RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**401**
NAME OF COURSE (SUBJECT)	:	**ELECTRICAL MACHINES-II**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6235**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

RATIONALE

Electrical machines constitute the largest number of devices which use electrical power. A technician comes across a large number of situations were electrical machines are used and installed. He must be well familiar with the various parts and normal operating conditions. This subject includes the parts, their materials, working principle and performance characteristics of electrical machines in common use.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**401**
NAME OF COURSE (SUBJECT)	:	**ELECTRICAL MACHINES-II**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6235**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

SCHEME OF STUDIES

S.No.	Topics	Theory Hrs.	Practical Hrs.	Total
1.	Three phase induction motor	30	08	38
2.	Synchronous generator	15	06	21
3.	Synchronous motor	15	08	23
4.	Single phase induction motor	12	04	16
5.	AC commentator motor	06	02	08
6.	Special purpose motors	12	02	14
		90	**30**	**120**

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

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COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

S.No.	COURSE CONTENT	
1.	Three phase Induction Motor - Production of rotating magnetic field, principle, construction and types of induction motors. Equivalent circuit, torque equation, torque-slip characteristics. Types of starters: DOL, Star-delta, Autotransformer type, rotor resistance type, contactor type starter. Speed control. No load and blocked rotor test, losses and efficiency. Braking and applications. Simple numerical.	
2.	Synchronous motor - Principle, construction, phasor diagram, effect of change in excitation, V curves, synchronous condenser, starting of motors, hunting and its prevention, coding of synchronous machines.	
3.	Synchronous generator - Principle, construction, salient and cylindrical rotors, speed-frequency relationship, EMF equation, distribution and pitch factor, equivalent circuit, synchronous impedance, regulation, O.C.C. and S.S.C., load characteristics, phasor diagram, parallel operation. Methods of synchronization, power-angle characteristics.	
4.	Single phase induction motors - Principle, double revolving field theory. Types of motors with their construction, characteristics and applications. Comparison of three phase with single phase induction motors	
5.	AC commutator motors - Introduction, series motor, compensated series motor, commutating poles, universal motor, repulsion motor.	
6.	Special purpose machines - Induction motor, stepper motor, PM motor.	

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LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

LIST OF PRACTICAL

S. No.	Practical
1	Study of three phase induction motor (parts).
2	Measurement of slip of three phase induction motor.
3	Study of three phase induction motor starters.
4	Study of synchronous machine (parts).
5	OCC and SCC of synchronous generator and determination of regulation.
6	To plot V curves of synchronous motor.
7	Study of different single phase induction motors (construction).
8	Study of AC commutator motors (construction).
9	Study of special purpose motors (construction).

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LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
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REFERENCES

Name of Book	Author	Publisher
Electrical Technology Vol. II	BL Thereja	Khanna publisher
Electrical Machines	Bhattacharya	T.T.T.I.
Electrical Machines	Nagrath & Kothari	PHI
Electrical Machines Vol. I & II	PS Bhimbra	Khanna publishers
fo|qr e'khusa	,e-ds-fM;ksfM;k	fgUnh xzaFk vdkneh
oS|qr e'khusa	,p-,l-jk;	nhid izdk'ku

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**402**
NAME OF COURSE (SUBJECT)	:	**GENERAL MECHANICAL ENGG.**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6236**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 04, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 60, PR. 30**

RATIONALE

As the knowledge of General Mechanical Engineering is essential for a technician of almost all branches of engineering. The course contents are designed to make student aware about properties of engineering materials, work developing and absorbing devices, boilers, power transmission systems etc. The fact that machine and mechanical devices are common to all plants and their installation operation and general maintenance are to be attended by diploma pass engineer.

