SRI VASAVI ENGINEERING COLLEGE (AUTONOMOUS)

(Sponsored by Sri Vasavi Educational Society)
(Approved by AICTE, New Delhi & Permanently affiliated to JNTUK, Kakinada)
(Accredited by NAAC with 'A' Grade, Recognized by UGC under section 2(f) & 12(B))
Pedatadepalli, **TADEPALLIGUDEM – 534 101.** W.G.Dist**. (A.P)**

Date: 27/09/2021

Minutes of the 5th Meeting of Board of Studies in Mathematics held on 27-09-2021 at 2:00 PM through online zoom meeting.

Members present:

S.No	Name of the Member	Designation & Address	Designation on BOS
1	Sri. N Raja Sekhar	Assoc. Professor & HOD	Chairman
2	Prof. G.V.S.R.Deekshitulu	Professor, Department of Mathematics, UCEK, JNTUK, Kakinada	University Nominee
3	Dr. K.K.M. Sarma	Professor, Department of Mathematics, Andhra University, Visakhapatnam	Council Nominee
4	Prof. Y.N.Reddy	Professor, Department of Mathematics, NIT Warangal	Council Nominee
5	Dr. T.S.R Murthy	Professor of Mathematics, Sri Vishnu Engineering College for Women, Bhimavaram	Academician
6	Sri SK Dhana Prasad	Assistant.Professor of Mathematics, Section Head	Member
7	Smt.B.Adi Lakshmi	Assistant.Professor of Mathematics	Member
8	Smt.G S Prasanthi	Assistant.Professor of Mathematics	Member
9	Sri.A Kiran Kumar	Assistant.Professor of Mathematics	Member
10	Sri.D.N.V.Rama Krishna	Assistant.Professor of Mathematics	Member
11	Smt.B.V.D. Santhi Lakshmi	Assistant.Professor of Mathematics	Member
12	Smt.Dr.N.N.V.Sakuntala	Assistant.Professor of Mathematics	Member
13	Sri.V.Srinivas Rao	Assistant.Professor of Mathematics	Member
14	Sri.T.D.Rama Krishna	Assistant.Professor of Mathematics	Member
15	Sri P.Someswarara Rao	Aptitude Trainer	Member
16	Sri JNV Somayajulu	Aptitude Trainer	Member

The following items are discussed in the meeting:

Item No-1: Introducing the members of BOS by the chairman.

The chairman of BOS extended a formal welcome and introduced the members.

Item No.2: Syllabi for the courses offered in B.Tech & M.Tech Programmes.
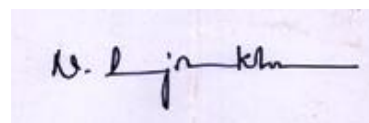
The detailed syllabi for the following courses of B.Tech and M.Tech under V20 and V21 regulations respectively (i.e. for 2020-21 and 2021-2022 batch students) along with prescribed text books have been presented.

S. NO	COURSE NAME	COURSE CODE	PROGRAMME	SEMESTER	BRANCHES	REMARKS
1	Complex Analysis	V20MAT03	B.TECH	III	ECE ,ECT	
2	Probability and Statistics	V20MAT04	B.TECH	III	CE	
				IV	CSE,CST,ME	
3	Transform Calculus	V20MAT05	B.TECH	III	EEE	
4	Probability Theory & Stochastic Processes	V20MAT06	B.TECH	III	ECE & ECT	
5	Mathematical Foundation of Computer Science	V20MAT07	B.TECH	III	CSE , CST	
6	Operations Research	V20MAT08	B.TECH	V	EEE	
				VII	ME	
7	Professional communication skills-II	V20ENT03	B.TECH	IV	Common to all	
8	Professional communication skills-III	V20ENT04	B.TECH	V	Common to all	
9	Analytical and Numerical methods for Structural Engineering	V21MAT01	M.TECH	I	CE- Structural Engineering	Elective
10	Operations Research	V21MAT02	M.TECH	III	Common to all	Open elective

With minor changes, the syllabi for the courses mentioned above have been approved. The approved syllabi for the courses are given in annexure-I to X

Item No.3: The members of BOS recommended 4th Mathematics paper ,Operations Research (course code V20MAT08) for CIVIL Engineering to fulfill the required number of credits of Basic Sciences .

Item No.4: The members also suggested to mention the required number of lecture hours CO wise.

Chairman
Board of Studies, Mathematics

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Annexure-I

Year/Sem	B.Tech III Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20MAT03
Name of the Course	COMPLEX ANALYSIS					
Branch	ECE & ECT					

Course Outcomes: At the end of the course student will be able to:

CO1: Evaluate improper integrals using special functions
CO2: Define the analytic function and find harmonic conjugate
CO3: Apply Cauchy's theorem and its variants in evaluating line integrals and find Taylor's and Laurent's series expansions for complex functions.
CO4: Calculate residues and real definite integrals.
CO5: Understand the idea of transformation.

