VISION OF THE INSTITUTION

To ignite the minds of the students through academic excellence so as to bring about social transformation and prosperity.

MISSION OF THE INSTITUTION

1. To expand the frontiers of knowledge through Quality Education.
2. To provide valued added Research and Development.
3. To embody a spirit of excellence in Teaching, Creativity, Scholarship and Outreach.
4. To provide a platform for synergy of Academy, Industry and Community.
5. To inculcate high standards of Ethical and Professional Behavior.

VISION OF CSE DEPARTMENT

To build a strong teaching-learning base with a flair for innovation and research that responds to the dynamic needs of the software industry and the society.

MISSION OF CSE DEPARTMENT

1. To provide strong foundation both in theory and applications of Computer Science & Engineering, so as to solve real-world problems
2. To empower students with state-of-art knowledge and up to date technological skills, making them globally competent
3. To promote research, innovation and entrepreneurship with focus on industry and social outreach
4. To foster civic minded leadership with ethics and values among students

PROGRAM EDUCATIONAL OBJECTIVES OF CSE DEPARTMENT

1. Graduates will have knowledge of mathematics, science, engineering fundamentals, and in-depth studies in Computer Science Engineering, and will be able to apply them for formulating, analysing and solving real world problems.
2. Graduates will succeed in earning coveted entry level positions in leading Computer Software and Hardware Firms in India and abroad.
3. Graduates will succeed in the pursuit of advanced degrees and research in engineering or other fields and will have skills for continued, independent, lifelong learning and professional development throughout life.
4. Graduates will have good communication skills, leadership qualities, ethical values and will be able to work in teams with due attention to their social responsibilities.

PROGRAM OUTCOMES OF CSE DEPARTMENT

Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES OF CSE DEPARTMENT

1. An ability to demonstrate basic knowledge in databases, programming languages and algorithm analysis in the development of software applications.

2. An ability to design and develop projects using open source tools and efficient data structures.

B.Tech. FOUR YEAR DEGREE COURSE

R19 Regulations

(Applicable for the batches admitted from 2019-2020)

®

VISHNU
UNIVERSAL LEARNING

VISHNU INSTITUTE OF TECHNOLOGY: BHIMAVARAM

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Vishnupur, Bhimavaram, West Godavari Dist., Andhra Pradesh, India. PIN - 534202

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I B.Tech II SEMESTER
CSE
R19 SYLLABUS

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	2	0	0	2
Subject	Communicative English				

Introduction:
In view of the growing importance of English as a tool for global communication and the consequent emphasis on training the students to acquire communicative competence, the syllabus has been designed to develop linguistic and communicative competence of the students of Engineering.

As far as the detailed textbook is concerned, the focus should be on the skills of listening, speaking, reading and writing.

Thus the stress in the syllabus is primarily on the development of communicative skills and fostering of ideas.

Objectives:
- Adopt activity based teaching-learning methods to ensure that the learners would be engaged in the use of language both in the classroom and the laboratory sessions.
- Facilitate effective listening skills for better comprehension of academic lectures and English spoken by native speakers
- Focus on appropriate reading strategies for comprehension of various academic texts and authentic materials
- Help improve speaking skills through participation in activities such as role plays, discussions and structured talks/oral presentations
- Impart effective strategies for good writing and demonstrate the same in summarizing, writing well organized essays, record and report useful information
- Provide knowledge of grammatical structures and vocabulary and encourage their appropriate use in speech and writing

Methodology:

1. The class are to be learner-centered where the learners are to read the texts to get a comprehensive idea of those texts on their own with the help of the peer group and the teacher.
2. Integrated skill development methodology has to be adopted with focus on individual language skills as per the tasks/exercise.
3. The tasks/exercises at the end of each unit should be completed by the learners only and the teacher intervention is permitted as per the complexity of the task/exercise.
4. The teacher is expected to use supplementary material wherever necessary and also generate activities/tasks as per the requirement.
5. The teacher is permitted to use lecture method when a completely new concept is introduced in the class.

Unit 1 (10 periods)

Reading: Skimming to get the main idea of a text

Reading for Writing: Beginnings and endings of paragraphs - introducing the topic, summarizing the main idea and/or providing a transition to the next paragraph.

Grammar and Vocabulary : Nouns and Pronouns; textual words

Learning Outcomes

At the end of the module, the learners will be able to

- employ suitable strategies for skimming to get the general idea of a text
- recognize paragraph structure with beginnings/endings
- using correct word forms of nouns and pronouns and textual words

Unit 2 (10 periods)

Reading: Scanning to look for specific pieces of information.

