

COURSE CURRICULUM

DIPLOMA

IN

**IT ENABLED SERVICES &
MANAGEMENT**

**RAJOKARI INSTITUTE OF
TECHNOLOGY**

INFORMATION TECHNOLOGY ENABLED SERVICES & MANAGEMENT

Diploma in ITES & M has been defined and designed to meet the growing need of KPO, BPO and other organizations providing IT Enabled Services. Course Contents have been designed to fill the vacuum between academics, Computers and IT Enabled Service Sector. Department builds professional competency in students by combining theory with exhaustive practical training. Communication Skills have been given due importance. Elective subjects like IT Laws and Patents, Cyber Crimes, Computer Graphics and Multimedia are being taught besides basic science and core subjects. Industrial Training has been made an integral part of the curriculum. Department maintains well equipped and modern labs like Data Base Management Systems, Computer Networking, Multimedia, Software Lab, Web Site Designing Lab, Hardware Lab, Communication Lab for languages like English. After successful completion of the programme, the students can secure jobs at various levels like Programmer, Web Designer, Network Administrator, System Administrator and Database Administrator in KPOs, BPOs and other industries providing IT Enabled Services.

IT ENABLED SERVICES & MANAGEMENT
Study and Evaluation scheme of semester- 1

S.N.	Subjects	Study scheme Hrs/Week			Marks in Evaluation scheme						Total Marks
					Internal Assessment		External Assessment				
		L	T	P	Th	Pr	Th	Hrs	Pr	Hrs	
* 1	Communication Skills	3	2	-	50	-	100	3	-	-	150
* 2	Applied Maths-1	4	1	-	50	--	100	3	--	--	150
* 3	Engineering Drawing	-	-	6	--	50	100	3	--	--	150
* 4	Introduction to information Technology	2	-	6	50	50	--	--	100	3	200
* 5	Workshop Practice	-	-	6	--	50	--	--	50	3	100
•	Student Centred Activities	-	-	5	--	--	--	--	--	--	--
	Total	9	3	23	150	150	300		250		750

- Student Centered Activities will include Extension Lectures, Field visits, Seminars, Library Studies. Hobby clubs and other Co-curricular activities.

* Common with Computer Engg.

IT ENABLED SERVICES & MANAGEMENT
Study and Evaluation scheme of semester- II nd

S.N.	Subjects	Study scheme Hrs/Week			Marks in Evaluation scheme						Total Marks
					Internal Assessment		External Assessment				
		L	T	P	Th	Pr	Th	Hrs	Pr	Hrs	
* 1	Applied Maths-II	4	1	--	50	--	100	3	--	--	150
* 2	Applied Physics	4	2	3	50	50	100	3	50	3	250
* 3	Basic Electronics	3	1	3	50	50	100	3	50	3	250
* 4	Electrical Engg.	3	1	3	50	50	100	3	50	3	250
* 5	Programming in C	3	1	3	50	50	100	3	50	3	250
	Student Centred Activities	--	--	5	--	--	--	--	--	--	--
	Total	17	6	17	250	200	500		250		1150

- Student Centered Activities will include Extension Lectures, Field visits, Seminars, Library Studies. Hobby clubs and other Co-curricular Activities.

* Common with Computer Engg.

IT ENABLED SERVICES & MANAGEMENT
Study and Evaluation scheme of semester- IIIrd

S. N.	Subjects	Study scheme Hrs/Week			Marks in Evaluation scheme						Total Marks
					Internal Assessment		External Assessment				
		L	T	P	Th	Pr	Th	Hrs	Pr	Hrs	
* 1	Operating System	3	1	3	50	50	100	3	50	3	250
* 2	Database Management Systems	3	1	3	50	50	100	3	50	3	250
3	Front End Techniques	-	-	3	-	50	-	-	100	3	150
4	Digital Electronics & Microprocessor	3	1	3	50	50	100	3	50	3	250
5	Networking Fundamentals	3	1	4	50	50	100	3	50	3	250
* 6	Object Oriented Programming	3	1	4	50	50	100	3	50	3	250
	SCA	-	-	2							
	Total	15	5	22							1400

- Student Centered Activities will include Extension Lectures, Field visits, Seminars, Library Studies. Hobby clubs and other Co-curricular Activities.

