



**DR. A P J ABDUL KALAM UNIVERSITY,
INDORE**

SYLLABUS

For

**DIPLOMA COMPUTER SCIENCE ENGINEERING
(FIRST YEAR, 1st SEM)**

(Session July- December 2016)

**College of Polytechnic Engineering
Dr. A P J Abdul Kalam University, Indore**

DR. A P J ABDUL KALAM UNIVERSITY, INDORE

Syllabus for Diploma Computer Science Engineering

List of Subject (First Year, 1st Sem)

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Unit 1: Communication Process and Its Needs:

1.1 How to make communication effective, Barriers in communication, Removal of barriers
1.2 Grammar and vocabulary for correct English usage, Determiners, Prepositions, Auxiliary verbs and subject-verb agreement, Rewrite as directed (change voice, correct form of verbs/ tenses), Vocabulary – One word substitution, words often misused and wrongly spelt.

Unit 2: Passages of Comprehension:

2.1 Prescribed passages (six from existing syllabus)

- i Language of Science
- ii Desalination or Desalting Process
- iii Safety Practices
- iv Non-conventional Sources of Energy
- v Our Environment
- vi Entrepreneurship

2.2 Writing summary, moral and characterization of any one story from the book prescribed.

Unit 3: BUSINESS COMMUNICATION (One Question with Internal Choice):

- 3.1 Principles of effective business correspondence Its parts, mechanics, styles and forms.
- 3.2 Application for job, Bio-Data and C.V.
- 3.3 Letter of Enquiry
- 3.4 Placing order
- 3.5 Complaint

Unit 4: Composition & Translation:

4.1 Writing paragraphs of 150 words on topics of general interest i.e. pollution, ragging in college, importance of computers, importance of communication skill, importance of science and technology etc.

4.2 Translation (Hindi to English and vice-versa).

Unit 5: Unseen Passages & Precis Writing:

- i Answer the questions based on the passage.
 - ii Give suitable title
- OR
- iii Writing Precis

References

1. English Conversation Practice - Grant Taylor
2. Practical English Grammar - Thomson & Martinet
3. Communication Skills for Technical Students Book – I, Book – II - M/S Somaiya Publication, Bombay
4. Living English Structure- S. Allen
5. English Grammar, Usage, and Composition - Tickoo & Subramanian, S. Chand & Co. Standard Allen Longman.
6. Essentials of Business Communication - Dr. Rajendra Pal & J.S. Korlahalli S.Chand & Sons, New Delhi.
7. Effective Business Communication - M.V. Rodriques, Concept Pub. Co., New Delhi.
8. Communication for Business - Shirely Taylor, Longman, England.
9. Communication for Engineers and Professors - P. Prasad, S.K.Kataria and sons publications, New Delhi
10. Technical English Book-II, - Somaya Publications, New Delhi

Unit 1: Units & Measurement:

Fundamental and derived units Scalar and vector, Basic requirements to represent vector Symbols, abbreviation, and Proclamation Linear measurement by vernier calipers, screw gauge and spherometer Angular measurement by angular vernier.

Unit 2: Motion:

Motion and its type Linear motion Circular motion Angular velocity and relation with linear velocity Centripetal acceleration, Centripetal and Centrifugal forces Rotatory motion, Axis of rotation, Moment of Inertia, Radius of gyration Kinetic energy of rotation Numerical problems and solution on the topic.

Unit 3: Properties of Matter:

Elasticity: Meaning, definition, stress, strain, Hook's law and elastic limit Surface Tension : Meaning, definition, molecular forces, cohesive and adhesive forces, surface energy, capillary rise and capillary rise method. Viscosity : Meaning, definition, stream line and turbulent flow, critical velocity, Stock's law. Numerical problems and solution on the topic.

Unit 4: Heat:

Heat and temperature, concept of heat as molecular motion Transmission of heat, study state and variable state. Concept of heat capacity, specific heat and latent heat. Calorimeter and its uses. Thermodynamics Relation between heat and work Mechanical equivalent of heat First law of thermodynamics and its application Second law of thermodynamics and its application Carnot cycle. Numerical problems and solution on the topic.

Unit 5: Heating Effect of Current And Thermoelectricity:

Heating effect of electric current: Joule's law, work energy and power in electric circuit, calculation of electric energy. Thermo electricity Seebeck effect and thermoelectric power. Neutral temperature, temperature of inversion and relation between them Thermo electric thermometer and thermo couples. Numerical problems and solution on the topic.

Unit 6: Optics and Optical Instruments:

Refraction, critical angle and total internal reflection, refraction through lenses and problems, Power of lenses Spherical and chromatic aberrations Simple and compound microscope, telescope and derivation for their magnifying power Numerical problems and solution on the topic.

Unit 7: Electrostatics and Electromagnetic Induction:

Coulomb's law, Electric field intensity, potential. Capacity, principle of capacitor, types of

capacitor, combination of capacitors Electromagnetic Induction: Faraday's law, Lenz's law
Self and mutual inductance Transformer and electric motor, Induction coil.