Objectives :

1. To develop operational skill of technician to handle machine & Mechanical instruments in the plant.

2. To develop habit of energy saving and routing maintenance.

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SEMESTER	:	**Fourth**
SCHEME	:	**JUL.08**
NAME OF COURSE (SUBJECT)	:	**General Mechanical Engineering (E-402)**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6236**
COMMON WITH PROGRAMME	:	
LECTURE HRS. PER WEEK	:	**TH. 04, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 60, PR. 30**

S.NO.	DETAILED COURSE CONTENT	HRS.
01	Engineering Material	02+00
02	Mechanical Properties and Tests	03+06
03	Heat Treatment	03+00
04	Thermodynamics	05+08
05	I.C. Engine	04+06
06	Air Compressor	03+02
07	Fluid Mechanics	04+06
08	Hydro Dynamics	03+00
09	Power Transmission	05+04
	Total	**32+32**
01	**ENGINEERING MATERIALS :** 1.1 Introduction of Materials 1.2 Need and classification of engineering materials 1.3 Metals and alloys 1.3.1 Ferrous Metals (i) Cast Iron (ii) Wrought Iron (iii) Steel (iv) Alloy Steel 1.3.2 Non Ferrous Metals (i) Aluminum (ii) Copper (iii) Lead (iv) Tin (v) Copper tin-antimony alloy (vi) Bearing Metals (vii) Copper tin alloy (viii) Zinc (ix) Copper Zinc alloy	02+00

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02	**MECHANICAL PROPERTIES AND TESTS :** 2.1 Properties of Materials (i) Stiffness (ii) Strength (iii) Ductility (iv) Malleability (v) Elasticity (vi) Plasticity (vii) Toughness (viii) Brittleness (ix) Hardness and Harden ability (x) Fatigue 2.2 Material Test (i) Tensile Test (ii) Impact Test (Izod and charpy) (iii) Hardness Test (Brinell, Rockwell and Vickers)	03+06
03	**HEAT TREATMENT :** 3.1 Definition and objectives of Heat treatment 3.2 Effect of different factors in heat treatments 3.3 Heat treatment Process (i) Annealing (ii) Normalizing (iii) Hardening by Quenching (iv) Tempering (v) Case hardning (vi) Carburizing	03+00
04	**THERMODYNAMICS :** 4.1 Introduction 4.1.1 Work, Heat & Power 4.2 Various thermodynamics properties 4.3 Thermodynamic system 4.4 Thermodynamic (i) State of the System (ii) Process on the system 4.5 Statement of Ist and IInd law of thermodynamics 4.6 Law of Ideal gases. (i) Boyl's Law (ii) Charles Law (iii) Gas equation 4.7 Properties of steam (i) Enthelpy of Dry and wet steam (ii) Specific volume of dray and wet steam (iii) Internel Energy of Dry and Wet Steam	05+08

	4.8 Boilers 4.8.1 Classification of boilers (i) Fire tube (ii) Water tube 4.82 Sketch and description of (i) Simple vertical boiler (ii) Lankashire boiler (iii) Babcock and Wilcox boiler (iv) Locomotive boiler	
05.	**I.C. ENGINE :** 5.1 Define Heat Engine 5.2 Differentiate I.C. Engine and E.C. Engine 5.3 Classification of I.C. Engines. 5.4 Explain the working of two strokes and four stroke petrol engine with line diagram 5.5 Explain the working of two stroke and four stroke diesel engine with line diagram 5.6 (i) Indicated Horse Power (1HP) (ii) Brake Horse Power (B HP) (iii) Mechanical Efficiency	04+06
06.	**AIR COMPRESSOR :** 6.1 Introduction of Air Compressor and their classification 6.2 Working principle of reciprocating Air-compressor. 6.3 Industrial uses of Air-compressor 6.4 Multistage reciprocating compressor & their merit & Demerit 6.5 Rotary compressor	03+02
07.	**FLUID MECHANICS :** 7.1 Definition of various fluid properties 7.2 Fluid pressure and its measurement 7.3 Pascal's Law 7.4 Static Pressure (i) Intensity of pressure at a point in fluid at rest (ii) Pressure head (iii) Absolute and gauge pressure 7.5 Simple and differential U type mano meters. 7.6 Total and center of pressure on the plate surface immersed in water Horizontally and vertically.	04+06
08.	**HYDRODYNAMICS :** 8.1 Energies in fluid (i) Pressure energy (ii) Kinetic energy (iii) Potential energy (iv) Total energy	03+00