* Common with Computer Engg.

IT ENABLED SERVICES & MANAGEMENT
Study and Evaluation scheme of semester- IV

S.N.	Subjects	Study scheme Hrs/Week			Marks in Evaluation scheme						Total Marks
					Internal Assessmen †		External Assessment				
		L	T	P	Th	Pr	Th	Hrs	Pr	Hrs	
* 1	Programming in JAVA	3	1	3	50	-	100	3	-	-	150
2	Web Designing	3	1	6	50	50	100	3	100	3	300
3	Network Technologies & Management	3	1	6	50	50	100	3	100	3	300
* 4	Entrepreneurship Development & Management	3	1	-	50	-	100	3	-	-	150
5	Language Lab (English/French)	2	-	6	50	50	-	-	100	3	200
	SCA	--	--	2	--	--	--	--	--	--	--
	Total	14	4	23							1100

- Student Centered Activities will include Extension Lectures, Field visits, Seminars, Library Studies. Hobby clubs and other Co-curricular Activities.

* Common with Computer Engg.

IT ENABLED SERVICES & MANAGEMENT
Study and Evaluation scheme of semester- V

S.N.	Subjects	Study scheme Hrs/Week			Marks in Evaluation scheme						Total Marks
					Internal Assessment		External Assessment				
		L	T	P	Th	Pr	Th	Hrs	Pr	Hrs	
1	Elective – I										
	a. Customer Relation Management	4	1	--	50	--	100	3	--	--	150
	b. Telecom Services Management										
2	Personality Developments & Behavioral Science	4	1	--	50	--	100	3	--	--	150
3	Cyber Security & Cyber Laws	3	--	--	50	--	100	3	--	--	150
4	E- Commerce & M-Commerce	3	--	--	50	--	100	3	--	--	150
* 5	Elective – II										
	a. Advanced Computer System Architecture	3	1	4	50	50	100	3	50	--	250
	b. Computer Graphics										
6	Communication Lab (English & French)	--	--	6	--	50	--	--	100	--	150
7	Minor Project	--	--	6	--	100	--	--	100	--	200
	SCA			5	--	--	--	--	--	--	--
	Total	17	3	21	250	200	500		250		1200

- Student Centered Activities will include Extension Lectures, Field visits, Seminars, Library Studies. Hobby clubs and other Co-curricular Activities.

* Common with Computer Engg.

IT ENABLED SERVICES & MANAGEMENT
Study and Evaluation scheme of semester- VI

S. N.	Subjects	Study scheme Hrs/Week			Marks in Evaluation scheme						Total Marks
					Internal Assessment		External Assessment				
		L	T	P	Th	Pr	Th	Hrs	Pr	Hrs	
1.	Industrial Project	--	--	--	--	300	--	--	700	--	1000
	SCA	--	--	--	--	--	--	--	--	--	--
	Total	--	--	--	--	--	--	--	--	--	1000

- Student Centered Activities will include Extension Lectures, Field visits, Seminars, Library Studies. Hobby clubs and other Co-curricular Activities.

S. No.	Subject	Page No.(s)
Study and Evaluation scheme of semester- 1 to 6		1-6
SEMESTER - 1		
1.1	Communication Skills	7
1.2	Applied Maths-1	9
1.3	Engineering Drawing	11
1.4	Introduction to information Technology	12
1.5	Workshop Practice	15
SEMESTER – 2		
2.1	Applied Maths-II	18
2.2	Applied Physics	20
2.3	Basic Electronics	23
2.4	Electrical Engg.	26
2.5	Programming in C	28
SEMESTER – 3		
3.1	Operating System	30
3.2	Database Management Systems	31
3.3	Front End Techniques	33
3.4	Digital Electronics & Microprocessor	35
3.5	Networking Fundamentals	36
3.6	Object Oriented Programming	38
SEMESTER – 4		
4.1	Programming in JAVA	40
4.2	Web Designing	42
4.3	Network Technologies & Management	45
4.4	Entrepreneurship Management	46
4.5	Language Lab (English/French)	48
SEMESTER – 5		
5.1	Elective – I	
	<ul style="list-style-type: none"> a. Customer Relation Management b. Telecom Services Management 	<ul style="list-style-type: none"> 49 50