UNIT – I (10 hrs)
Special functions: Definition of improper integral- Gamma and Beta functions – their properties – evaluation of improper integrals.

UNIT-II (8 hrs)
Functions of a complex variable – Continuity – Differentiability – Analyticity – Properties(without proofs) – Cauchy - Riemann equations in Cartesian form. Harmonic and conjugate harmonic functions – Milne – Thomson method.

UNIT-II (12 hrs)
Complex integration: Line integral – evaluation along a path and by definite integration – Cauchy's integral theorem – Cauchy's integral formula – Generalized integral formula.
(statements of theorems only)
Complex power series: Radius of convergence – Expansion in Taylor's series, Maclaurin's series and Laurent series - singular point –isolated singular point – pole of order m – essential singularity.

UNIT-IV   **(10 hrs)**

Residue – Evaluation of residue by formula and by Laurent series - Residue theorem(without proof) Evaluation of integrals of the type

   a) Improper real integrals $\displaystyle\int_{-\infty}^{\infty} f(x)dx$ (b) $\displaystyle\int_{c}^{c+2\pi} f(\cos\theta,\sin\theta)d\theta$

(c) $\displaystyle\int_{-\infty}^{\infty} e^{imx} f(x)dx$

UNIT-V   **(8 hrs)**

Conformal mapping: Transformation by e^z , lnz, z^2, z^n (n positive integer), sin z, cos z, z + a/z. Translation, rotation, inversion and bilinear transformation – fixed point – cross ratio – properties.

Text Books:

1. B. V. Raman, Tata Mc Graw Hill, A text Book of Engineering Mathematics.
2. N.P.Bali, Engineering Mathematics, Lakshmi Publications.
3. B.S.Grewal, Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.

References:

1. Erwin Kreyszig, Wiley India Pvt. Ltd, Advanced Engineering Mathematics.
2. Churchill, Complex Variables and applications.

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Annexure-II

Year/Sem	B.Tech (III & IV Sem)	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	VI8MAT04
Name of the Course	PROBABILITY AND STATISTICS					
Branches	CIVIL, ME, CSE & CST					

Pre requisites: Probability, Conditional Probability, Baye's theorem on probability
Course Outcomes: At the end of the Course student will be able to:
   CO1: Find the Expectation of Random variables
   CO2: Apply probability distribution to real time problems
   CO3: Plot a best fit curve to an experimental data and find the correlation and regression
   CO4: Create good estimators to various parameters
   CO5: Apply the principles of Statistical Inference to practical problems

Unit-I: Random Variables and Expectation: **(10 hrs)**
Random Variables: Discrete and continuous - Probability function – density and distribution function,Expectation of a Random Variable, Moments, Chebychev's Inequality (Without proof).

Unit-II: Probability Distributions   **(10 hrs)**
Probability distributions: Binomial, Poisson and Normal - Evaluation of statistical parameters: Mean, Variance and their properties, Introduction to Exponential, Gamma and Weibull distributions

Unit-III: Bivariate Distributions   **(8 hrs)**
Curve fitting by the method of Least squares- Fitting of straight line, parabola and exponential curves, Simple Correlation and Regression – Rank correlation.

Unit-IV: Sampling Distribution and Estimation   **(8 hrs)**
Introduction –Sampling distribution of means with known and unknown standard deviation
Estimation: Criteria of a good estimator, point and interval estimators for means and proportions

Unit-V: Tests of Hypothesis   **(12 hrs)**
Introduction-Type-I, Type-II Errors, Maximum Error, one–tail, two-tail tests, Test of significance: Large sample test for single proportion, difference of proportions, single mean, difference of means. Test of significance: Small sample test for single mean, difference of means and test of ratio of variances (F-Test) - Chi-square test for goodness of fit and independence of attributes.

Text Books:

1. **B. V. Ramana**, A text Book of Engineering Mathematics, Tata McGraw Hill.
2. **Miller & Freund's**, Probability & Statistics for Engineers – Eighth Edition,
Richard. A. Johnson

References Books:
1. **S. Ross,** "A First Course in Probability", Pearson Education India, 2002.
2. **Dr.T.S.R.Murthy**, Probability and Statistics for Engineers, BS Publications.
3. **T. Veerarajan**, "Engineering Mathematics", Tata McGraw-Hill, New Delhi, 2010.

