Mandsaur University, Mandsaur(M.P.)

Department of Communication Skill
Syllabus of
Business Communication & Presentation Skills
B. Tech. (II-Semester) (CBCS Scheme)
W.e.f. (session2016-17)

Name of Subject With Code No.	Maximum Marks Allocation				Lectures per week			Credits	Total Marks
	Theory Paper		Continuous Evaluation	Practical Examination	L	T	P		
	End Sem. Test (EST)	Mid Sem. Test (MST)							
Business Communication & Presentation Skills – II (CSS020)	40	20	10	30	2	1	2	4	100

Course Objective: Communication skills are important for many professions but are crucial for students to develop their personality. They must be able to adapt their methods of communication to all regardless of ability or learning style.

1: Students will demonstrate competency in communication skills related to production and presentation of messages and documents in multiple formats.

2: Students will demonstrate competency in critical thinking skills related to the analysis, interpretation, and criticism of any message either verbal or non-verbal.

3: Students will demonstrate an understanding of multiple theoretical perspectives and diverse intellectual traditions in formal and informal communication.

4: Students will demonstrate competency in the analysis and practice of ethical communication.

5: Students will demonstrate understanding to the importance of free expression and the responsibilities it entails.

Unit - I Fundamentals of Language & Vocabulary

Applied Grammar and usages - Parts of Speech, Determiners, Tenses, Subject-Verb Agreement, Prepositions, Active and Passive Voice, **Reported Speech**: Direct and Indirect, Sentence Structure, Punctuations.

Vocabulary: Origin of words, affixation, Antonyms, Synonyms, one-word substitute, phrasal verbs, idioms, proverbs and jargons.

Unit – II Application of Linguistic ability

Linguistic techniques, English phonetic symbols or signs, Phonetic Transcription, Writing of Definitions of Related terms, objects, processes and principles, Paragraph writing, Precise writing and noting.

Unit – III Skills of Communication

Scope and Significance of Communication Skills, Process of Communication in an Organisation, Types of Communication: Verbal and Non-Verbal Communication, Formal and Informal Channels of Communication, Barriers to communication, Measures to overcome Barriers, Need for Effective Communication, Listening skills.

Unit – IV Developing Writing Skills

Business Letters: Parts & Layouts of Business Letters, Calling/ Sending Quotations/ Tenders/Orders/ Complaints, Report Writing (Progress, Observation, Survey, Project and Laboratory).

Unit – V Employability And Corporate Skills

Interview skills, Group Discussion, Job Application, CV Writing, Memos and Email writing, Time management and Effective Planning, Negotiation skills, Teamwork, leadership.

References:
- A.J. Thomson and A.V. Martinet, A practical English Grammar.
- Business Correspondence and Report Writing - By Sharma; TMH.
- Living English Structure – By W.S. Allen; Longmans
- English Grammar – Ehrlich, Schaum Series; TMH.
- Spoken English for India – By R.K. Bansal and IB Harrison Orient Longman.
- New International Business English – by Joans and Alexander; OUP.
- Communication Skills – Dr. Neeta Sharma, Effective Technical Communication – Rizvi; TMH.
- Communication for Science & Engineering, by Dr. Binod Mishra.
- Business Communication by Dr. R.C. Sharma.

List of Experiments:

Lab Sessions with the help of Language lab software:

- **Tense Buster,**
- **Study Skills,**
- **Business Communication**

Exercise to be performed by the students:

- To write a book review
- Student are advised to read at least 3 books (novel, shot stories, poems) written in English by authors of Indian origin.
- Students are expected to read actively and critically.
- One book is expected to read in a period of not more than 20 days after which students have to submit a hand – written review briefing the following aspects :
    1. Relevance of the book title to the content
    2. About the main character and other character
    3. Setting of the book
    4. Main idea/Theme of the book
    5. Write précis and make presentation in consultation with the teacher
    6. Wite 3 quotations from the book
    7. Message of the book and the student take away.

There will be no examination in communication skills subject. The grades earmarked will be awarded on the basis on internal assessment and the overall performance of the student in the Language Laboratory.