5.2	Personality Developments & Behavioral Science	52
5.3	Cyber Security & Cyber Laws	53
5.4	E. Commerce & M Commerce	55
5.5	Elective – II	
	a. Advanced Computer System Architecture	56
	b. Computer Graphics	58
5.6	Communication Lab (English & French)	60
SEMESTER - 6		
6.1	Industrial Project	

Syllabus for First Semester

COMMUNICATION SKILLS

L	T	P
3	2	-

Rationale

Diploma holders are supposed to communicate effectively through verbal and written modes. They are also expected to acquire skills in preparing different kinds of reports as globalization has made reporting an essential part of communication (interaction). In view of the above requirements, this subject has been added to develop necessary competencies in written and oral communication. Efforts should be made to arrange practice sessions to encourage active participation in mutual interaction.

Detailed contents

1. **Introduction:** Definition of communication, its purpose and importance.
2. **Methods of Communication:** Oral, written and non-verbal (presentation, interview, group discussion, Telephonic communication).
Concept of effective communication and its essentials.
Barriers to communication, techniques of overcoming these barriers.
3. **Written communication:** Drafting of notices with or without agenda, press releases, advertisements, memoranda circulars forces, electronics- mail, complaints, representations, and letters to the editor.
4. **Business Correspondence:**
Trade Inquiries/Request for Prices and Quotations,
Offers and Quotations,
Placing orders and their Executions,
Claims, Complaints and Adjustments,
Business Circulars like launching a new product, Change of premises, Relating to opening new business etc.
5. **Letter Writing:** Application for employment, covering letter forwarding an application, Preparation of Curriculum Vitae/Resume, Application on prescribed form, preparing job related advertisement.
6. **Precis writing :** Making précis of an unseen passage of about 200 to 250 words and giving suitable title also.
7. **Report writing :** Different types of reports, Essential of a good and effective report, drafting press report/ release/ reporting in letter style and in memo style.

Guidelines for Tutorials:

1. Telephonic conversation – Making and Receiving Calls,
2. Mock exercises on interview for a job,
3. Group discussions on current issues,
4. Listening comprehension from Radio or TV talk in English,

5. Extempore speech/ Declaration contest,
6. Presentation of a report with the help of Audio-Visual aids.

REFERENCE BOOKS:

1. Essentials of Business Communication by Rajendra Pal & J S Korlahalli (Sultan Chand & Sons)
2. Business Communication- K.K. Sinha (Galgotia Publishing House)
3. Communication Techniques/Skills- R.K. Chadha(Dhanpat Rai Publications)
4. Applied Indian communication Techniques- P Prasad (S.K. Katani & Sons)
5. A guide to Business Correspondence- A.N. Kapoor (S. Chand & Company Ltd.)

APPLIED MATHS-I

L	T	P
4	1	-

Rationale

Applied mathematics forms the backbone of engineering discipline. Basic elements of permutations and combinations, trigonometry, vectors, complex numbers and statics have been included in the curriculum as foundation course and to provide base for continuing educations to students.

Detailed Contents

1. Determinants & Matrices:

- i) Determinant (up to 3rd order only)- Expansion of Determinant
- ii) Sarus" diagram,
- iii) Row and Column expansion.
- iv) Properties of determinant
- v) Matrices- Types of matrices,
- vi) Addition, Subtraction & Multiplication of matrices,
- vii) Properties of addition, multiplication and scalar multiplication of matrices
- viii) Inverse of a matrix by adjoint matrix method
- ix) Solution of linear equations by matrix method.

2. Vector Algebra:

- i) Definition, notation and rectangular resolution of a vector,
- ii) Addition and subtraction of vectors and their properties,
- iii) Scalar and vector products of two vectors only and their properties.

3. Coordinate Geometry:

- i) **Point:** Cartesian and polar co-ordinates and their conversion, distance between two points, internal and external division formulae. Co-ordinates of Centroid and incentre, Area of triangle, conditions of collinearity of points, simple problems on locus.
- ii) **Straight line :** Equation of a straight line in various standard forms, angle between straight lines, perpendicular distance formula.
- iii) **Circle:** The equation of circle in standard and general form, finding the equation of circle when its centre and radius are given any three points.
- iv) **Conics:** Definitions of conics-parabola, ellipse and hyperbola and their standard equations. Finding the equation of a parabola when its focus and directrix or focus and vertex are given. Finding the equation of an ellipse or hyperbola when focus, directrix and eccentricity are given the standard equation of conic to find its focus, directrix, vertex, axis. Eccentricity and lthe length of latus rectum.