Writing: Writing sentences with proper word order - Basic Sentence Structures

Grammar and Vocabulary: Verbs - tenses; use of synonyms

Learning Outcomes

At the end of the module, the learners will be able to

- Employ suitable strategies for scanning to identify specific information from a text
- Write accurately using proper grammatical structures

Unit 3 (10 periods)

Reading: Identifying sequence of ideas; recognizing verbal techniques that help to link the ideas in a paragraph together.

Writing: Paragraph writing using suitable cohesive devices; mechanics of writing - punctuation, capital letters.

Grammar and Vocabulary: Cohesive devices - linkers, sign posts and transition signals; use of articles and zero article; prepositions; use of synonyms

Learning Outcomes

At the end of the module, the learners will be able to

- write well structured paragraphs
- understand the use of cohesive devices

Assignment-I: Each Student is required to present a report on a problem faced by individuals or the society with an analysis and possible solutions. He/she has to make an oral presentation of it in the class before the completion of MID-I Examination. It is mandatory for all the students. It is for Internal Assessment.

Unit 4 **(10 periods)**

Reading: Note making; making notes from the text/material.

Writing: Types of Paragraph writing

Grammar and Vocabulary : Subject-verb agreement, Quantifying expressions - adjectives and adverbs; comparing and contrasting; degrees of comparison; use of antonyms

Learning Outcomes

At the end of the module, the learners will be able to

- make notes of the important information of a text
- understanding types of paragraphs
- use language appropriate adjective and adverbs for descriptions

Unit 5 **(10 periods)**

Reading: Reading for comprehension.

Writing: Summarizing - identifying main idea/s and rephrasing what is read; avoiding redundancies and repetitions.

Grammar and Vocabulary: direct and indirect speech, reporting verbs for academic purposes.
Learning Outcomes

At the end of the module, the learners will be able to

- write summaries based on global comprehension of reading/listening texts
- understand a paragraph

Unit 6 **(10 periods)**

Reading: Studying the use of graphic elements in texts to convey information, reveal trends/patterns/relationships etc.

Writing: Information transfer; describe, compare, contrast, identify significance/trends based on information provided in figures/charts/graphs/tables.

Grammar and Vocabulary: Active Voice- Passive Voice; editing short texts – identifying and correcting common errors in grammar and usage (articles, prepositions, tenses, subject verb agreement)

Learning Outcomes
At the end of the module, the learners will be able to

- interpret data from the given charts/tables/graphs
- edit short texts by correcting common errors

Assignment-II: Each Student is required to present the information regarding one novel prescribed in course. He/she has to make an oral presentation of it in the class before the completion of MID-II Examination. It is mandatory for all the students. It is for Internal Assessment.

Course Outcomes

At the end of the course, the learners will be able to

- identify the context, topic, and pieces of specific information from social or transactional dialogues spoken by native speakers of English
- formulate sentences using proper grammatical structures and correct word forms
- speak clearly on a specific topic using suitable discourse markers in informal discussions
- write summaries based on global comprehension of reading/listening texts
- produce a coherent paragraph interpreting a figure/graph/chart/table
- take notes while listening to a talk/lecture to answer questions

Detailed Textbook:
Prescribed by JNTUK for Reading and Writing
Non-Detailed Textbook:
Wings of Fire: APJ Abdul Kalam

Reference Books
1. Bailey, Stephen. Academic writing: A handbook for international students. Routledge, 2014.
2. Chase, Becky Tarver. Pathways: Listening, Speaking and Critical Thinking. Heinley ELT; 2nd Edition, 2018.
3. Skillful Level 2 Reading & Writing Student's Book Pack (B1) Macmillan Educational.
4. Hewings, Martin. Cambridge Academic English (B2). CUP, 2012.

Web Resources
- Grammar/Listening/Writing
- 1-language.com
- http://www.5minuteenglish.com/
- https://www.englishpractice.com/
- Grammar/Vocabulary
- English Language Learning Online
- http://www.bbc.co.uk/learningenglish/
- http://www.better-english.com/
- http://www.nonstopenglish.com/
- https://www.vocabulary.com/
- BBC Vocabulary Games
- Free Rice Vocabulary Game
- Reading
- https://www.usingenglish.com/comprehension/
- https://www.englishclub.com/reading/short-stories.htm
- https://www.english-online.at/
- Listening
- https://learningenglish.voanews.com/z/3613
- http://www.englishmedialab.com/listening.html
- Speaking
- https://www.talkenglish.com/BBC Learning English – Pronunciation tips

