problem solving concepts associated to AC and DC circuits, construction and operation of AC and DC machines, measuring instruments; different power



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generation mechanisms, Electricity billing concept and important safety measures related to electrical operations.

**CO3:** Apply mathematical tools and fundamental concepts to derive various equations related to machines, circuits and measuring instruments; electricity bill calculations and layout representation of electrical power systems.

**CO4:** Analyze different electrical circuits, performance of machines and measuring instruments.

**CO5:** Evaluate different circuit configurations, Machine performance and Power systems operation.

## ELECTRICAL CIRCUIT ANALYSIS-1

### Course Outcomes:

- **CO1:** Remembering the basic electrical elements and different fundamental laws.
- **CO2:** Understand the network reduction techniques, transformations, concept of self- inductance and mutual inductance, phasor diagrams, resonance and network theorems.
- **CO3:** Apply the concepts to obtain various mathematical and graphical representations.
- **CO4:** Analyze nodal and mesh networks, series and parallel circuits, steady state response, different circuit topologies (with R, L and C components).
- **CO5:** Evaluation of Network theorems, electrical, magnetic and single-phase circuits.

## COMMUNICATIVE ENGLISH LAB

### Course Outcomes:

By the end of the course, the students will be have

- Understand the different aspects of the English language oral communication with emphasis on Listening and Speaking S skills.
- Apply communication skills through various language learning activities.
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### Course Outcomes:

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- CO4: Analyse the IR spectra of some organic compounds.
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## ENGINEERING WORKSHOP

### Course Outcomes:

- Identify workshop tools and their operational capabilities.
- Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding.
- Apply fitting operations in various applications.
- Apply basic electrical engineering knowledge for House Wiring Practice

## IT WORKSHOP

### Course Outcomes:

- Perform Hardware troubleshooting.
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## ELECTRICAL & ELECTRONICS ENGINEERING WORKSHOP

### Course Outcomes:

- **CO1:** Understand the Electrical circuit design concept; measurement of resistance, power, power factor; concept of wiring and operation of Electrical Machines and Transformer.
- **CO2:** Apply the theoretical concepts and operating principles to derive mathematical models for circuits, Electrical machines and measuring instruments; calculations for the measurement of resistance, power and power factor.
- **CO3:** Apply the theoretical concepts to obtain calculations for the measurement of resistance, power and power factor.
- **CO4:** Analyse various characteristics of electrical circuits, electrical machines and measuring instruments.
- **CO5:** Design suitable circuits and methodologies for the measurement of various electrical parameters; Household and commercial wiring

## DATA STRUCTURES LAB

**Course Outcomes:** At the end of the course, Student will be able to

- Explain the role of linear data structures in organizing and accessing data efficiently in algorithms.
- Design, implement, and apply linked lists for dynamic data storage, demonstrating understanding of memory allocation.
- Develop programs using stacks to handle recursive algorithms, manage program states, and solve related problems.
- Apply queue-based algorithms for efficient task scheduling and breadth-first traversal in graphs and distinguish between deques and priority queues, and apply them appropriately to solve data management challenges.
- Devise novel solutions to small scale programming challenges involving data structures such as stacks, queues, Trees
- Recognize scenarios where hashing is advantageous, and design hash-based solutions for specific problems

## ENGINEERING MECHANICS & BUILDING PRACTICES LAB

**Course Outcomes:** On completion of the course, the student should be able to:

- CO1: Evaluate the coefficient of friction between two different surfaces and between the inclined plane and the roller.
- CO2: Verify Law of Parallelogram of forces and Law of Moment using force polygon and bell crank lever.
- CO3: Determine the Centre of gravity different configurations and
- CO4: Understand the Quality Testing and Assessment Procedures and principles of Non- Destructive Testing.
- CO5: Exposure to safety practices in the construction industry.



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## ELECTRICAL CIRCUITS LAB

### Course Outcomes:

- **CO1:** Understand the concepts of network theorems, node and mesh networks, series and parallel resonance and Locus diagrams.
- **CO2:** Apply various theorems to compare practical results obtained with theoretical calculations.
- **CO3:** Determine self, mutual inductances and coefficient of coupling values, parameters of choke coil.
- **CO4:** Analyse different circuit characteristics with the help of fundamental laws and various configurations.
- **CO5:** Create locus diagrams of RL, RC series circuits and examine series and parallel resonance.

## NETWORK ANALYSIS AND SIMULATION LABORATORY

### Course Outcomes:

- CO1: Verify Kirchoff's laws and network theorems.
- CO2: Measure time constants of RL & RC circuits.
- CO3: Analyze behavior of RLC circuit for different cases.
- CO4: Design resonant circuit for given specifications.
- CO5: Characterize and model the network in terms of all network parameters.

## HEALTH AND WELLNESS, YOGA AND SPORTS

**Course Outcomes:** After completion of the course the student will be able to

- Understand the importance of yoga and sports for Physical fitness and sound health.
- Demonstrate an understanding of health-related fitness components.
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