	8.2 Bernoullis theorem, its assumption and application 8.3 Pitot tube 8.4 Venturimeter 8.5 8.6 Orifice meter 8.7 Working principle of Hydraulic Pumps (i) Reciprocating pump (ii) Centrifugal pump 8.8 Working Principles of water turbine (i) Impulse turbine (ii) Reaction turbine	
09	**POWER TRANSMISSION :** 9.1 Methods of Power transmission 9.2 Belt drive (i) Open and cross belt drive (ii) Application and advantages of belt drive (iii) Velocity ratio of pulleys (iv) Compound belt drive (v) Effect of slip in the belt drive 9.3 Gear drive (i) Simple gear drive (ii) Compound gear drive (iii) Worm and wheel (iv) Bevel gear 9.4 Velocity ratio in gear drive 9.5 Merit and demerits of gear drive 9.6 Simple problems of gear drive	05+04

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SEMESTER	:	**Fourth**
SCHEME	:	**JUL.08**
NAME OF COURSE (SUBJECT)	:	**General Mechanical Engineering (E-402)**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6236**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 04, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 60, PR. 30**

S.NO.	LIST OF EXPERIMENTS	HRS.
01	Perform Tensile Test of standard mild steel and C.I. specimen	
02	Perform Hardness Test Brinell and Rockwell	
03	Impact Test Izod and Charpy on mile steel specimen	
04	Study of Boilers a. Fire tube b. Water tube c. Bab cock & Wilcox Boiler d. Boiler mountings e. Boiler accessories	
05	Study of steam engine	
06	I.C. Engines a. Study of I.C. Engine Two stoke and four stoke Petrol & Diesel Engine	
07	Air Compressor Study of Air Compressor, Single stage and multistage compressor their construction and their uses.	
08	Fluid Mechanics & Machines (i) Pressure measurement by manometer (ii) Determination of coefficients of discharge of the following	03+00

	devices - a. Venturi meter b. Rota meter c. Orifice Meter d. Pitot tube (iii) Study of Centrifugal & reciprocating pumps.	
09	Power Transmission : Study of simple gear & compound train in power transmission system	
	REFERENCE BOOKS : 1. General Mechanical Engineering by S.B. Mathur 2. Elements of Mechanical Engineering by Mathur, Mehta & Tiwari 3. Elements of Mechanical Engineering by Raw & Choudhary 4. Fluid Mechanics by R.S. Khurmi.	
	LIST OF EQUIPMENTS REQUIRED 1. Universal Testing Machine 2. Model of Boilers (a) Simple Vertical Boiler (b) Lanka Share Boiler (c) Babcodk & willcock boiler (d) Cut models of different mounting (e) Cut models of different accessories (f) Model of steam turbine (g) Model surface condenser 3. Model of I.C. Engine (a) Two stock engine (Petrol) (b) Four stock engine (Petrol) (c) Two stock engine (Diesel) (d) Four stock engine (Diesel) 4. Air Compressor 5. (a) Venturi meter cut model (b) Rota meter (c) Orifice Meter (d) Pitot tube (e) Manometer 6. Cut model/actual pumps (a) Reciprocating (b) Rotary	

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SEMESTER	:	**Fourth**
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MEMBERS OF CURRICULUM DEVELOPMENT OF GENERAL MECHANICAL ENGINEERING

1.	Dr. S.R. Madan	-	Principal, Govt. Polytechnic, Khargone
2.	Shri R.K. Paroha	-	I/C. H.O.D. Mech. Engg. Kala Niketan Polytechnic, Jabalpur
3.	Shri L.N. Shrivastava	-	Lecturer Shri Vaishnav Polytechnic, Indore
4.	Shri R.C. Dubey	-	Lecturer Shri Vaishnav Polytechnic, Indore

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**403**
NAME OF COURSE (SUBJECT)	:	**ELECTRICAL ENGG. DRAWING**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6237**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 04, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 60, PR. 30**

RATIONALE

Drawing is said to be the language of Engineers. This clearly indicates the importance of the subject. Basic drawing is already covered in other course.

