SVKM's NMIMS
Mukesh Patel School of Technology Management and Engineering

Program:	B. Tech. Computer Science and Business Systems		Semester : I	
Course/Module :	Discrete Mathematics		**Module Code:** 702BS0C022	
Teaching Scheme				**Evaluation Scheme**	

Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100 in Question Paper)
3	0	1	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite
Knowledge of Basic concepts in Number theory and Algebra.

Course Objectives
This course aims to prepare the students to think logically and mathematically and trains the students in the construction and understanding of mathematical proofs and common mathematical arguments. It introduces topics that are essential for computer science and upskills the students in using the mathematical techniques in the subsequesnt courses of computer science.

Course Outcomes
After completion of the course, students would be able to
1. define and relate basic notions of discrete mathematics,
2. demonstrate the ability to understand mathematical logic, principles of boolean algebra and mathematical proof techniques,
3. solve problems based on the concepts of abstract algebra, combinatorics a and graph theory,
4. demonstrate understanding of the applications of algebra, combinatorics and graph theory.

Detailed Syllabus

Unit	Description	Duration
1.	**Boolean algebra**: Introduction of Boolean algebra, truth table, basic logic gate, basic postulates of Boolean algebra, principle of duality, canonical form, Karnaugh map.	06
2.	**Abstract algebra**: Set, relation, function, group, ring, field.	11
3.	**Combinatorics**: Basic counting, balls and bins problems, generating functions, recurrence relations. Proof techniques, principle of mathematical induction, pigeonhole principle.	10

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4.	**Graph Theory**: Graphs and digraphs, complement, isomorphism, connectedness and reachability, adjacency matrix, Eulerian paths and circuits in graphs and digraphs, Hamiltonian paths and circuits in graphs and tournaments, trees; Planar graphs, Euler's formula, dual of a planer graph, independence number and clique number, chromatic number, statement of Four-color theorem.	10
5.	**Logic**: Propositional calculus - propositions and connectives, syntax; Semantics - truth assignments and truth tables, validity and satisfiability, tautology; Adequate set of connectives; Equivalence and normal forms; Compactness and resolution; Formal reducibility - natural deduction system and axiom system; Soundness and completeness.	08
	Total	**45**

Text Books
1. Kenneth H. Rosen, "Discrete Mathematics and its Applications", Tata McGraw Hill, 7th Edition 2012.

2. Kolman, Busby and Ross, "Discrete Mathematical Structures", Prentice Hall India, 6th Edition 2015.

Reference Books
1. Narsingh Deo, ''Graph theory with Applications to Engineering and computer science'', Prentice Hall India, 1st edition 2016.
2. I. N. Herstein, "Topics in Algebra", John Wiley and Sons, 2nd Edition 1975.
3. M. Morris Mano, "Digital Logic & Computer Design", Pearson, 5th Edition 2015.
4. C. L. Liu, "Elements of Discrete Mathematics" McGraw Hill, New Delhi, 3rd Edition 2008.
5. Seymour Lipschutz and Mark Lipson, "Discrete Mathematics", McGraw Hill education, Schaum's Outline Series, Revised 3rd Edition 2017.

Any other information

Total Marks of Internal Continuous Assessment (ICA) : <u>50 Marks</u>

Distribution of ICA Marks

Description of ICA	Marks
Class Test	20
Term work	30
Total Marks :	**50**

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Program: B. Tech. Computer Science and Business Systems				Semester : I	
Course/Module : Statistics, Probability & Calculus				Module Code: 702BS0C023	
Teaching Scheme				Evaluation Scheme	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100 in Question Paper)
3	0	1	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Knowledge of Permutation, Combination and Pre-Calculus.

Course Objectives

This course aims to introduce basic concepts of probability theory and calculus. The course will equip the students with intermediate to advanced level concepts in probability and statistics using calculus tools that will help them to tackle relevant problems within engineering domain.

Course Outcomes

After completion of the course, students would be able to
1. explain the basic concepts of differential and integral calculus, statistical data, probability and random variables,
2. solve problems involving conditional probability, moments and various probability distributions, differential and integral calculus,
3. apply knowledge of various probability distributions, measures of central tendency, differential and integral calculus to evaluate real life problems,
4. demonstrate use of differential and integral calculus in probability theory.