Unit 8: Basic Electronics:

Semiconductors, Types of semiconductors Explanation of conductor, semiconductor and
Insulators on the basis of band theory. P-N junction diode as rectifier.

References

1. Applied Physics Vol. 1 & 2 - Saxena and Prabhakar
2. Physics - TTTI Publication
3. Physics Vol. 1 & 2 - Halliday and Resnic R
4. Engineering Physics - Gaur and Gupta
5. Principle Of Physics - Brij Lal & Subramanyan
6. Physics for Technical Education - Ls Zednov

List of Experiments

1. Refractive index of prism (I-d) Curve
2. Refractive index of prism (spectrometer)
3. Focal length of a convex lens by u
4. Focal length of a convex lens by displacement method
5. Verification of Ohm's law
6. To find out unknown resistance by meter brid
7. To find out internal radius of hollow tube by vernier calipers.
8. To find out volume of given cylinder by screw gauge.
9. Surface tension by Capillary rise method. Coefficient of viscosity
10. Coefficient of Thermal conductivity by searl's method.
11. Verification of Newton's cooling law.

Unit 1: Differential calculus:

Define constant, variable, function., Value of the function, Concept of limit of a function.

Definition and concept of differential, coefficient as a limit, Derivatives of sum, difference, product, quotient of two functions., Diff. coeff. of function of a function., differential coefficient of implicit function.

Unit 2: Integral Calculus

Definition as a inverse process of differentiation, Methods of Integration, Integration by parts, breaking up into partial fraction, Concept of Definite Integral.

Unit 3: Trigonometry & Matrix:

Partial Fractions, Define a proper, Break a fraction into partial, Allied angles. Trigonometrical ratios of sum and ,difference of angles, Sum and difference of trigometric ratios ,Multiple angles , Definition of Matrix., Types of Matrix, Row, Column, Square, Unit, Upper and lower triangular, Symmetric , Adjoint of a Matrix., Inverse of a Matrix.

Unit 4: Co-Ordinate Geometry:

Co-ordinate System : Cartesian and Polar., Distance, Division, Area of a triangle., Slope of St. Line, Angle between two , Standard and general equation of St.line,. Point of intersection of two st lines.

Unit 5: Statistics:

Measures of Central tendency (Mean, Mode, Median), Measures of Dispersion (Mean deviation, standard deviation)

Unit 6: Vector Algebra:

Concept of Vector and Scalar Quantities., Different types of vectors. Addition and subtraction of vectors, Components of a vector, Multiplication of two vectors, Scalar Product, Vector Product

Reference

1. Mathematics for Polytechnics Vol. I and II- Prepared by T.T.T.I. Bhopal
2. Differential Calculus- Gorakh Prasad
3. Integral Calculus-Gorakh Prasad
4. Co-ordinate Geometry -S.L. Loni
5. Engineering Mathematics- Dr. S.K. Chouksey
6. Mathematical Statistics- Ray and Sharma
7. Higher Engineering- B.S. Grewal

Unit 1: Computer Organization:

Block Diagram of computer system: Central Processing Unit, Memory Input & Output devices. Input Device Categorizing input hardware: Keyboard, Card Bar Code Readers, OCR, OMR, MICR, Pointing Device, Touch Devices, Web, Joystick, Digitizing tablet. Output Device: printers, Dot matrix, Printers, Plotters, Monitors: CRT, TFT, Plasma, LCD Projector, DLP Projector, Speaker.

Unit 2: Evolution and Generation of Computer Systems:

Computer System Characteristics and capabilities, Memory Capabilities, Repeatability. Types of Computers & its Applications, Analog, Digital & Hybrid, General & Special Purpose Computer, Application of computer system, Computer Generations & Classification of, Computer Systems
Minis, Mainframes & Super Computer Evolution of micro, Comparative study w.r.t. speed, data bus, controllers, memory, peripheral interface of PC to Pentium, computer systems. Decimal, Binary, Octal, Hexadecimal number

Unit 3: Number System, Codes & Data Representation:

systems. Inter-Conversion from decimal to binary, octal, hexadecimal, conversion of binary number System to decimal, hexadecimal. Codes used for information exchange between computers–ASCII, Unicode, Data representation- Bit, Nibble, Byte, KiloByte, MegaByte, GigaByte, TeraByte, PetaByte etc.

Unit 4: Storage Devices:

Storage Fundamentals, Primary & Secondary Storage, RAM, dynamic and static ROM, PROM, EPROM, EEPROM, Tape storage Devices, Characteristics & limitations, Floppy & their types. Direct access Storage– Hard Disk, Disk Cartridges, Mass Storage Device Optical Disk, CD Rom, DVD, flash drive, ZIP drive.