Here the different topics are chosen on the basis of al the electrical engineering subject. Importance should be given for the line work, lettering and neatness of the figures.

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SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**403**
NAME OF COURSE (SUBJECT)	:	**ELECTRICAL ENGG. DRAWING**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6237**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 04, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 60, PR. 30**

SCHEME OF STUDIES

S.NO.	Topics	Theory hrs	Pract. hrs	Total
1.	Symbols and notations	5	2	7
2.	Domestic wiring	5	3	8
3.	Instrument circuits	8	4	12
4.	Winding Diagrams	8	4	12
5.	Electric machine drawing	7	3	10
6.	Power wiring	8	3	11
7.	Simple electronic circuits	6	3	9
8.	Alternator panel diagrams	7	4	11
9	Transmission and distribution	6	4	10
	Total	**60**	**30**	**90**

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SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**403**
NAME OF COURSE (SUBJECT)	:	**ELECTRICAL ENGG. DRAWING**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6237**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 04, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 60, PR. 30**

S.No.	**COURSE CONTENT**	
1.	Symbols and Notations - Symbols of practical units, multiples and submultiples, types of supplies, single phase, three phase three wire, three phase four wire, D.C. supply etc. Accessories like main switches, distribution boards, fans, light fixtures, bell , buzzer, lighting arrestor. All types of motor starters, instruments, electronic components etc. Rating plate of machines.	2
2.	Domestic Wiring - All types of light circuits: Fluorescent tube circuits, intermediate switch circuits, fan circuits. Wiring of a residential building. Sodium vapor lamp, mercury vapor lamp.	3
3.	Instrument Circuits - Connection of meters in circuits. Ammeter, voltmeter, wattmeter, energy meter, Power factor meter, frequency meter, synchroscope etc. Extension of range using shunt, multiplier, current transformer, potential transformers etc.	4
4.	Winding Diagrams - Simplex type lap and wave diagrams for D. C. Machines. Single phase and three phase motor winding diagrams.	4
5.	Electrical Machine Drawing - Parts of D.C. machines like, magnetic poles, commutator, armature etc. A.C. machines rotor, slip rings, etc. Various cable sections. Bushing of the transformer. Assembly diagrams of D.C. machine, A.C. machine, and transformer.	3
6.	Power Wiring - Internal wiring diagrams of single phase motor. wiring diagrams of D.C. and A.C. motor starters like three point shunt motor starter, four point compound motor starter, direct on line (D.O.L.) starter, star- delta starter, contactor type and auto transformer starter. Internal connections of D.C. series, shunt and compound motors. Three phase motors: squirrel cage, slip ring, synchronous etc. Plate earthing and Pipe earthing as per I.S.S.	3
7.	Simple Electronic Circuits -	3

	Battery eliminator, battery charger, single stage transistor amplifier, connections of common emitter , collect or and base amplifier circuits.	
8.	Alternator Panel Diagrams - Panel diagram with circuit breaker, isolator, measuring instruments, synchoscope. Over current and earth fault protection, differential protection, voltage regulator etc.	4
9.	Transmission And Distribution - All types of transmission towers and distribution poles. Arrangement of various types of cross arms, with insulators, jumpers. Electrical layout of 33KV/ 11KV substation, 11KV/415V pole mounted substations with all protective devices etc.	4

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LECTURE HRS. PER WEEK	:	**TH. 04, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 60, PR. 30**