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Annexure-III

Year/Sem	B.Tech III Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	-	-	3	V20MAT05
Name of the Course	Transform Calculus					
Branch	EEE					

Course Outcomes: At the end of the course student will be able to:

CO1: find the integrals using Laplace transforms
CO2: apply the Laplace transform for solving differential equations
CO3: apply the Z- transform for solving difference equations
CO4: find the Fourier series of periodic signals
CO5: find the Fourier transforms of given function

Unit-I: Laplace Transforms   (9 hrs)
Laplace transforms-introduction– Definition and Laplace transforms of standard functions– properties (without proof)-Shifting theorems (without proof) – Transforms of derivatives and integrals – Unit step function –Dirac's delta function - Periodic function.

Unit-II: Inverse Laplace Transforms and Applications   (9 hrs)
Inverse Laplace transforms –properties(without proof) - inverse laplace transforms of derivatives and integrals - Convolution theorem (without proof).
Applications: Solving ordinary differential equations (initial value problems) using Laplace transforms.

Unit-III: Z – Transforms   (12 hrs)
 Z – Transforms – Properties (without proofs) – Damping Rule – Shifting Rule – Initial and Final value Theorems (without proofs) – Inverse Z- Transforms-properties (without proofs) – Convolution Theorem (without proof)
Applications: Solutions of Difference equation by Z - transforms.

Unit – IV: Fourier series   (9 hrs)
Fourier series – Determination of Fourier Coefficients – Fourier series – even and odd functions – Fourier series in an arbitrary interval – Half –range sine and cosine series.

Unit –V: Fourier Transforms   (9 hrs)
Fourier Integral Theorem (only statement) – Fourier sine and cosine Integrals – Fourier Transform – sine and cosine Transforms – Properties (without proofs) – Inverse Transforms.

Text Books:

1. B.S.Grewal, Higher Engineering Mathematics, 43rd Edition, Khanna Publishers.
2. N.P.Bali, Engineering Mathematics, Lakshmi Publications.
3. B. V. Raman, Tata Mc Graw Hill, A text Book of Engineering Mathematics.

References:

1. Erwin Kreyszig, Wiley India Pvt. Ltd, Advanced Engineering Mathematics.
2. Churchill, Complex Variables and applications.

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Annexure-IV

Semester	B.Tech III Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	-	3	V20MAT06
Name of the Course	Probability Theory & Stochastic Processes					
Branches	ECE, ECT					

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

COX	Course Outcomes	KX
CO1	Explain basic concepts of probability theory through Sets and Relative Frequency	K2
CO2	Explain the concept of a random variable, functions based on random variable like Distribution and density functions	K2
CO3	Compute the expected value, moments on one random variable	K3
CO4	Illustrate the concepts of joint distribution & density functions on multiple random Variables	K3
CO5	Compute the Temporal and Spectral characteristics of stochastic processes	K3

UNIT I PROBABILITY : (8 hrs)
Probability introduced through Sets and Relative Frequency: Experiments and Sample Spaces, Discrete and Continuous Sample Spaces, Events, Probability Definitions and Axioms, Mathematical Model of Experiments, Probability as a Relative Frequency, Joint Probability, Conditional Probability, Total Probability, Bayes Theorem, Independent Events

UNIT II (10 hrs)
THE RANDOM VARIABLE: Definition of a random variable, Discrete, continuous and mixed random Variables. Distribution & density functions and its properties of arandom variable.Binomial, Poisson, Uniform, Gaussian, Exponential and Rayleigh random variables.Conditional distribution and density functions and its properties.

UNIT III (10 hrs)
OPERATION ON ONE RANDOM VARIABLE – EXPECTATIONS : Introduction, expected value of a random variable, function of a random variable, moments about the origin, central moments, variance, characteristic function, moment generating function, transformations of a random variable: Monotonic transformations for a continuous random variable

UNIT IV (10 hrs)
MULTIPLE RANDOM VARIABLES : Vector random variables, joint distribution function, properties of joint distribution, marginal distribution functions, conditional distribution and density, statistical independence, sum of two random variables, sum of several random variables, central limit theorem: unequal distribution, equal distributions.
OPERATIONS ON MULTIPLE RANDOM VARIABLES: Joint moments about the origin, joint central moments, joint characteristic and moment generating functions.

UNIT V   **(10 hrs)**

RANDOM PROCESSES – TEMPORAL CHARACTERISTICS: The random process concept, classification of processes, deterministic and nondeterministic processes, distribution and density functions, concept of Stationarity and statistical independence. First-order stationary processes, second-order and wide-sense Stationarity, nth-order and strict-sense Stationarity, time averages and Ergodicity, autocorrelation function and its properties, cross-correlation function and its properties, covariance functions.