Topic to be covered in the Language Laboratory Sessions;

- Self Introduction
- JAM Session
- Role play activity
- Social & Professional Etiquettes
- Phonetics symbol and pronunciation
- Listening Skills (Including Listening Comprehension)
- Reading Skills (including Reading Comprehension)
- Writing Skills (Including Structuring resume and cover letter)
- Speaking Skills
- Body Language
- Oral Presentation: Preparation and delivery using audio – visual aids with stress and body language and voice modulation (Topic to be selected by the teacher)
- Individual presentations with stress on delivery and content
- Overcoming Stage Fright - Debates, extempore
- How to discuss in a group - Group Discussion
- Discussion on recent developments and current debates in the media
- How to prepare for an Interview and face it with confidence
- Conducting meeting and conferences
- Exercises on Composition & Comprehension, Reading Improvement
- Telephonic etiquettes
- Movies & Videos (Based on Learning English, With Hindi & English Subtitle)

Course outcomes:

1: Students will be enriched with good vocabulary and diction.

2: Students will be able to comprehend the process of communication and its components.

3: Students will be able to improve the language skills such as Listening, Speaking, Reading and Writing.

4: Students will be able to enhance phonetic competence, comprehension skills, presentation skills, soft skills etc.

Syllabus of
Basic Electrical Engineering
B. Tech.(II-Semester) (CBCS Scheme) (04YDC)
w.e.f.(session2016-17)

Name of Subject With Code No.	Maximum Marks Allocation				Lectures per week			Credits	Total Marks
	Theory Paper		Continuous Evaluation	Practical Examination	L	T	P		
	End Sem. Test (EST)	Mid Sem. Test (MST)							
Basic Electrical Engineering (EEE160)	40	20	10	30	2	1	2	4	100

Course Objectives:

1. To provide strong foundation in basic science and mathematics necessary to formulate, solve and analyze electrical and electronics problems.
2. Understand the basic concepts of magnetic circuits, AC & DC circuits.
3. Explain the working principle, construction, applications of Transformers.
4. Understand the basic concepts of generating stations.

Unit-I
1- phase AC Circuits: Generation of sinusoidal AC voltage, definition of average value, R.M.S. value, form factor and peak factor
of AC quantity , Concept of phasor, Concept of Power factor, Concept of impedance and admittance, Active, reactive and apparent
power, analysis of R-L, R-C, R-L-C series & parallel circuit

Unit-II
3-phase AC Circuits: Necessity and advantages of three phase systems, Meaning of Phase sequence, balanced and unbalanced
supply and loads. Relationship between line and phase values for balanced star and delta connections. Power in balanced &
unbalanced three-phase system and their measurements

Unit-III
Magnetic Circuits: Basic definitions, magnetization characteristics of Ferro magnetic materials,
self inductance and mutual inductance, energy in linear magnetic systems, coils connected in
series, AC excitation in magnetic circuits, magnetic field produced by current carrying conductor,

Force on a current carrying conductor. Induced voltage, laws of electromagnetic Induction, direction of induced E.M.F.

single phase transformer- general construction, working principle, e.m.f. equation, open circuit and short circuit test

Unit-IV

Transformer: Construction of Transformer, Working principle, e.mf. equation, equivalent circuit, losses, separation of hysteresis and eddy current losses, efficiency, different types of winding connections, Power and distribution transformer, Autotransformer: working, advantages.

Unit-V

Electrical Energy Generation: Concepts, various types of generating stations and their locations. Study of Thermal, Hydel, Nuclear and Non Conventional energy generation schemes. difference between conventional and non-conventional sources of energy.