Detailed Syllabus

Unit	Description	Duration
1.	**Introduction to Statistics** Definition of Statistics, Basic objectives, Applications in various branches of science with examples. Collection of Data: Internal and external data, Primary and secondary Data, Population and sample, Representative sample.	03
2.	**Descriptive Statistics** Classification and tabulation of univariate data, graphical representation, Frequency curves. Descriptive measures - central tendency and dispersion. Bivariate data: Summarization, marginal and conditional frequency distribution.	06

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3.	**Probability** Concept of experiments, sample space, event. Definition of Combinatorial Probability, Conditional Probability, Bayes Theorem.	04
4.	**Expected values and moments** Mathematical expectation and its properties, Moments (including variance) and their properties, interpretation, Moment generating function.	07
5.	**Probability distributions** Discrete probability distributions: Binomial, Poisson and Geometric distributions, Uniform distribution. Continuous probability distributions: Exponential, Normal distribution, Chi- square, t, F distributions.	13
6.	**Calculus** Basic concept of differential calculus and integral calculus, application of double and triple integral.	12
	Total	**45**

Text Books
1. S. M. Ross, "Introduction of Probability Models", Academic Press, N.Y.
2. A. Goon, M. Gupta and B. Dasgupta, "Fundamentals of Statistics", vol. I & II, World Press.
3. B. S. Grewal, "Higher Engineering Mathematics", Khanna Publication, 44th Edition.

Reference Books
1. S. M. Ross, "A first course in Probability", Prentice Hall, 10th Edition 2018.
2. I. R. Miller, J.E. Freund and R. Johnson, "Probability and Statistics for Engineers", 4th Edition, PHI.
3. A. M. Mood, F.A. Graybill and D.C. Boes, "Introduction to the Theory of Statistics", McGraw Hill Education.
4. Peter V. O'Neil, "Advanced Engineering Mathematics", Thomson Learning, 7th Edition 2011.
5. M. D. Greenberg, "Advanced Engineering Mathematics", Pearson Education, 2nd Edition 2002.
6. P. N. Wartikar and J. N. Wartikar, "Applied Mathematics"- Vol. I & II, Vidyarthi Prakashan.

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Any other information

Total Marks of Internal Continuous Assessment (ICA) : <u>50 Marks</u>

Distribution of ICA Marks

Description of ICA	Marks
Class Test	20
Term work	30
Total Marks :	**50**

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Program: B. Tech. Computer Science and Business Systems		Semester: I	
Course/Module: Fundamentals of Computer Science		**Module Code:** 702CO0C007	
Teaching Scheme		**Evaluation Scheme**	

Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100 in Question Paper)
2	2	1	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Nil

Course Objectives

1. Develop problem solving skills using basic Sequential Logic Structure, Decisions and Loops.

2. Enable students to implement complex problems using the knowledge of Arrays, Functions, Structures and Pointers.

Course Outcomes

After completion of the course, students would be able to

1. apply the knowledge of basic programming constructs, decision making, and iterations,

2. develop modular programs using functions and concept of recursion,

3. implement programs using concept of arrays, pointers and structures,

4. understand Unix interface and perform file handling.

Detailed Syllabus

Unit	Description	Duration
1.	**Types Operator and Expressions with discussion of variable naming and Hungarian Notation:** Variable Names, Data Type and Sizes (Little Endian Big Endian), Constants, Declarations, Arithmetic Operators, Relational Operators, Logical Operators, Type Conversion, Increment Decrement Operators, Bitwise Operators, Assignment Operators and Expressions, Precedence and Order of Evaluation, proper variable naming and Hungarian Notation	02

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2.	**Control Flow with discussion on structured and unstructured programming:** Statements and Blocks, If-Else-If, Switch, Loops – while, do, for, break and continue, goto Labels, structured and un-structured programming.	07
3.	**Functions and Program Structure with discussion on standard library:** Basics of functions, parameter passing and returning type, C main return as integer, External, Auto, Local, Static, Register Variables, Scope Rules, Block structure, Initialization, Recursion, Preprocessor, Standard Library Functions and return types	05
4.	**Pointers and Arrays:** Pointers and address, Pointers and Function Arguments, Pointers and Arrays, Address Arithmetic, character Pointers and Functions, Pointer Arrays, Pointer to Pointer, Multi-dimensional array and Row/column major formats, Initialization of Pointer Arrays, Command line arguments, Pointer to functions, complicated declarations and how they are evaluated.	08
5.	**Structures:** Basic Structures, Structures and Functions, Array of structures, Pointer of structures, Self-referral Structures, Table look up, Typedef, Unions, Bit-fields	04
6.	**Input and Output:** Standard I/O, Formatted Output – printf, Formated Input – scanf, Variable length argument list, file access including FILE structure, fopen, stdin, sdtout and stderr, Error Handling including exit, perror and error.h, Line I/O, related miscellaneous functions	02
7.	**Unix system Interface:** File Descriptor, Low level I/O – read and write, Open, create, close and unlink, Random access – lseek, Discussions on Listing Directory, Storage allocator	02
	Total	**30**