SPECTRAL CHARACTERISTICS: The power density spectrum: properties, relationship between power density spectrum and autocorrelation function, the cross-power density spectrum, properties, relationship between cross-power density spectrum and cross-correlation function.

TEXT BOOKS:

    1. Probability, Random Variables & Random Signal Principles, Peyton Z. Peebles, TMH,
4th Edition, 2001.
    2. Probability, Random Variables and Stochastic Processes, Athanasios Papoulis and
S.UnniKrishnaPillai, PHI, 4th Edition, 2002.
    3. Probability Theory and Stochastic Processes, Y. Mallikarjuna Reddy, 4th Edition,
Universities Press

Reference Books:

    1. Probability Theory and Stochastic Processes – B. PrabhakaraRao, BS Publications
    2. Probability and Random Processes with Applications to Signal Processing, Henry Stark
And John W. Woods, Pearson Education, 3rd Edition.
    3. Schaum's Outline of Probability, Random Variables, and Random Processes.
    4. An Introduction to Random Signals and Communication Theory, B.P. Lathi,
International Textbook, 1968.
    5. Random Process – Ludeman, John Wiley
    6. Probability Theory and Random Processes, P. Ramesh Babu, McGrawHill, 2015.

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Annexure-V

Semester	B.Tech III Sem	L	T	P	C	COURSE CODE
Regulation	V20	3	0	-	3	V20MAT07
Name of the ourse	Mathematical Foundation of Computer Science					
Branches	CSE, CST					

Course Outcomes: At the end of the Course student will be able to:

COX	Course Outcomes	KX
CO1	Demonstrate the concepts associated with propositions and mathematical logi	K3
CO2	Demonstrate the basic concepts associated with relations, functions and their applications	K3
CO3	Solve recurrence relations using various methods	K3
CO4	Apply techniques of graphs for real-time problems	K3
CO5	Construct minimal spanning tree by using different algorithms	K3

Syllabus

UNIT-I : Mathematical Logic (10 hrs)

Statements and Notation , Connectives, Well Formed Formulas ,Truth tables, Tautologies, Equivalence of formulas, Tautological Implications, Normal forms, Theory of inference for Statement Calculus, Indirect Method of Proof. Predicate calculus-Predicates, quantifiers, universe of discourse.

UNIT-II: Set Theory and Relations: (10 hrs)

Operations on Sets, Principle of Inclusion and Exclusion, Relations, Properties of Binary Relations in a set, Transitive Closure, Relation Matrix and Digraph, Equivalence, Partial Ordering Relations, Hasse Diagrams, Lattice and its Properties, Functions, Bijective Functions, Composition of Functions.

Unit 3: Recurrence relations (10 hrs)

Generating Function of Sequences, Calculating Coefficient of generating functions, Recurrence relations, solving recurrence relation by substitution and Generating functions, the method of Characteristic roots, Solution of Inhomogeneous Recurrence Relation.

UNIT-4 Graph Theory: (10 hrs)

Basic Concepts of graph, Representing graphs, Sub graphs, Isomorphic graphs, Paths and Circuits, Eulerian and Hamiltonian Graphs, Planar graphs, Graph Coloring, Chromatic Number. (Theorems without proofs)

Unit 5: Trees   **(8 hrs)**

Spanning Trees, minimal Spanning Trees, BFS, DFS, Kruskal's Algorithm, Prim's Algorithm, Binary trees, Planar Graphs.

TEXT BOOKS:
1. Discrete Mathematical Structures with Applications to Computer Science, J. P. Tremblay and   P. Manohar, 1st Edition, Tata McGraw Hill.
2. Discrete Mathematics and its Applications with Combinatorics and Graph Theory, K. H.Rosen, 7th Edition, Tata McGraw Hill.
3. Discrete Mathematics for Computer Scientists and Mathematicians, J. L. Mott, A. Kandel,   T.P. Baker, 2nd Edition, Prentice Hall of India.

REFERENCE BOOKS:
1. Elements of Discrete Mathematics -A Computer Oriented Approach, C. L. Liu and D. P. Mohapatra, 3rdEdition, Tata McGraw Hill.
2. Discrete Mathematics with Combinatorics and Graph Theory, Santha, 1st Edition Cengage Learning.

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Annexure-VI

Semester	B.Tech V & VII Sem	L	T	P	C	Course Code
Regulation	V20	3	0	0	3	V20MAT08
Name of the Course	Operations Research					
Branch	EEE & ME					

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

CO1	Understand the formulating of LPP and solve LPP by Simplex methods, artificial variables techniques.	K2
CO2	Solve Transportation and assignment problems.	K3
CO3	Explain the concept of Sequencing and replacement of item.	K2
CO4	Apply the principles of game theory to real world competitive situations	K3
CO5	Understand the concept of queues with single server,	K2

UNIT – I   (10 hrs)
HISTORICAL OVERVIEW – Definition and scope– types of operation research models – applications.
LINEAR PROGRAMMING: Problem formulation – graphical solution – simplex method – artificial variables techniques - big-M method.