REFERENCES

(1) A text book of Electrical Drawing .by S.L. Uppal (Khanna pub.)
(2) Electrical Drawing by K.L. Narang.
(3) Electrical Drawing by C.R. bargan .
(4) विद्युत अभियात्रिकी ड्राईंग एम. एस. कुरेशी, दीपक प्रकाशन

RAJIV GANDHI PROUDYOGIKI SHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**404**
NAME OF COURSE (SUBJECT)	:	**GENERATION, TRANSMISSION & DISTRIBUTION**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6238**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

RATIONALE

The basis of entire use of electricity is governed by its generation, transmission and distribution. Day by day the use of electricity is spreading tremendously. Hence the filed of generation, distribution and transmission has got great importance. Power station high voltage transmission lines and wide spread distribution system make this subject very useful so it is essential to make the students well familiar with this subject in order to enable them to perform their duties confidently and efficiently. To understand the subject better, frequent visits should be arranged in consultation with State Electricity Distribution/Transmission/Generation Companies and various departments and industries to see the machines, instruments, structures etc. on the sport in working conditions.

RAJIV GANDHI PROUDYOGIKI SHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**404**
NAME OF COURSE (SUBJECT)	:	**GENERATION, TRANSMISSION & DISTRIBUTION**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6238**
COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

SCHEME OF STUDIES

S.NO	Topic	Theory hours	Pract. Hours	Total
1.	Non conventional sources of energy	06	06	12
2.	Conventional sources of energy	12	04	16
3.	Economics	12	-	12
4.	Tariffs	06	-	06
5.	Overhead Transmission Line	18	06	24
6.	Transmission Line Calculation	15	04	19
7.	Underground cables	06	02	08
8.	Distribution	15	08	23
	Total	**90**	**30**	**120**

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LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

S.No.	**COURSE CONTENT**	
1.	**Non Conventional Sources Of Energy -** Concept and need of primacy and secondary energy sources, difference between conventional and non-conventional sources of energy, concept of solar , wind, biogas, ocean, tidal, geothermal, fuel cell , MHD and their practical applications.	
2.	**Conventional Sources Of Energy -** Detailed study of generating stations - thermal, hydro, nuclear, schematic diagram, site selection main components and auxiliaries for above power stations. Study of gas turbines plant and diesel power plant. Advantages, disadvantages of thermal hydro, nuclear, gas turbine plant and diesel power plant.	
3.	**Concept Of Load -** Types of load, load curve, load duration curve, connected load, demand factor, average load, maximum demand, load factor, diversity factor, plant utilization factor, capacity factor, reserve capacity. Simple numerical on above terms.	
4.	Types of Tariff, flat rate, block rate, two part, maximum demand and power factor tariff. Their merits and demerits. Simple problems on above terms.	
5.	Concept of Transmission, single line diagram of complete power system, standard voltages of A.C. Transmission, efficiency (no derivation). H.V.D.C. transmission system, line diagram, advantages and Disadvantages of H.V.D.C. Sag, causes & effects of sag on transmission line, effect of wind, ice and temperature on sag. Types of line supports, type of joints, looms, earth wires, ground wire and vibration dampers. Importance of R,L,C in transmission line (no derivation), skin effect, transposition, corona, advantages and disadvantages of corona, methods of reducing corona, types of insulators, string efficiency and voltage distribution, grading ring and Arcing horn.	
6..	Types of Transmission line, T and Ø network of medium Transmission line, transmission efficiency, Ferranti effect, simple problems of short and medium Transmission line.	

7.	Difference between overhead line and underground cables. Classification and construction of L.T. and H. T. cables, Methods of laying.	
8.	Classification of distribution system, ring main, radial and interconnected system. Concept of feeder, distributor and service mains in distribution system. Simple problems.	