4. Differential Calculus:

- i) Limits: Concept of da function, its value and limit, Evaluation of limits, four standard limits only, namely

$$\lim \frac{\sin x}{x}, \quad \lim (1+x)^{1/x}$$

$$x \rightarrow 0$$

$$\lim_{x \rightarrow a}$$

$$x$$

$$\frac{x^n - a^n}{x - a},$$

$$x \rightarrow 0$$

$$\lim_{x \rightarrow 0} \frac{a^x - 1}{x},$$

5. Differentiation:

- i) Definition, its physical meaning as rate measure and its geometrical meaning.
- ii) Differentiation from first principles of $x^n, a^x, \log^x \sin x, \cos x, \tan x$ only.
- iii) Differentiation of $\cot x, \sec x$ and of inverse t-ratios.
- iv) Differentiation of sum, product and quotient of functions.
- v) Differentiation of function of a function.
- vi) Differentiation of implicit functions and parametric equations. Logarithmic differentiation.

REFERENCE BOOKS:

1. Applied mathematics for polytechnics (8th Ed.) – H.K.Dass
2. Differential Calculus-Shanti Narayan
3. Determinants-Schaum Series
4. Matrices-Schaum Series
5. Simple course in coordinate Geometry-H.K. Dass, H. C. Saxena, M.D. Raisinghoria

ENGINEERING DRAWING

L T P
- - 6

RATIONALE

Engineering Drawing known as the language of engineers is a widely used means of communication among the designers, engineers, technicians, draftsmen and craftsmen in the industry. The transition of ideas into practice without the use of this graphic language is really beyond imagination. The diploma holder is required to read and interpret the designs and drawings, provided to him for actual execution of the job. This course aims at building a foundation for comprehension of this language of engineering profession.

DETAILED CONTENTS

Introduction to instruments & materials used in drawing.

- Plate No. 1 :** Free hand sketching
- Plate No. 2 :** Conventional representation of lines, materials, breaks, electric and electronics symbols.
- Plate No. 3 :** Free hand lettering and numerals in 3, 5, 8 & 132 n series. Vertical & inclined lettering at 75° , instrumental single stroke lettering in 12 mm.
- Plate No. 4 :** Dimension techniques
- Plate No. 5 :** Three views of an object in 1st angle projection
- Plate No. 6 :** Six views of an object in 1st angle projection.
- Plate No. 7 :** Three views of an object in third angle projection
- Plate No. 8 :** Six views of an object in third angle projection
- Plate No. 9 :** Identification of surfaces from different objects including inclined & curved surfaces.
- Plate No. 10 :** Sections – conventional representation of materials, general conventions of revolved & removed sections.
- Plate No. 11 :** Representation of pictorial/isometric view of a simple object
- Plate No. 12 :** Isometric views of simple objects including slant 7 curved surfaces
- Plate No. 13 :** isometric of a circle, semicircle, arcs & angles
- Plate No. 14 :** Missing views & lines
- Plate No. 15 :** Scales, diagonal scale, scale of chords.

Reference Books:

1. A text book of EWengineering Drawing- Surjit Singh

INTRODUCTION TO INFORMATION TECHNOLOGY

L	T	P
2	-	6

Rationale

Information technology has great influence on all aspects of life. Almost all work places and living environment are being computerized. In order to prepare diploma holders to work in these environments, it is essential that they are exposed to various aspects of information technology such as understanding the concepts of information technology and its scope; operating a computer: use of various tools of MS Office using internet etc.