REFERENCES

1. D.P. Kothari & I.J. Nagrath, Basic Electrical Engineering, Tata McGraw Hill, latest edition.
2. S.N. Singh , Basic Electrical Engineering, P.H.I.,2013
3. Rajendra Prasad, Fundamentals of Electrical Engineering, Prentice Hall,2014
4. M.S. Sukhija, T. K. Nagsarkar, Basic Electrical and electronics engineering, Oxford University press,2012
5. C.L. Wadhwa, Basic Electrical Engineering. New Age International.
6. Bharti Dwivedi, Fundamentals of Electrical Engineering, Wilkey India, 2013
7. Sanjeev Sharma, Basic Electrical Engineering, I.K. International
8. Power Generation Technology-Dr.V.K.Sethi, Sudit Publication

Practical List:-

1. The study of R-L-C series circuit and draw its phasor diagram.

2. Perform experiment to measure Active and Reactive power consumed by single phase inductive load while connected to single phase AC supply.

3. Performing experiment to measure line voltage, line current, phase voltage, phase current and total power consumed by the balanced 3- phase resistive load.

4. To verify the relationship in Star and Delta connected three-phase AC system.

5. Study of B-H curve of a magnetic core.

6. To perform O.C. & S.C. Test on 1-Ph Transformer and determine equivalent circuit parameters.

7. Study the Hydro Power Station.

8. Study the Thermal Power Station.

9. To study the nuclear power Station

10.Study & drow different types of Electrical Symbols.

Course Outcomes:

 After successfully studying this course, students will:

· Acquire skills using single and three phase electrical AC circuits.

· Acquire skills of magnetic circuits and transformer.

· Acquire skills of basics of power generation techniques.

Mandsaur University, Mandsaur(M.P.)
Department of Mechanical Engineering
Syllabus of
Introduction to Engineering Maths with Applications- II
B.Tech. (II-Semester) (CBCS Scheme)
(04YDC)
w.e.f. (session2016-17)

Name of Subject With Code No.	Maximum Marks Allocation				Lectures per week			Credits	Total Marks
	Theory Paper		Continuous Evaluation	Practical Examination	L	T	P		
	End Sem. Test (EST)	Mid Sem. Test (MST)							
Introduction to Engineering Matheatics with Applications- II (MAT020)	60	30	10	-------	4	0	0	4	100

Course objectives: Basic knowledge of various types of Matrices, properties and its basic theorems, To know about the uses of Second-Order linear differential equations in practical problems, To know about the differentiation of multivariate functions and uses, To learn about the various types of Partial differential equations with different methods, To learn about the various types of Second and Higher Orders Homogeneous and Non- Homogeneous Partial differential equations

Unit 1 : Matrices

Rank of a Matrix (By reducing it to Elementary Transformation, Echelon & Normal Forms), Solution of Simultaneous equations by Elementary Transformation Methods, Consistency & Inconsistency of Equations, Eigen Values & Eigen Vectors, Cayley- Hamilton Theorem.

Unit 2:Second-Order Linear Differential Equations with Variable Coefficients Solution by Method of Undetermined Coefficients, Removal of First Derivative, Change of Independent Variable and Variation of Parameters, Solution by series method.

Unit 3 :Partial Derivatives
Definition, Euler's Theorem for Homogeneous Functions, Differentiation of Implicit Functions, Total Differential Coefficient, Transformations of Independent Variables, Jacobians, Approximation of Errors, Maxima and Minima of functions of two variables.

Unit 4:Partial Differential Equations
Definition, Formulation, Solution of PDE (By Direct Integration Method & Lagranges Method), Non-
Linear Partial Differential Equation of First order {Standard I, II, III & IV), Charpit's General Method
of Solution for Partial Differential equations.

Unit 5 :Partial Differential Equations with Constant Coefficients

Second and Higher Orders Homogeneous and Non- Homogeneous equations, Partial differential Equations Reducible to equations with constant coefficients, The Method of Separation of Variables, One Dimensional Heat and Wave equation and its solution

References

1. Dean G. Duffy, Advanced Engineering Mathematics with MATLAB, CRC Press.
2. Potter, Goldberg & Edward, Advanced Engineering Mathematics, Oxford University Press.
3. Probability and Statistics by Ravichandran, Wiley.
4. Fundamental of Mathematical Statistics, S. Chand & Co.