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OLD PAPER CODE	:	
NEW PAPER CODE	:	**6238**
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LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

LIST OF EXPERIMENTS

S. No.	Name of Experiment
1	Study of solar cooker.
2	Study of solar water heater.
3	Study of solar photo-voltaic cells.
4	Study of wind mill.
5	Study of Bio Gas plant.
6	Study of steam power plant, hydro power plant, nuclear power plant.
7	Study of line supports and insulators.
8	Determination of string efficiency of insulator string.
9	Performance of short/ medium transmissions line.
10	Study of L.T. and H.T. Cables and over head conductors.
11	Voltage distribution in radial and ring main system.
12	Visit to a • Substation. • Generating station. • Places where solar, wind, Biogas and tidal power plant are installed.

RAJIV GANDHI PROUDYOGIKI SHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
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COURSE CODE	:	**404**
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OLD PAPER CODE	:	
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COMMON WITH PROGRAMME (BRANCH)	:	
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 30**

REFERENCE BOOK

S. No.	Name of Book	
1	Non Conventional energy sources	By G.D. Rai, Khanna publisher
2	Electrical Power	By S.L.Uppal, Khanna publisher
3	Electrical Power	By J.B. Gupta
4	Power System	By V.K. Mehta
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RAJIV GANDHI PROUDYOGIKI SHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**411**
NAME OF COURSE (SUBJECT)	:	**ENTREPRENEURSHIP**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**6046**
COMMON WITH PROGRAMME (BRANCH)	:	**C/M/CTM/AUTO/RAC/PRT/TEXT/ETE.**
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 00**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 00**

RATIONALE

Since long entrepreneurship has been recognized as an essential ingredient of economic development . Concept of entrepreneurship has varied from time to time to suit the changing ethos of socio-economic reality. It was applied to business for the first time in 18^{th} century, to designate a dealer who buys and sells goods at uncertain prices. Later on an entrepreneur was considered a dynamic agent of change, or the catalyst who transformed increasingly physical, natural and human resources, into corresponding production possibilities. In recent years, managerial aspects of entrepreneurship are being emphasized. It employs innovativeness, an urge to take risk in the face of uncertainties, and intuition, i.e. a capacity of seeing things in a way which afterwards proves to be true.

The course is kept in soft core under DCS, DME and DEE/ Videography/ Arch/CDDM/ Garment/ MOM/ Prod/ RAC/ MOM/CTM/ Auto/ Comp/ ETE/ IT/ Opto/ Print/ Texttile technology to bring to surface certain common characteristics such as perception of economic opportunity, technical and organizational skills, managerial competence, and motivation to achieve result.

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SCHEME OF STUDIES

Lectures: 06 Hrs. per Week

S.NO.	TOPICS	THEORY HRS.)	PRACT.(HRS.)	TOTAL
1.	INTRODUCTION TO ENTERPRENEURSHIP	10	-	10
2.	INDUSTRIES AND BUSINESS ORGANIZATIONA	12	-	12
3.	INSTITUTIONAL ASSISTANCE	12	-	12
4.	INCENTIVS/ CONCESSION/ FACILITIES AVAILABLE TO SSI ENTERPRENEUR	12	-	12
5.	PLANNING OF INDUSTRIAL UNIT	20	-	20
6.	ACHIVEMENT MOTIVATION	12	-	12
7.	FINANCIAL MANAGEMENT OF AN INDUSTRIAL UNIT (SSI)	12	-	12
	TOTAL	90	-	90

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COURSE CONTENT

Lectures: 06 Hrs. per Week

S. NO.	DETAILED COURSE CONTENT
	1. INTRODUCTION TO ENTERPRENEURSHIP • Definition of Entrepreneur / Entrepreneur • Difference between Entrepreneurship / Entrepreneurship • Need for Entrepreneurship • qualities of successful entrepreneur • Myths about Entrepreneurship • Classification of entrepreneurs on the basis of different criteria • Reasons for the failure of entrepreneurs 2. INDUSTRIES AND BUSINESS ORGANIZATIONS • Concept of Industry or Enterprise • Classification of Industries (a) On the basis of capital investment - Tiny (Micro) Industry - Small Scale - Medium Scale - Large Scale (b) Others - Rural Industry - Cottage Industry (c) Forms of Business Organization - Proprietorship - Board & Co-operative - Partnership - Public Ltd. - Private Ltd. - IT Sector - Government Co-operative / Undertakings (d) Tiny small scale Industry

- Definition
- Its significance in National Development.
- Govt. policies for SSI promotions
- Sector / Product for SSI.