Text Books:
1. B. W. Kernighan & D. M. Ritchie, "The C Programming Language", Prentice Hall Software Series, 2nd Edition 1988.
2. B. Gottfried, "Programming in C", Schaum Outline Series, McGraw Hill, 2nd Edition 2018.

Reference Books
1. Herbert Schildt, "C: The Complete Reference", McGraw Hill, 4th Edition 2000.
2. Yashavant Kanetkar, "Let Us C", BPB Publications, 16th Edition 2017.

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Any other information

Laboratory

1. Algorithm and flowcharts of small problems like GCD

2. Structured code writing with:

     i.   Small but tricky codes

    ii.   Proper parameter passing

    iii.   Command line Arguments

    iv.   Variable parameter

    v.   Pointer to functions

    vi.   User defined header

    vii.   Make file utility

    viii.   Multi file program and user defined libraries

    ix.   Interesting substring matching / searching programs

    x.   Parsing related assignments

Total Marks of Internal Continuous Assessment (ICA) : <u>50 Marks</u>

Distribution of ICA Marks

Description of ICA	Marks
Class Test	20
Term work	30
Total Marks	**50**

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Program:	B. Tech. Computer Science and Business Systems		Semester : I	
Course/Module: Principles of Electrical Engineering			**Module Code:** 702EX0C003	
Teaching Scheme				**Evaluation Scheme**	

Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100 in Question Paper)
3	2	0	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Nil

Course Objectives

The course aims at applying electrical circuit fundamentals to the AC, DC circuits and study electromagnetism. The course also intends to focus on understanding the concept and working of transformer, measuring devices and sensors. Along with this, the course is designed such that it will help students become familiar with methods of wiring and safety systems such as earthing.

Course Outcomes

After completion of the course, students would be able to

1. explain DC network theorems and apply them to solve DC circuits,
2. understand AC fundamentals and apply them to solve AC circuits,
3. understand the basic concepts of electrostatics, electromagnetics and transformer,
4. describe various types of measuring devices, sensors, wiring and electrical safety systems.

Detailed Syllabus

Unit	Description	Duration
1.	**Introduction:** Concept of Potential difference, voltage, current, Fundamental linear passive and active elements to their functional current-voltage relation, Terminology and symbols in order to describe electric networks, voltage source and current sources, ideal and practical sources, concept of dependent and independent sources, Kirchhoff-s laws and applications to network solutions using mesh and nodal analysis, Concept of work, power, energy, and conversion of energy.	06

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2.	**DC Circuits:** Current-voltage relations of the electric network by mathematical equations to analyze the network (Thevenin's theorem, Norton's Theorem, Maximum Power Transfer theorem) Simplifications of networks using series-parallel, Star/Delta transformation. Superposition theorem.	09
3.	**AC Circuits:** AC waveform definitions, form factor, peak factor, study of R-L, R-C,RLC series circuit, R-L-C parallel circuit, phasor representation in polar and rectangular form, concept of impedance, admittance, active, reactive, apparent and complex power, power factor, 3 phase Balanced AC Circuits (λ-Δ & λ-λ).	11
4.	**Electrostatics and Electro-Mechanics:** Electrostatic field, electric field strength, concept of permittivity in dielectrics, capacitor composite, dielectric capacitors, capacitors in series and parallel, energy stored in capacitors, charging and discharging of capacitors, Electricity and Magnetism, magnetic field and Faraday's law, self and mutual inductance, Ampere's law, Magnetic circuit, Single phase transformer, principle of operation, EMF equation, voltage ratio, current ratio, KVA rating, efficiency and regulation, Electromechanical energy conversion.	09
5.	**Measurements and Sensors:** Introduction to measuring devices/sensors and transducers (Piezoelectric and thermo-couple) related to electrical signals, Elementary methods for the measurement of electrical quantities in DC and AC systems (Current & Single-phase power). Electrical Wiring and Illumination system: Basic layout of the distribution system, Types of Wiring System &Wiring Accessories, Necessity of earthing, Types of earthing, Safety devices & system.	07
6.	**For Further Reading -** Principle of batteries, types, construction and application, Magnetic material and B-H Curve, Basic concept of indicating and integrating instruments.	03
	Total	**45**

Text Books
1. D. C. Kulshreshtha, "Basic Electrical Engineering" Tata McGraw Hill, 2nd Edition 2019.
2. A. E. Fitzgerald, Kingsely Jr Charles and D. Umans Stephen, "Electric

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Machinery", Tata McGraw Hill, 7th Edition 2005.