Course Outcomes: Useful for field of Matlab and Image processing , Student will learn about the basic application of differential equations in various practical problems and further uses , Useful for transforms and series type problems, Student will learn about the application of Partial differentiation in various fields like EMT, Co-relation , solution of Heat and Wave equation and Physics ,

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Mandsaur University, Mandsaur(M.P.)
Department of Mechanical Engineering
Syllabus of
Material Science
B. Tech.(II-Semester) (CBCS Scheme)
(04YDC)
W.e.f. (session2016-17)

Name of Subject With Code No.	Maximum Marks Allocation				Lectures per week			Credits	Total Marks
	Theory Paper		Continuous Evaluation	Practical Examination	L	T	P		
	End Sem. Test (EST)	Mid Sem. Test (MST)							
Material Science (MEC020)	60	30	10	------	4	0	0	4	100

Course Objective:-
At the end of the course the students will have an understanding of mechanics, physical and chemical properties of materials including metals, ceramics, polymers and composites and the reasons for these properties to exist. The students are advised to undergo each unit with a thorow exposure and develop the habbit of analysing each and every material near to them with cumulative understanding of the syllabus.The course content should be taught and implemented with the aim to develop analysing power of the student with the thorough knowledge of the materials.

UNIT-I

Introduction- Why study materials science and engineering? Classification of Engineering materials-**Ferrous and Non Ferrous, Advanced Materials, Modern materials' needs, Property of** Engineering Materials-Strength, Elasticity, Plasticity, Ductility, Brittleness, Toughness, Resilience, Stiffness, Hardness, Fatigue, Creep & Stress- Strain diagram.

UNIT-II

Atomic and Crystal Structure- Fundamental concepts of Atomic structure, Electron in Atom, Crystal, Crystal system, Unit Cell, space Lattice, Metallic crystal structure- BCC, FCC and HCP, coordination number, Atomic packing factor (APF), Density Computations.

UNIT-III

Interatomic Bonding- Bonding Forces and Energies, Types of Bond- Primary Interatomic Bonds (Ionic bond, Covalent bond, metallic bond) and Secondary Bonding (Van der Waals bond, hydrogen bonding)

UNIT-IV

Imperfections in Solids- Introduction of defects or imperfections, point defect, line defects, surface defects, Bulk or Volume Defects, Specification of Composition.

UNIT-V

Characterization of Materials- Crystallography, X-Ray Diffraction Methods, Optical Microscopy, Electron Microscopy-Scanning Electron Microscopy (SEM), Transmission Electron Microscopy(TEM).

Textbooks/Reference Books:

1. James F. Shackelford, Introduction to Materials Science for Engineers
2. G.K. Narula, K.S. Narula, V.K. Gupta, Material Science, TMH
3. V. Rajendran, Material Science, TMH

Course Outcomes:-

1. To understand the design, selection and processing of materials for a wide range of applications in engineering and elsewhere.
2. To understand how and why the properties of materials are controlled by structure and bonding at the atomic-scale, and by features at the micro structural and macroscopic levels.
3. The experience of the subject would help to build the understanding of the complexity of the industrial materials and the ability to enhance the material selection probability.
4. Good knowledge about any material at microscopic level.
3. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context

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Mandsaur University, Mandsaur(M.P.)
Departmentof Mechanical Engineering
Syllabusof
Subject : How and Why Machines Work.
B. Tech. (II-Semester) (CBCS Scheme) (04YDC)
W.e.f.(session 2016-17)

Name of Subject With Code No.	Maximum Marks Allocation				Lectures per week			Credits	Total Marks
	Theory Paper		Continuous Evaluation	Practical Examination	L	T	P		
	End Sem. Test (EST)	Mid Sem. Test (MST)							
How and Why Machines Work (MEC030)	40	20	10	30	2	1	2	4	100

Course objective: (i)To Provide an Introduction to Mechanical Engineering
- Types of work/research mechanical engineers perform
- Importance of topics in the Mechanical Engineering curriculum
- Research at the MIT (MU)Department of Mechanical Engineering
- How Mechanical Engineering influences on the world
   ### (ii) To develop Mechanical Engineering Skills/Tools
- Communications (Visual and Verbal)
- Basic Analysis/Modeling
- Design of Engineering systems