3. INSTITUTIONAL ASSISTANCE
   (a) Types of Institutional assistance
   - Infra - structural assistance
   - Technical Assistance
   - FInancial assistance
   - Marketing Assistance

   (b) Information / guidance & Training
   - SISI - ASK
   - MPCON - CSIR
   - CED- MA - NRDC

   (c) Infrastructure
   - D/C - AVN/AKVN

   (e) Finance
   - SIDBI - KVIB MPFC
   - NABARD - MPWDC NSIC

   M.P.A.V.V.N.

   (d) Marketing
   - MP- AGRO
   - NSIC
   - PM.LUN
   - EXPORT COPPORATION
   - KVIP
   - MPHSVN

   MPLDC

   (e) Quality Control
   - BIS - FPO - MPLUN F.D.A.
   - AG. MKT. Board

4. INCENTIVES / CONCESSION / FACITLITIES AVAILABLE
   - Seed money
   - Incentive / subsidies
   - Others (Phones, Lands etc)

5. PLANNING OF AN INDUSTRIAL UNIT (SSI)
   - Pre- Planning Stage
     - Scanning the environment
     - Market survey
     - Seeking information
     - product / project selection
   - Implementation Stage
     - PPR Preparation
     - DIC registration
     - Arrangement of Land
     - Arrangement of Power
     - Obtaining NOC / Licenses from various departments
     - DPR Preparation
     - Seeking financial assistance
     - Commercial Production
   - Post Implementation stage
     - Permanent registration from D.I.C.

	- Availing Subsidies - Diversification / Modification - Setting up of marketing channel / Distribution. 6. ACHIVEMENT MOTIVATION • Historical perspective • Concept of achievement motivation • Significance of achievement motivation • Development of achievement motivation 7. FINANCIAL MANAGEMENT OF AN INDUSTRIAL UNIT (SSI) • Tools of financial analysis • Ratio analysis • Fund Flow / Cash flow analysis • Working capital and concepts • Financial accounting

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PROJECT WORK/ASSIGNMENT

1. To prepare chart to showing various factors affecting entrepreneurship.
2. To collect details related to various schemes run by the Govt. for Self-Employment and Entrepreneurship.
3. To identify and select a project and conduct Market-Survey thereof.
4. To collect various formats used in industries & departments/institutions working in the field of entrepreneurship.
5. Visit few small scale industries situated in city, nearby industrial area.
6. Discuss the problems related to SSI (Small Scale Industries) with an entrepreneur.
7. Collect information about market rates quality and quantity of goods for their choice.
8. Develop logical and analytical approach to purchase the raw material / finished goods
9. To prepare case study of successful entrepreneurs.
10. Preparation of Project report for the industry/ Business they are willing to start.

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REFERENCES

1.Entreprenerial Development Vol. I,II,III
By Vasant desai Himalaya Publicaton

2.CEDMAP (Center of Entrepreneurial development Madhya Pradesh)

3.Udyamita Vikas
By Anand Prakashan

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SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**412**
NAME OF COURSE (SUBJECT)	:	**MARKETINGMANAGEMENT**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**5181**
COMMON WITH PROGRAMME (BRANCH)	:	**C/M/CTM/AUTO/RAC/PRT/TEXT/ETE/MOM**
LECTURE HRS. PER WEEK	:	**TH. 06, PR. 00**
LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 00**

RATIONALE

In the Era of Globalization and Liberalization, this course of Marketing Management is of utmost important to the entrepreneur, industrialist and people working in the field of Marketing and related work.