- Merriam-Webster – Perfect pronunciation Exercises
- All Skills
- https://www.englishclub.com/
- http://www.world-english.org/
- http://learnenglish.britishcouncil.org/
- Online Dictionaries
- Cambridge dictionary online
- MacMillan dictionary
- Oxford learner's dictionaries

Year/Semester	I B. Tech/I Sem	L	T	P	C
Regulation Year	2019-20	3	1	0	4
Subject	Mathematics-II (Probability and Statistics)				

Course Objectives: Enable the students to

1. Familiarize the foundations of probability and statistical methods
2. Impart probability concepts and statistical methods in various applications in engineering studies
3. Know the Binomial and Poisson distributions for real data to compute probabilities, theoretical frequencies
4. Make use of method of least squares to fit a best curve for the given data and apply the regression analysis to fit the curves
5. Decide the null or alternative hypotheses using the suitable test statistic
6. Draw the Control charts like X-bar, p and R-charts

Unit-I: Descriptive statistics and methods for data science

Data science, Statistics Introduction, Population vs Sample, Collection of data, primary and secondary data, Type of variables: dependent and independent Categorical and Continuous variables, Data visualization, Measures of Central tendency, Measures of Variability (spread or variance), Skewness, Kurtosis

Unit-II: Introduction to Probability

Probability, probability axioms, addition law and multiplicative law of probability, conditional probability, Baye's theorem, random variables (discrete and continuous), properties, mathematical expectation.

Unit-III: Probability Distributions

Probability distribution - Binomial, Poisson approximation to the binomial distribution and normal distribution- properties, fitting of Binomial distribution, Poisson distribution.

Unit-IV: Correlation &Regression

Correlation and Regression**:** Simple Bivariate Correlation: Karl Pearson's coefficient of correlation, Spearman's Rank correlation coefficient.

Linear Regression - Regression lines, Regression coefficients, properties.

Non-Linear Regression - Quadratic, Power and Exponential models.

Unit-V: Tests of Hypothesis

Null and Alternative Hypothesis, One tail and two tailed tests, Type I and Type II errors. Tests of hypothesis using Student 's t-distribution, F-test and $\chi^{2\,-}$ test goodness of fit.

Unit-VI: Statistical Quality Control Methods

Introduction- Methods for preparing control charts – problems, using X- bar, R charts, p chart, np chart

Text Books:

1. Miller and Freunds, Probability and Statistics for Engineers,7/e, Pearson, 2008.
2. S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, 11/e, Sultan Chand & Sons Publications, 2012.

References:

1. T.S.R. Murthy, Probability and Statistics for engineers, 1st edition, BS Publications, 2018.
2. T.K.V.Iyengar, B. Krishna Ghandhi, S. Ranganathan and M.V.S.S.N.Prasad, Engineering Mathematics, Volume-I, 12th Ed., S. Chand Publishers, 2014
3. B. V. Ramana, Engineering Mathematics, 4th Ed., Tata McGraw Hill, New Delhi, 2009
4. S. Ross, a First Course in Probability, Pearson Education India, 2002.

Course Learning Outcomes:

Upon completing this course, the student should be able to

1. compute descriptive statistics and interpret in data science problems
2. compute probability and conditional probability of events for data sciences
3. compute probability distribution and fit problems to data
4. compute various linear and nonlinear regression models to the data
5. perform inferential statistics to test hypothesis
6. apply the methods of control charts like X-bar, R, p etc for quality control problems

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	3	0	0	3
Subject	Applied Physics				

COURSE OBJECTIVES:

1. To highlight the importance of physics concepts in Engineering & Technology.
2. To facilitate the students with the aid of advanced insight in the applied science.
3. To focus the real time applications of physics in engineering fields.
4. To prepare the students to face the challenges in core fields with the support of physical principles.
5. To motivate the students to understand the Engineering Principles through basic ideas in Physics.

UNIT-I: WAVE OPTICS

Interference-Principle of Superposition-Interference of light-Theory of Interference fringes-Conditions for Sustained Interference -Interference in thin films (reflected light)-Newton's Rings-Determination of Wavelength. Diffraction- types of Diffraction, Fraunhofer Diffraction-Single slit, Double slit -Diffraction Grating -Determination of Wavelength. Polarization- types of polarized light, Polarization by reflection, refraction and double refraction-Nicol's prism-Half wave and Quarter wave plate- Engineering applications of Interference, Diffraction and Polarization.