Detailed contents

1. **Information Technology** : Its concepts and scope, information seeking, information processing and information transmission.
2. **Elements of Computers and Its working** : Block diagram of Computer, input, output and storage devices, memory – primary and secondary, system software, application software.
Types of Computers - Stand alone, multi-user, network/distributed, personal, micro computers, workstations, servers, mainframes and supercomputers.
3. **Document preparation using word processing software** : Purpose and characterization of documents, spell checking, mail merge, paragraph and page layout, alignment and justification, tables, charts, graphs, diagrams.
4. **Document presentation using Power Point** : Preparation of slides and its presentation, hyperlinks.
5. **Concept of Spreadsheet** : handling using spreadsheets formulae, graphs and charts.
6. **Information storage and Material** : Creating, editing and viewing database, adding, deleting and undeleting records, searching a database, ordering the database on a selected key.
7. **Basic of networking & Internet** : Concept of networking, Overview of internet browsers, E-mail, WWW, HTTP, FTP, ..
8. **Virus** : Learning various types of virus such as Polymorph virus, Stealth Virus Detection, Prevention and cure.

LIST OF PRACTICALS

1. Given a PC, name its various components and list their functions.
2. Identification of various parts of computer and peripherals.
3. Practice in installing a computer system by giving connection and loading the system software and application software.
4. Features of Windows 2000/Windows XP.
 - start

- shutdown and restor
- creating and operating on the icons
- opening, closing and sizing the windows
- using elementary jobn commands like- creating, saving, modifying, renaming, finding and deleting a file
- creating and operating on a folder
- changing setting like- date, tiem, color (background and foreground)
- using shortcuts
- using online help
- Windows system Tools
- Control Panel.

5. MS-WORD

- File Management:
Opening, creating and saving a document, locating files, copying contents in some different file(s)
- Page Setup:
Setting margins, tab setting, ruler, indenting
- Editing A Documet:
Entering text, cut, copy, and paste using troolbars.
- Formatting A Document:
Using different fonts, changing font size and color, changing the appearance through bold/italic/underlined, highlighting a text, changing case, using subscript and superscript, using different underline methods.
- Aligning of text in a document justification of document, inserting bullets and numbering.
- Formatting paragraph, inserting page breaks and column breaks.
- Use of headers, footers: inserting foot note, endnote, use of comments
- Inserting date, time, special symbols, importing, graphic images, drawing tools
- Tables and border:
Creating a table, formatting cells, use of different border styles, shading in tables, merging of cells, partition of cells, inserting and deleting a row in a table.
- Print preview, zoom, page setup, printing options
- Using find, replace options
- Using tools like:
Spellchecker, help, use of macros, mail-merge, thesaurus word content and statistics, printing envelops and labels
- Using shapes and drawing toolbar
- Working with more than one window in MS-WORD
- How to change the version of the document from one window OS to another
- Conversion between different text editors, software and MS-WORD

6. MS-EXCEL

- Starting excel, open worksheet, enter, edit, data, formulas to calculate values, format data, create chart, printing chart, save worksheet, switching from another spread sheet

- **Menu Commands:**
Create, format charts, organize, manage data, solving problem by analyzing data, exchange with another applications. Programming with MS-excel, getting information while working
- **Work books:**
Managing work books (create, open, close, save), working in work books, selecting the cells, choosing commands, data entry techniques, formula creation and links, controlling calculations, working with array.
- **Editing a worksheet, copying, moving cells, pasting, inserting, deletion cells, rows columns, find and replace text, numbers of cells, formatting worksheet.**
- **Creating a chart:**
Working with chart types, changing data in chart, formatting a chart, use chart to analyze data.
- **Using a list to organize data, sorting and filtering data in list**

7. MS-ACCESS:

- **Creating a database; table; the table window in designed view, defining fields, primary key fields, planning the table**
- **Using datasheet view and designed view, modifying the design of a table, making a backup copy.**
- **Adding and editor:**
The access editor, adding and modifying records, moving data among records, adding sample data
- **Finding records:**
Finding options, finds using wild card, find and replace
- **Quick sort:**
Creating a quick sort, removing a quick sort

8. MS-Power Point

- **Preparing presentation:**
Creating a new slide, sorting slides, inserting pictures, setting header and footer
- **Formatting:**
Setting fonts, alignments, slide design, slide layout
- **Slide show:**
View show, Rehearse timing, action buttons, slide transition, animations skills

9. Internet and its applications

Log-in to Internet

Navigation for information seeking on Internet

Browsing and downloading of information from Internet

Sending and receiving e-mail

- **Creating a message**
- **Creating an address book**
- **Attaching a file with e-mail message**
- **Receiving a message**
- **Deleting a message**

Configuring MS-Outlook Express

Reference books

1. Fundamental of computer- V. Rajaraman
2. Computers today-SK Basanda
3. MS-Office 2000 for every one-Sanjay Saxena
4. Internet for every one- Alexis Leon and Mathews
5. Computer Fundamentals-P.K. Sinha
6. Fundamental of information Technoloty-Leon and Leon

WORKSHOP PRACTICE

L	T	P
-	-	6

RATIONALE

Manual abilities to handle engineering materials with hand tools to be developed in the students. They will be using different types of tools/equipment in different shops for fabrication purposes. Besides developing the necessary skills, the students will appreciate the importance of quality and safety measures.