3. J. Nagrath and D. Kothari, "Theory and problems of Basic Electrical Engineering", Prentice Hall of India Pvt. Ltd, 2nd Edition 2017.

4. E. Hughes, "Electrical and Electronics Technology" Pearson Education, 10th Edition 2013.

Reference Books

1. T. K. Nagsarkar and M. S. Sukhija, "Basic of Electrical Engineering", , Oxford University Press, 3rd Edition 2011.

2. D. J. Griffiths, "Introduction to Electrodynamics", Cambridge University Press, 4th Edition 2015.

3. William H. Hayt & Jack E. Kemmerly, "Engineering Circuit Analysis", McGraw-Hill Book Company Inc, 8th Edition 2013.

4. Smarjith Ghosh, "Fundamentals of Electrical and Electronics Engineering", Prentice Hall (India) Pvt. Ltd. 2nd Edition 2010.

Any other Information

Laboratory

1. Familiarization of electrical Elements, sources, measuring devices and transducers related to electrical circuits

2. Determination of resistance temperature coefficient

3. Verification of Network Theorem (Superposition, Thevenin, Norton, Maximum Power Transfer theorem)

4. Simulation of R-L-C series circuits for $X_L > X_C$, $X_L < X_C$ & $X_L = X_C$

5. Simulation of Time response of RC circuit

6. Verification of relation in between voltage and current in three phase balanced star and delta connected loads.

7. Demonstration of measurement of electrical quantities in DC and AC systems.

Total Marks of Internal Continuous Assessment (ICA) : 50 Marks

Distribution of ICA Marks

Description of ICA	Marks
Class Test	20
Term work	30
Total Marks :	**50**

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Program: B. Tech. Computer Science and Business Systems				Semester : I	
Course/Module : Physics for Computing Science				Module Code: 702BS0C024	
Teaching Scheme				Evaluation Scheme	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations (TEE) (Marks- 100 in Question Paper)
3	2	0	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: knowledge of 12th Grade level physics

Course Objectives

This course aims to provide the student with a broad understanding of the physical principles to help them develop critical thinking and quantitative reasoning skills, to empower them to think creatively about scientific problems and experiments

Course Outcomes:

After completion of the course, students would be able to

1. demonstrate conceptual understanding of fundamental physics principles,
2. relate and interpret physical information in verbal, visual, experimental and mathematical form,
3. solve problems using qualitative and quantitative reasoning including mathematical techniques.

Detailed Syllabus

Unit	Description	Duration
1.	**Oscillation and fundamental of wave optics** Periodic motion-simple harmonic motion-characteristics of simpleharmonic motion-vibration of simple springs mass system. Resonance-definition., dampedharmonic oscillator – heavy, critical and light damping, energy decay in a damped harmonicoscillator, quality factor, forced mechanical and electrical oscillators.	07
2.	**Interference-principle of superposition-young's experiment** Theory of interference fringes-types of interference-Fresnel's prism-	08

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	Newton's rings, Diffraction-Two kinds of diffraction-Difference between interference and diffraction-Fresnel's half period zone and zone plate-Fraunhofer diffraction at single slit-plane diffraction grating.Temporal and Spatial Coherence.	
3.	**Polarization of light** Polarization - Concept of production of polarized beam of light from two SHM acting at right angle; plane, elliptical and circularly polarized light, Brewster's law, double refraction.	03
4.	**Basic Idea of Electromagnetisms** Continuity equation for current densities, Maxwell's equation in vacuum and non-conducting medium	04
5.	**Quantum Mechanics and Crystallography** Introduction - Planck's quantum theory- Matter waves, de-Broglie wavelength, Heisenberg's Uncertainty principle, time independent and time dependent Schrödinger's wave equation, Physical significance of wave function, Particle in a one dimensional potential box, Heisenberg Picture. Crystallography - Basic terms-types of crystal systems, Bravais lattices, miller indices, d spacing, Atomic packing factor for SC, BCC, FCC and HCP structures. Semiconductor Physics - conductor, semiconductor and Insulator; Basic concept of Band theory	12
6.	**Laser and Fiber optics** Einstein's theory of matter radiation interaction and A and B coefficients; amplification of light by population inversion, different types of lasers: Ruby Laser, CO_2 and Neodymium lasers; Properties of laser beams: mono-chromaticity, coherence, directionality and brightness, laser speckles, applications of lasers in engineering. Fiber optics and Applications, Types of optical fibers	06
7.	**Thermodynamics** Zeroth law of thermodynamics, first law of thermodynamics, brief discussion on application of 1st law, second law of thermodynamics and concept of Engine, entropy, change in entropy in reversible and irreversible processes, third law of thermodynamics.	05
	Total	**45**