UNIT-II: DIELECTRICS

Introduction to Dielectrics--Electric polarization-Dielectric polarizability, Susceptability and Dielectric constant- Types of polarizations with mathematical Derivations –Frequency dependence of polarization-Lorentz(internal) field-Claussius -Mosotti equation-Applications of Dielectrics.

UNIT-III: MAGNETIC MATERIALS

Introduction -Magnetic dipole moment-Magnetization-Magnetic susceptibility and permeability-Origin of permanent magnetic moment -Classification of Magnetic materials-Weiss theory of ferromagnetism (qualitative)-Hysteresis-soft and hard magnetic materials-Ferrites-Magnetic device applications.

UNIT-IV: FIBER OPTICS

Introduction to Optical Fibers-Total Internal Reflection- Construction of optical fibers -

Acceptance angle-Numerical Aperture-Classification of fibers based on Refractive index profile, modes - Propagation of electromagnetic wave through optical fiber -l Applications -Block Diagram of Fiber optic Communication.

UNIT-V: SEMICONDUCTORS

Origin of energy bands - Classification of solids based on energy bands – Intrinsic semi conductors - density of charge carriers-Fermi energy – Electrical conductivity – extrinsic semiconductors - P-type & N-type - Density of charge carriers - Dependence of Fermi energy on carrier concentration and temperature- Direct and Indirect band gap semiconductors-Hall effect-Hall coefficient - Applications of Hall effect - Drift and Diffusion currents – Einstein's equation - Applications of Semiconductors.

UNIT-VI: SUPERCONDUCTORS

Introduction to Superconductors-Properties-Critical parameters of Superconductors- Meissner's effect-BCS Theory-Josephson effect (AC & DC)-Types of Superconductors-High Tc Superconductors-SQUID- Superconductors Applications

Text books:
1. M.N. Avadhanulu, P.G.Kshirsagar "A Text book of Engineering Physics"-S.ChandPublications,2017
2. H.K.Malik&A.K.Singh "Engineering Physics",- McGraw Hill Publishing Company Ltd, 2018

Reference Books:
1. David J.Griffiths, "Introduction to Electrodynamics"- 4/e, Pearson Education,2014
2. Gerd Keiser "Optical Fiber Communications"- 4/e, Tata Mc GrawHill ,2008
3. Charles Kittel "Introduction to Solid State Physics",Wiley Publications,2011
4. S.M.Sze "Semiconductor devices-Physics and Technology"-Wiley,2008
5. T Pradeep "A Text book of Nano Science and Nano Technology"- Tata Mc GrawHill 2013

COURSE OUTCOMES:

Upon the completion of the course the students will be able to:
1. To interpret the interaction of energy with the matter.
2. To explain the concepts and applications of Dielectrics.
3. To classify the magnetic materials based on susceptibility and their temperature dependence.

4. To identify the applications of optical fibers in various fields.

5. Learn classification of semiconductors and their real time applications.

6. Understand the principle and background of superconductors

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	2	1	0	3
Subject	**Artificial Intelligence Tools, Techniques and Applications**				

Course Objectives: To enable the students

1. Define AI and ML and understand their relationship with data
2. Learn importing data and exploring using Python
3. understand different data wrangling techniques and their significance
4. Understand different types of supervised learning and build various regression models
5. Understand basic math fundamentals of this domain
6. Understand performance metrics
7. Understand classification as part of supervised learning and demonstrate and evaluate different classification techniques and models in Python
8. Intuitively understand basic math fundamental behind each technique
9. Explain the mechanism of unsupervised learning and practice various clustering techniques in Python.
10. Understand Dimensionality reduction and its importance
11. Comprehend text mining and its applications
12. Understand basic working of recommender system
13. know probabilistic learning models and their applications

Unit I: Intro and basic tools in Python

Introduction to AI and Machine Learning. Emergence of AI. Relationship between AI, ML and Data Science. Types of Machine Learning with definitions and application areas. Data wrangling and manipulation using Numpy and Pandas in Python. Types of data. Data visualization using matplotlib and seaborn.

Unit II: Supervised learning - Regression

Introduction, KNN, Linear Regression, Least Squares, Mean Square Error. Plotting regression line and predicting with ScikitLearn.Gradient Descent. Stochastic Gradient Descent. Learning rate. Higher Order curves. Modifying code in scipy to switch to higher order polynomial fitting. Over fitting, Underfitting. Regularization. Measures of accuracy.Train-Test-Split. k-fold Cross Validation. Hyperparameter tuning.