DETAILED CONTENTS

Following four shops are being proposed:

1. **Fitting shop**
2. **Sheet metal shop**
3. **Electric shop**
4. **Electronics shop**

1. **Fitting shop**

- Introduction to fitting shop, common materials used in fitting shop, description and demonstration of various types of work-holding devices and surface plate, V-block.
- Demonstration and use of simple operation of hack-sawing, demonstration of various types of blades and their uses.
- Demonstrate and use of all important fitting shop tools with the help of neat sketches (files, punch, hammer, scraper, taps and dies etc).
- Introduction of chipping, demonstration on chipping and its applications, Demonstration and function of chipping tools.
- Description, demonstration and practice and simple operation of hack saw, straight and angular cutting.
- Demonstrations, description and use of various types of blades-their uses and method of fitting the blade.
- Introduction and use of measuring tools used in fitting shop like: Try square, Steel rule, Measuring Tape, outside micrometer, Vernier Caliper and Vernier Height Gauge.
- Job: Cutting and filing practice on a square of 45 x 45 mm² from MS flat
- Job: Angular cutting practice of 45° (on the above job)
- Job: H-Fitting in Mild steel (ms) square

2. **Sheet metal shop**

Introduction to forging, forging tools, tongs, blowers/pressure blowers, hammers, chisels, punch, anvil, swag-block etc. Forging operations.

- Making sheet metal joints
- Making sheet metal tray or a funnel or a computer chassis
- Preparation of sheet metal jobs valving rolling, shearing, creasing, bending and cornering
- Prepare a lap riveting joint of sheet metal pieces

2. Electric Shop

- Demonstration of tools commonly used in Electric Shop
- Safety precaution, electric shock treatment
- Demonstration of Common Electric material like : wires, fuses, ceiling roses, battens, ciets and allied items.
- Demonstration of Voltmeter, Ammeter, Multimeter and Energy meter
 - Job: Wiring practice in batten wiring, plastic casing-capping and conduit
 - Job: Control of one lamp by one switch
 - Job: Control of one bell by one switch
 - Job: Assemble a Type light
 - Job: Dismantle study, find out fault, repair the fault, assemble and test domestic appliances like electric iron, electric mixer, ceiling and table fan, tube-light, water heater (geyser) and desert cooler.
 - Job: Laying out of complete wiring of a jprise (Single-phase and Three-phase)

5. Electronics Shop

- Identification, familiarization, demonstration and use of the following electronic instruments:
- Multi-meter digital
- Single beam simple CRO, function of every knob on the front panel
- Power supply, fixed voltage and variable voltage, single output as well as dual output.
- Identification, familiarization and uses of commonly used tools; active and passive components; color code and types of resistor and potentiometers.
- Cut, strip, join and insulate two lengths of wires/cables (repeat with different types of cables/wires)
- Demonstrate and practice the skill to remove components/wires by unsoldering
- Cut, blend, tin component, leads, inserts, Solder components e.g. resistor, capacitor, diodes, transistors on a PCB
- Wiring of a small circuit on a PCB/ tag strip involving laying, sleeving and use of identifier tags
- Demonstrate the joining (or connecting) methods/mounting and dismantling method, as well as uses of the items mentioned below:
- Various types of plugs, sockets, connectors suitable for general- purpose audio video use. Some of the such connectors e.g. 2 and 3 pin mains plug and sockets, Banana plugs, sockets and similar male and female connectors and terminal strips.
- Various types of switches such as: normal/miniature, toggle, selector, multi-way Master Mains Switch.
- Exposure to modem soldering and de-soldering processes (field visits)
- De- solder pump, remove and clean all the components and wires from a given equipment, a PCB or a tag strip.