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Text Books
1. Beiser A, "Concepts of Modern Physics", Tata McGraw Hill International, 7th edition (SIE) 2015.
2. David Halliday, Robert Resnick, Jearl Walker, "Fundamentals of Physics", Wileyplus, 11th Edition 2018.

Reference Books

1. Ajoy Ghatak, "Optics", McGraw Hill Education (India), 6th Edition 2017.

2. Sears & Zemansky, "University Physics", Pearson Education, Addison-Wesley, 14th Edition 2017.

3. Jenkins and White, "Fundamentals of Optics", McGraw-Hill, 4th Edition 2017.

Any other information

Laboratory Experiments

1. Magnetic field along the axis of current carrying coil – Stewart and Gee
2. Determination of Hall coefficient of semi conductor
3. Determination of Plank constant
4. Determination of wave length of light by Laser diffraction method
5. Determination of wave length of light by Newton's Ring method
6. Determination of laser and optical fiber parameters
7. Determination of Stefan's Constant.

Total Marks of Internal Continuous Assessment (ICA) : 50 Marks

Distribution of ICA Marks

Description of ICA	Marks
Class Test	20
Term work	30
Total Marks :	**50**

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Mukesh Patel School of Technology Management and Engineering

Program: B. Tech. Computer Science and Business Systems		Semester : I	
Course/Module: Business Communication & Value Science - I		Module Code: 702BS0C025	
Teaching Scheme		**Evaluation Scheme**	
Lecture (Hours per week)	Practical (Hours per week)	Tutorial (Hours per week)	Credit	Internal Continuous Assessment (ICA) (Marks - 50)	Term End Examinations – (TEE) ((Marks- 100 in Question Paper)
3	2	0	4	Marks Scaled to 50	Marks Scaled to 50

Pre-requisite: Basic Knowledge of high school English

Course Objectives

This course aims to develop in students an understanding of life skills and their relative importance towards helping individuals and professionals in striking work life balance. Also they will be introduced to key concepts of business communication, including ethics and values so that they are motivated to introspect and become ethical and well balanced professionals.

Course Outcomes

After completion of the course, students would be able to

1. demonstrate an understanding of the importance of life skills and values
2. understand and recognize own strengths and opportunities and apply the life skills to different situations
3. apply the basic tenets of oral and written communication to communicate professionally and ethically.
4. evaluate and analyse different professional situations and respond startegically with appropriate communication strategies

Detailed Syllabus:

Unit	Description	Duration
1.	**Overview of Business Communication and Leadership Oriented Learning (LOL)**: effective communication through correct listening, speaking , reading and writing(Imparted through activities designed for the purpose) ; self-awareness -identity, body awareness, stress management.	10

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2.	**The basic tenets of communication-I** : Essential Grammar-parts of speech, tenses; Sentence Formation (general and technical)- active and passive voice, common errors ; Communication Skills- overview of communication skills, barriers to communication, effective communication, verbal and nonverbal communication (skit based on communication skills); **Listening Skills-** Law of nature- Importance of listening skills, Difference between listening and hearing, Types of listening(listening activity); **Expressing self-** connecting with emotions, visualizing and experiencing purpose , importance of questioning	10
3.	**The basic tenets of communication-II -Talk Mail Write (TMW) :** Email Writing, Verbal communication- oral-pronunciation and clarity of speech, Written Communication-email-formal and informal , CV, Summary writing, story writing; Vocabulary Enrichment- Exposure to words from General Service List (GSL) by West, Academic word list (AWL) technical specific terms related to the field of technology, phrases, idioms, significant abbreviations formal business vocabulary	10
4.	**Introduction to life skills:** What are the critical life skills; Stress management; working with rhythm and balance; teamwork ; Multiple Intelligences; Embracing diversity	15
	Total	**45**

Text Books
1. Bovee, C., Thill, J., & Roshan Lal Raina, "Business Communication Today", Pearson, 14th edition 2013.
2. Lester, Mark and Beason, Larry; ''The McGraw Hill Handbook of English Grammar and Usage'', McGraw Hill Education, 1st edition 2017.