Unit III: Supervised Learning - Classification

Definition of classification, use cases and algorithms using Scikit Learn, KNN, Logistic Regression, Decision Tree classifier, Support Vector Machines, Performance measures

Unit IV: Unsupervised Learning

Definition, K-Means, Hierarchical clustering techniques. Dimensionality reduction using PCA. Feature Engineering – selection, factor analysis.Time series modeling (time series data types, stationarity and ARIMA modeling)

Unit V: Natural Language Processing / Text mining

Introduction. Applicaions. Chatbots, virtual agents (Alexa, Google Asisstant, Siri). Importance, Applications, NLP Subproblems. Components of Natural Language. Steps to get text data into workable format.Terms Frequency, Inverse Document Frequency, Bag of Words, ngram, One hot encoding. Notion of corpus. Intro to NLTK and use

Unit VI: Intro to other common learning methods and applications

Intro to ANN and deep learning with applications, intro to ensemble learning with bagging and boosting, random forest and ada boost, time series modelling, Intro to probabilistic methods with terminology and applications. Naïve Bayes. Recommender systems, collaborative filtering, association Rule Mining, apriori algorithm.

Course Outcomes:

1. Understand the importance of AI.
2. Understand concepts of Machine Learning algorithms and their limitations.
3. Develop Chatbots based on the requirements.
4. Analyze complex problems involving image processing, such as quality control, visual surveillance, multimodal human-machine interfaces, and image compression.
5. Understand the application of Reinforcement Learning
6. Understand smart solutions for various domains

Text Books:

1. Stuart J. Russell and Peter Norvig,Artificial Intelligence A Modern Approach
2. Tom Markiewicz & Josh Zheng,Getting started with Artificial Intelligence,Published by O'Reilly Media,2017
3. Stuart J. Russell and Peter Norvig,Artificial Intelligence A Modern Approach

References:

1. Build an AI Assistant with Wolfram Alpha and Wikipedia in Python. https://medium.com/@salisuwy/build-an-ai-assistant-with-wolfram-alpha-and-wikipedia-in-python-d9bc8ac838fe

2. Tom Markiewicz & Josh Zheng,Getting started with Artificial Intelligence,Published by O'Reilly Media,2017

3. Joseph Howse, Prateek Joshi, Michael Beyeler - Opencv_ Computer Vision Projects with Python-Packt Publishing (2016)

4. Tom Markiewicz & Josh Zheng,Getting started with Artificial Intelligence,Published by O'Reilly Media,2017

5. Curated Datasets on Kaggle https://www.kaggle.com/datasets

6. AurélienGéron,Hands on Machine Learning with Scikit-Learn and TensorFlow [Concepts, Tools, and Techniques to Build Intelligent Systems], Published by O'Reilly Media,2017

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	0	0	3	1.5
Subject	English Communication Skills Lab				

Course Objectives

1. To sensitize the nuances of English speech sounds.
2. To bring about a consistent accent and intelligibility in students' pronunciation of English by providing an opportunity for practice in speaking.
3. To improve the fluency in spoken English in different contexts.
4. To demonstrate the synchronization of verbal and non verbal communication.
5. To speak with clarity and confidence.
6. To enrich the persuasive skills.

MODULE – I
Listening: Identifying the topic, the context and overall idea by listening to short audio texts and answering a series of questions.
Non Verbal Communication (2 sessions)
MODULE – II
Listening: Answering a series of questions about specific information after listening to audio texts.
Introduction to Phonetics – Sounds of English – Vowels and Consonants (3 sessions)
MODULE – III
Listening: Answering a series of questions about main idea and supporting ideas after listening to audio texts.
 Reading with proper Stress and Intonation –Speech shadowing (3 sessions)
MODULE– IV
Listening: Listening for global comprehension and summarizing what is listened to.
Situational Dialogues/Role Plays, Just a Minute (4 sessions)
MODULE– V
Asking and answering general questions on familiar topics such as home, family, work, studies and interests; introducing oneself and others (2 sessions)
MODULE – VI
Formal oral presentations on topics from academic contexts - without the use of PPT slides. (3 sessions)

INFRASTRUCTURE:
1. 60 computer systems for a class of 60 students.
2. LAN facility and English Language Software for self-study by learners.
3. Audio System
4. Projector

SYSTEM REQUIREMENT: Hardware Component
1. P – IV Processor
2. Speed – 2.8 GHZ
3. RAM – 512 MB minimum
4. Hard Disk – 80 GB
5. Headphones of high quality