UNIT – II   (10 hrs)
TRANSPORTATION PROBLEM: Formulation – optimal solution, unbalanced transportation problem – degeneracy
ASSIGNMENT PROBLEM: Introduction, optimal solution, Traveling Salesman problem.

UNIT – III   (9 hrs)
SEQUENCING – Introduction – flow –shop sequencing – n jobs through two machines – n jobs through three machines
REPLACEMENT: Introduction – replacement of items that deteriorate with time – when money value is not counted and counted – replacement of items that fail completely, group replacement

UNIT – IV   **(10 hrs)**

THEORY OF GAMES: Introduction – mini. max (max. mini) – criterion and optimal strategy – solution of games with saddle points – rectangular games without saddle points – 2 x 2 games – dominance principle – m x 2 & 2 x n games -graphical method.

UNIT – V   **(9 hrs)**

WAITING LINES: Introduction – single channel – poison arrivals – exponential service times – with infinite population and finite population models
.

TEXT BOOKS:
1. Operations Research / S.D.Sharma-Kedarnath
2. Operations Research by R. Pannerselvam; Publisher: Prentice Hall International.

REFERENCES:
1. Introduction to O.R/Hiller & Libermann (TMH).
2. Operations Research / A.M.Natarajan, P. Balasubramani, A. Tamilarasi / Pearson Education.
3. Operations Research: Methods & Problems / Maurice Saseini, Arhur Yaspan & Lawrence Friedman.

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Syllabus for the Regulation Year 2021-22 (Common to all Branches)
Professional Communication Skills – II
B.Tech IV Semester

Annexure-VII

S.No	Course Code	Course Name	L	T	P	C
1	V20ENT03	**Professional Communication Skills - II**		2 +2	-	MNC

	After successful completion of the course, students will be able to	Knowledge Level
CO1	Demonstrate grammatical competence, analyze noun and pronoun dispositions, classify various kinds of verbs, adjectives and adverbs and identify errors in sentences; distinguish the subtle meanings of various words in different contexts, recognize similar words as well as words with contrast meanings and use them appropriately. (K3)	K2
CO2	Organize individual words into one whole sentence using new vocabulary and focus on the error analysis of prepositions and conjunctions, build conversations which befit the situations and develop pre-reading strategies to improve comprehension skills. Distinguish and acquire knowledge of using words of the same category in a sentence and learn new words that promote communicative finesse. Find errors in sentences where the modifiers are misplaced and put them at the appropriate place, use hit pair words and send an email that is concise and lucid.	K3
CO3	Recognize the easiest and best possible way of solving problems in the area of Number and etter Series, Analogy, Classification, Coding & Decoding Symbols, Ranking and Analytical easoning.	K4
CO4	Investigate the different types of logics involved in Mirror and Water Images, Logical Reasoning & Arithmetic Reasoning.	K4
CO5	Find the common traps in the questions and errors likely to be made from the concepts of Blood Relations, Directions, Average, Clock and Calendar, Data Sufficiency, Permutations-Combinations and Probability.	K3

UNIT – I **(12 hrs)**
ERROR ANALYSIS: Nouns & Pronouns – Singular & Plural – Kinds of Nouns & Pronouns- Collective Nouns - Personal and Reflexive Pronouns. Subject – Verb agreement. Adjectives – Adverbs – role of modifiers – place of Adjectives– Adverbs of frequency.
VOCABULARY : Word Power Made Easy Sessions 15- 30, Antonyms and Synonyms and One word substitutes
EXPANSION OF PROVERBS: Meaning – interpretation – explanation.

UNIT – II **(12 hrs)**
ERROR ANALYSIS: Prepositions - kinds of prepositions –appropriate use - conjunctions –sub- ordinating– coordinating.
ROLE PLAY: Day to day situations - practical approach – real life experiences.
READING COMPREHENSION: Reading as a skill – quick reading - analyzing – answering -
 Skimming – scanning - summarizing – problem solving.
ERROR ANALYSIS: Parallel grammatical forms – same grammatical structures. Dangling modifiers – misplacement of modifiers – arrangement.
SENTENCE IMPROVEMENT: Better choice – error-free sentences – effective – syntax.
EMAIL WRITING: Format – method of exchanging – technicalities.