Reference Books
1. M. McCarthy and Felicity O'Dell, "English Vocabulary in Use", Cambridge University Press, 2002
2. S Hiremath, "Business Communication", Nirali Prakashan, 2014

Online Resources
https://www.coursera.org/learn/learning-how-to-learn
https://www.coursera.org/specializations/effective-business-communication

Web References

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Train your mind to perform under pressure- Simon sinek
https://curiosity.com/videos/simon-sinek-on-training-your-mind-to-perform-under-pressure-capture-your-flag/

Brilliant way one CEO rallied his team in the middle of layoffs
https://www.inc.com/video/simon-sinek-explains-why-you-should-put-people-before-numbers.html

Will Smith's Top Ten rules for success
https://www.youtube.com/watch?v=bBsT9omTeh0

Any other information

Pedagogy for imparting of the course content and evaluation purposes are extremely important component of this course. Various topics are to be imparted through activities specifically designed for the topic. Following are the details:

Unit 1-

- **Overview of LOL**
  - activity on introducing self
  - Class activity – presentation on favorite cricket captain in IPL and the skills and values they demonstrate
  - Self-work with immersion – interview a maid, watchman, sweeper, cab driver, beggar and narrate what you think are the values that drive them
- **Overview of business communication**
  - Activity: Write a newspaper report on an IPL match
  - Activity: Record a conversation between a celebrity and an interviewer
- **Self-awareness**
  - Dance Movement Therapy with integrated arts

Unit 2-

- **Essential Grammar**
  - Refresher on Parts of Speech – Listen to an audio clip and note down the different parts of speech followed by discussion
  - Tenses: Applications of tenses in Functional Grammar – Take a quiz and then discuss
  - Sentence formation (general & Technical), Common errors, Voices- Show sequence from film where a character uses wrong sentence structure (e.g. Zindagi Na Milegi Dobara where the characters use 'the' before every word)
- **Types of communication- verbal and non -verbal**
  - Role-play based learning
- **Listening Skills**

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- Listening activity –playing an audio clip and listening for details

- **Expressing self**

  -Dance Movement Therapy with integrated arts

Unit 3-

- **Email writing**

  -Email writing activity

- **Pronunciation and clarity of speech**

  -Audio and video based learning

- **Vocabulary Enrichment**

  - Group discussion using words learnt;Flipped classroom where students will study words before coming to class -Read Economic Times, Reader's Digest, National Geographic and take part in a GD, using the words you learnt/liked from the articles.

  -Practice: Toastmaster style Table Topics speech with evaluation

  - story and summary writing

- **Life skill: Stress management, working with rhythm and balance, teamwork**

  - Dance Movement Therapy with integrated arts

Unit 4-

- **Introduction to life skills**

  - Activity and Video on critical life skills

- **Understanding Life Skills**

  -Movie based learning – Pursuit of Happyness. What are the skills and values you can identify, what can you relate to?

- **Embracing diversity**

  – Activity and video on appreciation of diversity

Total Marks of Internal Continuous Assessment (ICA) : 50 Marks

Distribution of ICA Marks

Description of ICA	Marks
Class Test	20
Term work	30
Total Marks :	**50**

Details of Term work

Unit 1

- 30 minutes Quiz on Unit 1
- Activity: Write a newspaper report on an IPL match(Class activity with 3

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iterations)
- Activity: Record a conversation between a celebrity and an interviewer (Class activity with 3 iterations)

Unit 2-
- Activity: Skit based on communication skills
- Evaluation on Listening skills – listen to recording and answer questions based on them

Unit 3-
- Build your CV – start writing your comprehensive CV including every achievement in your life, no format, no page limit
- Project: Create a podcast on a topic that will interest college students

Unit 4-
- Life skill: Community service – work with an NGO and make a presentation- Field work
- Life skill: Join a trek – Values to be learned: Leadership, teamwork, dealing with ambiguity, managing stress, motivating people, creativity, result orientation- Field work

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