SUGGESTED SOFTWARE
1. Cambridge Advanced Learners' English Dictionary with CD.
2. Grammar Made Easy by Darling Kindersley
3. Punctuation Made Easy by Darling Kindersley
4. Clarity Pronunciation Power – Part I
5. Clarity Pronunciation Power – part II
6. Oxford Advanced Learner's Compass, 7th Edition
7. DELTA's key to the Next Generation TOEFL Test: Advanced Skill Practice.
8. MELL - K Van Solutions Software
9. TOEFL & GRE (KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
10. English in Mind (Series 1-4), Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge
11. English Pronunciation in Use, Cambridge University Press
12. Technical Communication, OUP
13. Communication Skills, OUP

COURSE OUTCOMES
The students will be able to:
1. Comprehend the importance of phonetics and interpret phonetic symbols, vowels and consonants.
2. Describe the speech sounds – vowels and consonants, stress and intonation.
3. Enable writing situational dialogues and enact Role Play.
4. Exemplify the synchronization of verbal and non verbal communication through the JAM session.
5. Enrich presentation skills through oral presentations - prepared and extempore.
6. Develop oratory skills through Debate.

SUGGESTED READING
1. Speaking English Effectively 2 nd Edition by Krishna Mohan and N. P. Singh, 2011. Macmillan Publishers India Ltd. Delhi.
1. 2.Sasi Kumar, V & Dhamija, P.V. How to Prepare for Group Discussion and Interviews. Tata McGraw Hill
2. Hancock, M. 2009. English Pronunciation in Use. Intermediate. Cambridge: CUP
3. 4.Spoken English: A Manual of Speech and Phonetics by R. K. Bansal & amp; J. B. Harrison.2013 Orient Blackswan. Hyderabad.
4. Hewings, M. 2009. English Pronunciation in Use. Advanced. Cambridge: CUP
5. Marks, J. 2009. English Pronunciation in Use. Elementary. Cambridge: CUP
6. Nambiar, K.C. 2011. Speaking Accurately. A Course in International Communication. New Delhi : Foundation
7. Soundararaj, Francis. 2012. Basics of Communication in English. New Delhi: Macmillan
8. Spoken English (CIEFL) in 3 volumes with 6 cassettes, OUP.
9. English Pronouncing Dictionary Daniel Jones Current Edition with CD.
10. A TEXT BOOKS of English Phonetics for Indian Students by T. Balasubramanian (Macmillan)

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	0	0	3	1.5
Subject	Applied Physics Lab				

List of Experiments:

1. Determination of wavelength of a source-Diffraction Grating-Normal incidence

2. Newton's rings –Radius of Curvature of Plano Convex Lens.

3. Determination of thickness of a thin object using parallel interference fringes.

4. Determination/ of Rigidity modulus of a material- Torsional Pendulum.

5. Determination of Acceleration due to Gravity and Radius of Gyration- Compound Pendulum.

6. Melde's experiment – Transverse and Longitudinal modes.

7. Verification of laws of stretched string – Sonometer.

8. Determination of velocity of sound – Volume resonator.

9. L C R Series Resonance Circuit

10. Study of I/V Characteristics of Semiconductor diode

11. I/V characteristics of Zener diode

12. Thermistor characteristics – Temperature Coefficient

13. Magnetic field along the axis of a current carrying coil – Stewart and Gee's apparatus.

14. Energy Band gap of a Semiconductor p.n junction.

15. Hall Effect for semiconductor.

REFERENCE:

1. Engineering Physics Lab Manual by Dr.Y. Aparna &Dr.K.Venkateswarao (V.G.S.Book links)

2. Physics Practical Manual, Lorven Publication.

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	0	0	3	1.5
Subject	AI Tools, Techniques and Applications Lab				

Practical Experiments:

1. Supervisely - Perform Data Labelling for various images using object recognition

2. Lobe.ai - Build custom models using the visual tool for Object recognition and sentiment analysis that can convert facial expressions into emoticons

3. Teachable Machine - In Browser Object Recognition through Brain.JS

4. Liv.ai - App for Speech recognition and Synthesis through APIs

5. Building a Chatbot using AWS Lex, Pandora bots

6. Configure an existing Neural Network by manipulating various parameters involved

7. Build a virtual assistant for Wikipedia using Wolfram Alpha and Python

8. Build a Convolutional Neural Network for Cat vs Dog Image Classification

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	0	0	3	1.5
Subject	COMPUTER PROGRAMMING LAB				

OBJECTIVES:

- Understand the basic concept of C Programming, and its different modules that includes conditional and looping expressions, Arrays, Strings, Functions, Pointers, Structures and File programming.
- Acquire knowledge about the basic concept of writing a program.
- Role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.
- Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions.
- Role of Functions involving the idea of modularity.