UNIT – III **(12 hrs)**
Number And Letter Series, Coding & Decoding, Analogy,Classification Ranking. (K1)
Problems of how to find the next number in the series, Finding the missing number and related sums, Sums related to Classification, Sums related to letter series, Relation between number series and letter series, Finding odd one out from groups, Identify the rank in different places.

UNIT-IV **(12 hrs)**
Problems On Ages& Numbers, Mirror And Water Images, Logical Reasoning & Arithmetic Reasoning.(K4)
Definition and concept of Venn Diagram – its applications. statements – Affirmations, Denials and Contradictions. Sums related to Ages & numbers. Problems on ages with different logics. Identifying the images of water and Mirror.

UNIT-V **(12 hrs)**
Blood Relations, Directions, Average, Clock And Calendar, Data Sufficiency, Permutations-Combinations And Probability.(K3)
Deriving the formula to find the angle between hands for the given time, History of calendar-, Finding the day for the given date, Problems related to directions. Difference between words Permutation and Combinations – Various cases - Real Time Scenarios. Concept of Probability – - Conjunctions – Rules & Cases of Probability.

References
1.   Verma Shalini. Common Errors In English (2016).S Chand & Company

2.   Sharon Weiner Green M.A & Ira K. Wolf Ph.D.Barron's GRE (2015). Barrons Educational Series

3. Paul D.S. Advanced English Grammar with Answers (2007) Published by Cambridge University Press..
4. Work book -1 on Aptitude Prepared by T & P cell, Sri Vasavi Engineering College.
5. Kundan & Tyra. Magical Book on Quicker Maths(20013). Published by Tyra & Kundan
6. Kundan & Tyra.Practice Book on Quicker Maths (2009). Published by Tyra & Kundan
7. R.S. Agarwal   .Non Verbal Reasoning.Sultan Chand Publications

Web References
https://www.indiabix.com/
https://www.campusgate.co.in/
https://www.questionpaper.org/

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Pedatadepalli, TADEPALLIGUDEM – 534 101. W.G.Dist. (A.P)
Syllabus for the Regulation Year 2021-22 (Common to all Branches)
Professional Communication Skills – III
B.Tech V Semester

Annexure-VIII

S.No	Course Code	Course Name	L	T	P	C
1	V20ENT04	**Professional Communication Skills - III**		2+2	-	MNC

	After successful completion of the course, the students will be able to	Knowledge Level
CO1	Distinguish the subtle meanings of various words in different contexts, recognize similar words as well as words with contrast meanings and use them appropriately. Express writer's tone and relevant ideas using different types of writing skills and prepare resume to showcase skills and accomplishments.Organize thoughts in the discussions and express views without reticence.Develop the ability to write different types of essays in a structured way, maintaining cohesion and logic	**K4**
CO2	Identify the central theme and arrange the scrambled sentences into a meaningful passage.Draft emails with appropriate subject-lines and relevant content.Compare different pairs of words, recognize the relationship between the head words and the options to siphon correct analogy Choose an appropriate word to make a sentence meaningful.Infer the meaning of the picture by thinking out of the box and speak without inhibitions and face interviews with aplomb.	**K2**
CO3	Analyze appropriate methods of logical thinking on Ratio and Proportion, Partnership, LCM and HCF, Number System, Areas & Volumes.	**K4**
CO4	Demonstrate problem solving skills through the concepts of Percentages, Profit and loss, Simple Interest & Compound Interest and Allegation.	**K3**
CO5	Calculate the end results of Cubes, Dice and Data Analysis, Time & Work, Time & Distance, Race & Games.	**K4**

SYLLABUS

UNIT – I (12 hrs)
VOCABULARY – MODEL RESUMES & SPEAKING
500 words (PIC-VOC) -Meaning – contextual Usage - Prefix – Suffix – Root words. Resume writing-Model Resume-Introducing different formats-Tailoring resume as per job description. Paragraph writing-Essay writing- Types of Essays- Strategies – Cause and effect signals – support signals – contrast signals. Watch a video and respond
Group Discussion – Types of GD – Dos & Don'ts , JAM , Presentation Skills, Designing Advertisements

UNIT – II (12 hrs)
GRAMMAR, WRITING & SPEAKING SKILLS
Tenses – Simple – Continuous – perfect – perfect continuous - voice – Active & Passive -Para jumbles – Strategies – Directional words – central theme-Email writing– Types -- Dos and Don'ts- **VERBAL ABILITY- ANALOGIES- INTERVIEW SKILLS- CREATIVE THINKING**
ANALOGIES: Strategies - Recognize common relationship types. Synonyms – Antonyms - Create a general sentence - Use the correct part of speech - Beware of homonyms.Equalizing the sentences-scrambled sentences. Interview Skills – Personal Interview – Skype Interview – Telephone Interview – Mock Interviews. Creative thinking – Picture Interpretation -Creative writing

UNIT – III   (12 hrs)
Ratio & Proportion, Partnership, LCM & HCF and Areas & Volumes
Introducing the concept of ratio in three different methods, a method to compute and   compare two ratios – The effect of increase or decrease of a quantity on the ratio – The meaning of   proportion and Problems related to Ratio and Proportion. Improve problem solving skills   through Lcm & Hcf.