Unit 1:

Introduction to Mechanical Engineering: what is Mechanical Engineering,Engineering Way of Thinking, identification of main parts of a technical problem, Modeling & estimation,Mechanical Engineering (ME):Developing the mechanical solutions of a problem using basic, applied, & experimental means. Explore what is aMachine and Mechanism, understanding elements, links , pairs and mechanisms and formation of various systems in a Machine, why the machines are used, Machines and their contribution in the development of society, MechanicalAdvantage. Flow Balances in a Machine such as (Mass, Energy , Momentum,Power), Control volume approach, Mass balance in a MachineExample : filling and emptyingof a vessel with a fluid, Hydraulic Cylinders, Ballons etc.. A brief Classification of Machines .

Unit II :
Basics of operations of an Engine : How and why an engine (its function & working) its utility and contribution in the development of society, a brief description of component parts of an engine, The performance parameters of an engine, Thermodynamic analysis of an engine, Market specifications of an engine, Fault finding (diagnosis & Maintenance), Spare parts of an engine, Single cylinder and Multi Cylinder engines, Working of a locomotive engine system its specifications, diference between an earthmover and locomotive.

Unit III:

Basic hydraulic machines & components: Pumps : Hydraulic pump and motor equations,

Reciprocating and centrifugal pumps:utility of a pump , Component parts of a pump , Market specifications , working of a pump, installation of a pump on a sumpwell technical requirements and procedure, NPSH, Manometric efficiency, Head and discharge of a pump and practical significance

of thes terms, Pump ,Motor and cylinder (Mass,energy and Power flow balance), Control volume approach, SFEE & Bernoulli**'s Equation, Su**bmersible Pump its assembly , working and installation, Maintenance techniques of a pump , Hydraulic Turbines An overview.

Unit-IV:

Power Transmission systems in Machines, Belt, Rope & chain drives: their industrial applications, Gear trains, Sun and planet gear train, Epicyclic Gear train, Train ratio calculations, Alarm clock gear train : technical analysis, Tractor transmission system analysis, Threaded mechanisms involved in power transmission and load lifting, Analysis of torque on a rotor of a DC Machine, How keep the machines moving an analysis : Mechanical and electrical power transmission.

Unit–V:

Machine components : elements: various types of Nuts and Bolts used in engineering practice thier trade specifications, rivets, cotter, pins, screws,shafts, cluthes, bearings market specifications etc.

Sealing and packings : gaskets, rings, valves and their industrial applications, various types of pipes.

List of experiments

1. Disassembling and identification of component parts of a Pump (Group project)
2. Learn and understanding of Working of joystick (stickshift Mechanism of a Gearbox)
3. To prepare a list of the companies of Engine Manufacturing (India & Abroad)
4. To prepare the Camera pictures book of different types of engines .
5. To learn the techniques of maintenance of a centrifugal pump
6. Sketching of   component parts (such as impeller, Valves) using AutoCAD)
7. Assembling and dis assembling of 2s and 4s Petrol Engine8. To Find and prepare the list of applications of gear trains in various Machines.
9. To prepare A brief catalogue of various types of spanners and wrenches used in Maintenance of Machines.

Reference Books:

1. Thermal Engineering : R.K. Rajput; Laxmi Publications.
2. Elements of Mechanical Engineering: S.B. Mathur, S.Domkundwar; Dhanpat Rai & Sons.
3. Thermal Engineering Vol. I and II : H.R. Kapoor; Tata McGraw Hill Co. Ltd.
4 Fundamentals of Mechanical Engineering : G.S. Sawhney; Prentice Hall of India Publication New Delhi.
5. Thermal Science and Engineering : Dr. D.S. Kumar; S.K. Kataria & sons Publication NewDelhi

Student Learning Outcomes

At the end of the course the students will be able to understand the Mechanical engineering in general and Thermal science, Energy conversion in particular. Students will also be able to identify, solve and analyze problems related to Energy conversion, Energy transmission and Energy utilization. The student will be able to develop thinking attitude like a Mechanical Engineer.