Programming

Exercise - 1 Basics

a) What is an OS Command, Familiarization of Editors - vi, Emacs

b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man

c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line

Exercise - 2 Basic Math

a) Write a C Program to Simulate 3 Laws at Motion

b) Write a C Program to convert Celsius to Fahrenheit and vice versa

Exercise - 3 Control Flow - I

a)Write a C Program to Find Whether the Given Year is a Leap Year or not.

b)Write a C Program to Add Digits & Multiplication of a number

Exercise – 4 Control Flow - II

a)Write a C Program to Find Whether the Given Number is

     i) Prime Number

     ii) Armstrong Number

b) Write a C program to print Floyd Triangle

c) Write a C Program to print Pascal Triangle

Exercise – 5 Functions

a) Write a C Program demonstrating of parameter passing in Functions and returning values

b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion

Exercise – 6 Control Flow - III

a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch...case

b) Write a C Program to convert decimal to binary and hex (using switch call function the function)

Exercise – 7 Functions - Continued

Write a C Program to compute the values ofsin x and cos x and e^x values using Series expansion. (use factorial function)

Exercise – 8 Arrays

Demonstration of arrays

    a) Search-Linear.

    b) Sorting-Bubble, Selection.

    c) Operations on Matrix.

Exercises - 9 Structures

a) Write a C Program to Store Information of a Movie Using Structure

b) Write a C Program to Store Information Using Structures with Dynamically Memory Allocation

c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function

Exercise - 10 Arrays and Pointers

a) Write a C Program to Access Elements of an Array Using Pointer

b) Write a C Program to find the sum of numbers with arrays and pointers.

Exercise – 11 Dynamic Memory Allocations

a) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function.

b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs

Exercise – 12 Strings

a) Implementation of string manipulation operations with library function.

      i) copy

      ii) concatenate

      iii) length

      iv) compare

b) Implementation of string manipulation operations without library function.

      i) copy

      ii) concatenate

      iii) length

      iv) compare

Exercise -13 Files

a)Write a C programming code to open a file and to print it contents on screen.

b)Write a C program to copy files

Exercise - 14 Files Continued

a) Write a C program merges two files and stores their contents in another file.

b) Write a C program to delete a file.

OUTCOMES:

- Apply and practice logical ability to solve the problems.
- Understand C programming development environment, compiling, debugging, and linking and executing a program using the development environment
- Analyzing the complexity of problems, Modularize the problems into small modules and then convert them into programs
- Understand and apply the in-built functions and customized functions for solving the problems.
- Understand and apply the pointers, memory allocation techniques and use of files for

dealing with variety of problems.

- Document and present the algorithms, flowcharts and programs in form of user-manuals
- Identification of various computer components, Installation of software

Note:

a) All the Programs must be executed in the Linux Environment. (Mandatory)

b) The Lab record must be a print of the LATEX (.tex) Format.

Year/Semester	I B. Tech/II Sem	L	T	P	C
Regulation Year	2019-20	0	0	3	1.5
Subject	Engineering Workshop and IT WORKSHOP				

Engineering Workshop

Course Objective: To impart hands-on practice on basic engineering trades and skills. Note: At least two exercises to be done from each trade.

Trades:

Fitting

1. Vee Fit
2. Square Fit
3. Half Round Fit
4. Dovetail Fit

Carpentry

1. T-Lap Joint
2. Cross Lap Joint
3. Dovetail Joint
4. Mortise and Tenon Joint

Tin Smithy

1. Taper Tray
2. Square Box without lid
3. Open Scoop
4. Funnel

Black Smithy

1. Round rod to Square
2. S-Hook
3. Round Rod to Flat Ring
4. Round Rod to Square headed bolt

House Wiring

1. Parallel / Series Connection of three bulbs
2. Stair Case wiring
3. Florescent Lamp Fitting
4. Measurement of Earth Resistance

IT WORKSHOP

OBJECTIVES:

- Understand the basic components and peripherals of a computer.
- To become familiar in configuring a system.
- Learn the usage of productivity tools.
- Acquire knowledge about the netiquette and cyber hygiene.
- Get hands on experience in trouble shooting a system?