UNIT – IV   (12 hrs)
Percentages, Profit and Loss, Simple and Compound Interest, Allegation & Mixtures
Definition of Simple and Compound Interest. Formulas of Applications – Difference between Simple and Compound interest – Rate of Increase or Decrease Population – Expected values of Maturity. Calculate percentages on different situations, using in profit and loss. Identifying difference between Cost price, Selling Price and Marked Price, Finding Discounts, using the method of allegation.

UNIT – V   (12 hrs)
Time, Work and Distance, Cubes, Dice and Data Analysis
Men- Days -work –completion- Capability Ratio among Men, Women and Children –   Application of time in Pipes and Cistern. Work Progress in positive and negative effects. Relation among Time, Speed and Distance – Concepts of Relative speed and Average Speed – Ideas about Boats and Streams and Races of Games. Calculate the end results of Cubes and Dice.

References
- ❖ Dr.Sujani Tata et al., Pic Voc (2015) – Published by Sri Vasavi Engineering College
- ❖ Lewis Norman, Word Power Made Easy (2008). Goyal Publishers & Distributors Pvt. Ltd.
- ❖ Dr.Shalini Verma, Reetesh Anand, Word Power Made Handy(2017). S Chand Publications.
- ❖ R S Aggarwal,Objective General English (2017). S Chand Publications.
- ❖ Sunita Mishra & C.Muralikrishna, Communication Skills for Engineers (2006). Dorling Kindersley (India) Pvt. Ltd., licensees of Pearson Education in South Asia.
- ❖ Charles W Hanson. Resume: Writing 2020 The Ultimate Guide to Writing a Resume that Lands YOU the Job! (2019).
- ❖ Raymond Murphy. Essential Grammar in Use (1985).Cambridge University Press
- ❖ Seely John. The Oxford Guide to Writing & Speaking (2004). Oxford University Press.
- ❖ Jain,T.S. & Gupta. , 2010, Interviews and Group Discussions, Upkar's Publications.
- ❖ Training & Placement cell, 2020, Workbook -1 on Aptitude, Sri Vasavi Engineering College.
- ❖ M Tyra, 2013, Magical Book on Quicker maths, BSC Publications.
- ❖ K Kundan & M Tyra, 2009, Practice Book on Quicker Maths, BSC Publications.
- ❖ Dr. RS. Agarwal , 2017, Quantitative Aptitude, Sultan Chand Publications
- ❖ Dr. RS. Agarwal, 2017, A modern approach to verbal & on verbal reasoning, Sultan Chand Publications.

Web References:
- ❖ https://www.indiabix.com/
- ❖ https://www.campusgate.co.in/
- ❖ https://www.questionpaper.org/

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Annexure-IX

Year/Sem	M.Tech I Sem	L	T	P	C	COURSE CODE
Regulation / Year	V21 / 2021-2022	3	0	0	3	V21MAT01
Name of the Course	ANALYTICAL& NUMERICAL METHODS FOR STRUCTURAL ENGINEERING (Elective)					
Branch	STRUCTURAL ENGINEERING					

Course Outcomes: Upon successful completion of this course, the students will be able to

 CO1: apply Laplace transform methods on heat conduction problems (K3)
 CO2: Apply the principles and techniques of Elliptic Equations-Laplace equation (K3)
 CO3: Develop the principles and techniques of Integral Equations (K3)
 CO4: Adopt the principles and techniques of Finite Difference and their Applications (K3)
 CO5: Apply the principles and techniques of Numerical Integration (K3)

UNIT I **(10 hrs)**

Transform Methods- Laplace transform methods for one-dimensional wave equation - Displacements in a long string - Longitudinal vibration of an elastic bar - Fourier transforms methods for one-dimensional heat conduction problems in infinite and semi-infinite rod

UNIT II **(10 hrs)**

Elliptic Equations-Laplace equation - Properties of harmonic functions - Fourier transform methods for Laplace equation-Calculus Of Variations- Variation and its properties - Euler's equation - Functionals dependent on first and higher order derivatives - Functionals dependenton functions of several independent variables - Some applications - Direct methods - Ritz and Kantorovich methods

UNIT III **(9 hrs)**

Integral Equations- Fredholm and Volterra integral equations - Relation between differential and integral equations - Green's function -Fredholm equation with separable kernel - Iterative method for solving equations of second kind

UNIT IV **(9 hrs)**

Finite Difference and their Applications: Introduction- Differentiation formulas by Interpolating parabolas – Backward and forward and central differences- Derivation of Differentiation formulas using Taylor series- Boundary conditions- Beam deflection – Solution of characteristic value problems - Richardson's extrapolation - Use of unevenly spaced pivotal points- Integration formulae by interpolating parabolas- Numerical solution to spatial differential equations – Application to Simply Supported Beams, Columns & rectangular Plates.