*Partial Syllabus of this subject has been taken from MIT Boston(USA).

Mandsaur University, Mandsaur(M.P.)

Department of Mechanical Engineering
Syllabus of

Designing with Computers (using Auto CAD)

B.Tech.(II-Semester) (CBCS   (04YDC)
Scheme)
W.e.f. (session 2016-17)

Name of Subject With Code No.	Maximum Marks Allocation				Lectures per week			Credits	Total Marks
	Theory Paper End Sem. Test (MST)	Mid Sem. Test (EST)	Continuous Evaluation	Practical Examination	L	T	P		
Designing with computers (using AutoCAD) (MEC040)	-------	-----	50	50	0	2	4	4	100

Course objectives:
The objective of this course is to teach students the basic commands and tools necessary for professional 2D drawing, design and drafting using AutoCAD.In industry, the manual drafting been replaced by the computer aided drafting. Cumbersome and laborious manual drawing work which requires costly printing / drawing instruments has now become quite easy and interesting computer aided drawings / drafting. In view of new era, there is an   urgent need for development of such course. This curriculum is developed with a view to produce the workforce to meet the present and future demand of industry by covering computer aided drafting / drawing pertaining to the industrial field keeping in view the
requirements of market demand by more focusing on practical and necessarily required theoretical knowledge.

Unit –I Introduction: Introduction to CAD, Design Process, Importance and Necessity of CAD, Applications of CAD, Hardware and Software requirement of CAD, Basics of geometric and solid modelling, coordinate systems. Transformations: Introduction, transformation of points and line, 2-D rotation, reflection, scaling and combined transformation, homogeneous coordinates, 3-D scaling, shearing, rotation, reflection and translation.

Unit-II

AutoCAD,AutoCADdialogboxes,CoordinateSystems,Drawinglines,Circle,Arcs,Rectangle, Ellipse, Polygons, P-line, Spline , Grid, Snap, Ortho, Isometric plane etc. Editing commandslike:Move,Copy,Paste,Offset,Scale,Chamfer,Trim,Mirror,Fillet,Rotate,Break, Extend, Arrays, OSNAP, Exercises Dimensioning AutoCAD, Creating linear, Rotated, Angular aligned base line Dimensions, Modifying dimensions, Text style and Table.

Unit-III

Basic Geometrical constructions, Curves used in engineering practices Conics – Construction of ellipse, parabola and hyperbola by eccentricity method – Construction of cycloid – construction of involutes of square and circle – Drawing of tangents and normal to the above curves in Auto CAD.

Unit-IV

Projection of straight lines (only First angle projections) inclined to both the principal planes through Auto CAD. Projection of planes (polygonal and circular surfaces) inclined to both the principal planes by rotating object method.

Projection of simple solids like prisms, pyramids, cylinder, cone.

Unit-V

Orthographic projection- principles-Principal planes-First angle projection-Projection of Mechanical Components. Design and drafting of cotter joint assembly. Introduction to AutoCAD 3-D modelling.

Note: Drawings showings be made in Auto CAD for respective topics for practical Submissions.

Reference Book:

1. Engineering Graphics with Auto CAD by Agrawal & Agrawal

2. Auto CAD for Engineers and Designers, Sham Tickoo, Dream Tech Press

3. Machine Design by R.S. Khurmi, S Chand Publishares.

Course outcomes:
Draw various types of drawing ,Draw any 2D view of the object ,Draw 3D view of the object Be able to render all type of drawings ,Be able to draw detail drawing ,Be able to prepare various application drawings for Industrial applications ,Be able to prepare various worksheets Demonstrate basic concepts of the AutoCAD software, Apply basic concepts to develop construction (drawing) techniques, Ability to manipulate drawings through editing and plotting techniques ,Understand geometric construction, Produce template drawings, Produce 2D Orthographic Projections, Understand and demonstrate dimensioning concepts and techniques, Design Center, and Tool Palettes, Become familiar with Solid Modeling concepts and techniques

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