Unit 5: Computer Software's & Language:

System Software V/s Application Software, Types of System Software, Operating System, Loader, Linker, Language Processor, Assembler, Compiler and Interpreter, Device Driver. CLASSIFICATION AND CHARACTERISTICS OF LANGUAGES Machine language, Assembly language, High-level language, Generations of Computer Language, Application Software: working with MSOFFICE components, creating editing, formatting and printing documents using MSWORD, Data analysis and charting with MSEXCEL, Creating and presenting slide show using MS POWERPOINT

Unit 6: Concept of Operating system:

Introduction, Functions of operating system, Types –batch, single user, multiuser, multiprogramming, multitasking, multithreading, realtime , embedded, Network, Distributed CLI (Command Line Interface) and GUI modes of O.S. Booting Process, BIOS, POST, Boot Strap Loader.

Unit 7: System security:

Introduction to viruses, worms, Trojans, AntiViruses scanning & Removal of Viruses, safety measures- Firewall, updates, Patches

Unit 8: Internet Applications:

Introduction to internet, different services of internet- www, E-Mail, Chat (Textual/Voice), website

access and information search, Browsers And Search Engines.

References

1. Fundamentals of Computers- Balaguruswamy, Tata MacGrawhills.
2. Computer Today- S K Basandra, Galgotia Publications.
3. Digital Computer Fundamentals- Bartee, Thomas.C, Tata MacGrawhills.

LIST OF EXPERIMENTS

1. Study the uses of input and output device
2. study the uses of storage devices
3. Backup of data on tape, floppy & hard disk, CD, DVD and in PEN drive
4. use of windows media player, recording, editing playing sound and video
5. MICRO-SOFT DISK OPERATING SYSTEM (MS CONFIG.SYS, Autoexec.bat file.
6. MS-DOS COMMANDS
 - Internal Commands – dir, cd, md, rd, del, ren, date, time, vol & copy
 - External commands – Sys, attrib, format, edit, find, diskcopy, Xcopy, back up & restore
7. PRACTICE ON WINDOWS 2000/ XP/Vista
Starting Windows, Exploring the desktop, Arranging windows, My Computer, The start button, Creating Shortcuts, Practice on moving and sizing of windows, Practice on Windows Explorer, File organization: creating, copying, moving, renaming and deleting and use of recycle bin. O Practice on Windows Accessories – Notepad, WordPad and Paint, Character Map, Creating editing, formatting, previewing and printing documents using WordPad, Shutting down windows
8. PRACTICE ON MS-WORD
Creating editing, formatting, saving, previewing and printing documents, Auto Text, AutoComplete, AutoCorrect, grammar and spellchecker, Find and replace of text. O Insert, modify table, Mail merge, Macro, Hyperlink, Header, footer, Watermark.
9. Practice On Microsoft Excel
Creating editing, formatting, saving, previewing and printing worksheet, Use of formula and functions, Split windows and freeze pans ,Create, edit, modify, print worksheet/charts, Import & Export Data & worksheet, Pivot table- create, modify, Sorting & Filter data, Header, footer, Watermark.
10. Practice on PowerPoint
Create, edit, insert, move, slides, Open and save presentation, Insert Object, picture, Diagram, chart, Table, Movie & Sound, Hyperlink, Slide design, layout,

background, slide show, setup, action button, animation scheme, custom animation, slide transition and mater slide.

11. Practice on Internet

Connecting to internet, Web browsing, Searching websites, Email services, Creating mail accounts & sending and receiving e-mails with or without attachments.

DETAILED INSTRUCTIONS TO CONDUCT PROFESSIONAL ACTIVITIES:

A. Study hours, if possible should be given greater time slot with a minimum of two hrs/week to a maximum of four hrs/week.

B. This course should be evaluated on the basis of grades and mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in professional activities (PA).

C. Following grade scale of evaluation of performance in PA has been established.

Grades	Level of performance
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

D. Grades once obtained in a particular examination shall become final and no chance of improvement in grades will be given to the students.

E. Assessment of performance in PA is to be done internally by the Institution, twice in a Semester/Term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. Concerned. Group of teachers will jointly award the grade to candidate in the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective Semester/Term.

Candidate abstaining from the prescribed course work and/or assessment planned at the Institute shall be marked ABSENT in the mark sheet, instead of any grade.

F. While awarding the grades for performance in PA, examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (collection of relevant data, observations, analysis, findings/conclusion) and its written report, awareness of latest developments in the chosen programme of study.

G. Institution shall maintain the record of grades awarded to all the students in PA for a period of 1 year.

H. It shall be mandatory for students to submit a compendium for his PA in the form of a Journal.

I. Compendium shall contain following:

I. Record of written quiz.

II. Report/write up of seminar presented

III. Abstract of the guest lectures arranged in the Institution.

IV. Topic and outcome of the group discussion held.

V. Report on the problems solved through case studies.

VI. Report on social awareness camps(organized for social and environmental prevention).

VII. Report on student chapter activities of professional bodies like ISTE, IE (India), CSI etc.

J. PA is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to a number of teachers so that the talent and creativity of group of teacher's benefit the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, roll play and simulation to make the development of personality affective.

Treatment of PA demands special efforts, attention, close co-operation and creative instinct on the part of teachers of department concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of student, among themselves and with the teachers. The guide teacher/s shall best act as a facilitator of these creative hunts/ exercises, which unfold many of the hidden talents of the students or bring out greater amount of confidence in them, to execute certain activity.