Numerical Differentiation: Difference methods based on undetermined coefficients- optimum choice of step length– Partial differentiation.

Numerical Integration: Method based on interpolation-method based on undetermined coefficient – Gauss – Lagrange interpolation method- Radaua integration method- composite integration method – Double integration using Trapezoidal and Simpson's method – New Marks Method and Application to Beams – Calculations of Slopes & Deflections.

Textbooks:

1. Introduction to Partial Differential Equations, Sankar Rao. K, PHI, New Delhi, 1995
2. Numerical Methods For Scientific and Engineering Computations. M. K. Jain- S. R. K. Iyengar – R. K. Jain, New Age International (p) Ltd., Publishers.
3. Numerical Methods for Engineering Problems N. Krishna Raju, K.U. Muthu Macmillan Publishers

References:

1. Differential Equations and Calculus of Variations Elsgolts. L, Mir Publishers, Moscow, 1966
2. Fundamentals of Mathematical Statistics Gupta. S.C, & Kapoor. V.K, Sultan Chand & Sons, Reprint 1999.
3. Higher Engineering Maths for Engg. And Sciences Venkataraman. M. K, National Publishing Company, Chennai
4. Elements of Partial Differential Equations, Sneddon. I.N, Mc Graw Hill, 1986
5. Computer based numerical analysis by Dr. M. Shanta Kumar, Khanna Book publishers New Delhi.

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Annexure-X

Year/Sem	M.Tech III Sem	L	T	P	C	COURSE CODE
Regulation	V21	3	-	-	3	V21MAT02
Name of the Course	OPERATIONS RESEARCH (Open Elective)					
Branch	Common To All					

Course Outcomes: Upon the completion of the course the students will be able to
 CO 1: solve the linear programming problem.
 CO 2: solve Transportation and Assignment problems.
 CO 3: apply sequencing techniques to create the jobs.
 CO 4: solve problems of waiting lines.
 CO 5: apply the principles of Game theory to real world competitive situations.

UNIT-I: (10 hrs)
Introduction to Operations Research: Basics definition, scope, objectives, phases, models and limitations of Operations Research. Linear Programming Problem – Formulation of LPP, Graphical solution of LPP. Simplex Method, Artificial variables, big-M method, degeneracy and unbound solutions.

UNIT-II: (10 hrs)
Transportation Problem. Formulation, solution, unbalanced Transportation problem. Finding basic feasible solutions – Northwest corner rule, least cost method and Vogel's approximation method. Optimality test: the stepping stone method and MODI method.

UNIT-III: (10 hrs)
Assignment model. Formulation. Hungarian method for optimal solution. Solving unbalanced problem. Traveling salesman problem and assignment problem Sequencing models. Solution of Sequencing Problem – Processing n Jobs through 2 Machines – Processing n Jobs through 3 Machines – Processing 2 Jobs through m machines – Processing n Jobs through m Machines.

UNIT-IV: (9 hrs)
Queuing Theory**:** Introduction – Single Channel – Poisson arrivals – exponential service times – with infinite population and finite population models – multi channel – poisson arrivals – exponential service times with infinite population single channel poisson arrivals

UNIT-V: (9 hrs)
Game Theory: Introduction – Minimax and Maximin – Criterion and optimal strategy – Solution of games with saddle points – Rectangular games without saddle points –algebraic method – Graphical Method (m x 2, 2 x n methods) – dominance principle .

TEXT BOOKS:

1. Operations Research by J.K.Sharma; Publisher: Mac Milan.
2. A. M. Natarajan, P.Balasubramani, A.Tamilarasi, Operations Research by Publisher: Pearson Education.

REFERENCES:

1. Operations Research by R.Pannerselvam; Publisher: Prentice Hall international.
2. P.Sankar Iyer, "Operations Research" Tata McGraw- Hill, 2008.
3. S.D.Sharma Operations Research; Kedarnath
4. Wayne L. Winston, Jeffrey B.Goldbary, Operations Research Thomson / Brooks/Cole Publication.