1. System Assembling, Disassembling and identification of Parts / Peripherals
2. **Operating System Installation**-Install Operating Systems like Windows, Linux along with necessary Device Drivers.
3. **MS-Office / Open Office**
   a. **Word** - Formatting, Page Borders, Reviewing, Equations, symbols.
   b. **Spread Sheet** - organize data, usage of formula, graphs, charts.
   c. **Power point** - features of power point, guidelines for preparing an effective presentation.
   d. **Access**- creation of database, validate data.
4. **Network Configuration & Software Installation**-Configuring TCP/IP, proxy and firewall settings. Installing application software, system software & tools.
5. **Internet and World Wide Web**-Search Engines, Types of search engines, netiquette, cyber hygiene.
6. Trouble Shooting-Hardware trouble shooting, Software trouble shooting.
7. **MATLAB-** basic commands, subroutines, graph plotting.
8. **LATEX**-basic formatting, handling equations and images.

OUTCOMES:

- Common understanding of concepts, patterns of decentralization implementation in Africa †
- Identified opportunities for coordinated policy responses, capacity building and implementation of best practices †
- Identified instruments for improved decentralization to the local level †
- Identified strategies for overcoming constraints to effective decentralization and sustainable management at different levels

TEXT BOOKS:

1. Computer Hardware, Installation, Interfacing, Troubleshooting and Maintenance, K.L. James, Eastern Economy Edition.

2. Microsoft Office 2007: Introductory Concepts and Techniques, Windows XP Edition ByGary B. Shelly, Misty E. Vermaat and Thomas J. Cashman (2007, Paperback).

3. LATEX- User's Guide and Reference manual, Leslie Lamport, Pearson, LPE, 2/e.

4. Getting Started with MATLAB: A Quick Introduction for Scientists and ngineers, Rudraprathap, Oxford University Press, 2002.

5. Scott Mueller's Upgrading and Repairing PCs, 18/e, Scott. Mueller, QUE, Pearson, 2008

6. The Complete Computer upgrade and repair book, 3/e, Cheryl A Schmidt, Dreamtech.

7. Comdex Information Technology course tool kit Vikas Gupta, WILEY Dreamtech.

8. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education.

Year/Semester	I B.Tech. / II Sem.	L	T	P	C
Regulation Year	2019-20	3	0	0	0
Name of the Subject	Constitution of India				

COURSE OBJECTIVES:

➢ To train students in understanding the basic structure of Indian Constitution

➢ To prepare students to live better and happily with other fellow beings through the application of Fundamental Rights in their lives.

UNIT-I: Introduction to Indian Constitution

Meaning of the term Indian Constitution –Preamble- Constituent Assembly- Salient Features of Indian Constitution

UNIT-II: Fundamental Rights

Fundamental Rights -Fundamental Duties -The Directive Principles of State Policy

UNIT-III: Union Government

Union Government -Union Legislature (Parliament) -Lok Sabha and Rajya Sabha (with Powers and Functions) -Union Excecutive -President of India (with Powers and Functions) -Prime Minister of India (with Powers and Functions) -Union Judiciary (Supreme Court) -Jurisdiction of the Supreme Court

UNIT-IV State Government

State Government -State Legislature (Legislative Assembly / Vidhan Sabha, Legislative Council / Vidhan Parishad) -Powers and Functions of the State Legislature -State Executive-Governor of the State (with Powers and Functions) -The Chief Minister of the State (with Powers and Functions) -State Judiciary (High Courts)

UNIT-V: Local Self Governance

Powers and functions of Municipalities, Panchyats, ZP's and Co – Operative Societies

UNIT-VI: Sovereign Bodies

Election Commission of India (with Powers and Functions) -The Union Public Service Commission (with Powers and Functions)

BOOKS:

1. Introduction to constitution of India, Durga Das Basu, Lexis Nexis Publications
2. Constitution of India by PRFESSIONAL BOOK PUBLISHERS
3. The Constitution of India by Arun K Tiruvengadam, Blooms bury publishers.
4. The constitution of India by PM Bakshi, Universal law publishing co
5. The Constitution of India by S.R. Bhansali, Universal law publishing co

COURSE OUTCOMES:

Upon the completion of the course, the student will be able to:

1. Examine salient features of Indian Constitution and live accordingly in society.

2. Interpret the meaning of Fundamental Rights and Directive Principles of State Policy and, develop an attitude which paves the way for better living conditions.

3. Discover various aspects of Union Government legislation and live up to the expectations of the rules.

4. Critically examine State Government legislation and improve your living standards by following the rules strictly

5. Examine powers and functions of local bodies such as Muncipalities and Panchayats and, take advantage of available resources for better living

6. Analyze the powers and functions of Election Commission and The Union Public Service Commission and decide upon it for safe and secured life.