This course specially designed to help the students in widening their knowledge and understanding of the current market trends and also helpful to start their career in their respective fields along with the knowledge of marketing.

To produce something is not very difficult but to make people come forward to buy it is very difficult task. This statement shows the importance and need of this course in the present scenario.

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LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 00**

SCHEME OF STUDIES

Lectures: 06 Hrs. per Week

Sr .no	DETAILED COURCE CONTENTS	HRS
1	MARKETING AND CONCEPT	08
2	MARKETING ENVIRONMENT	06
3	MARKETIN PLANNING AND ORGANISATION	08
4	MARKET SEGMENTATION	06
5	MARKETING MIX	06
A	PRODUCT MANAGEMENT	08
B	PLACE MANAGEMENT	08
C	PRICE MANAGEMENT	08
D	PROMOTION MANAGEMENT	08
6	UNDERSTANDING CONSUMERS	06
7	MARKETING RESEARCH AND SALES FORECASTING	10
8	SALES MANAGEMENT	08
	TOTAL	90

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LECTURE HRS. PER SEMESTER	:	**TH. 90, PR. 00**

SCHEME OF STUDIES

Lectures: 06 Hrs. per Week

S NO.	DETAILED COURSE CONTENT
1	**MARKETING & CONCEPT**
1.1	**Evolution of marketing-a historical background**
1.1.1	The stage of barter
1.1.2	The stage of money economy
1.1.3	The stage of industrial revolution
1.1.4	The stage of competition
1.1.5	The emergence of marketing
1.2	**Selected definitions of marketing**
1.3	**Different concept of marketing**
1.3.1	The exchange concept
1.3.2	The production concept
1.3.3	The product concept
1.3.4	The sales concept
1.3.5	The marketing concept
1.4	**Difference between selling & marketing**
1.5	**Benefits & significance of marketing**
1.5.1	Helps to remove causes for under development
1.5.2	Improve productivity & efficiency
1.5.3	Canalize countryôs economic resources properly
1.5.4	Insure better deal for consumer
1.5.5	Make economic planning meaningful & relevant etc.

2	**Marketing environment**
2.1	**Internal & external factors**
2.1.1	Demographic environment
2.1.2	Economic environment
2.1.3	Political environment
2.1.4	Physical environment
2.1.5	Technological environment
2.1.6	Competitive environment
2.1.7	Social & cultural environment
2.2	**Micro & macro environment**
3	**Marketing planning & organization**
3.1	**Scope & importance of planning**
3.2	**Steps in marketing planning process**
3.3	**Purpose & principle of organization**
3.4	**Models of marketing organization**
3.4.1	Line & staff type
3.4.2	Product based organization
3.4.3	Territory oriented organization
3.4.4	Complex organization
3.5	**Task of chief marketing executive**
3.6	**Decentralization**
4	**Market segmentation**
4.1	**Types of market**
4.2	**Definitions & benefits of segmentation**
4.3	**Method s of segmentation**
4.3.1	Geographic segmentation
4.3.2	Demographic segmentation
4.3.3	Psychographic segmentation
4.3.4	Buyer behavior Segmentation
4.3.5	Volume segmentation
4.4	**Steps in market segmentation**
4.5	**Market targeting**
5	**Market mix**
5.1	**Definition of market mix**
5.2	**Elements of marketing mix (4 P'S)-Product,Place,Price,Promotion**

5.3	**Environmental variable (uncontrollable variables)**
5.3.1	Customer variable
5.3.2	Competition variable
5.3.3	Trade variable
5.3.4	Environmental variable
5.4	**Product management**
5.4.1	Components of product • The core or basic constituent • The associated features • The brand names, package,label
5.4.2	Types of product • The generic product • The branded product • The differentiated product • The customized product • The augmented & potential product
5.4.3	The product line & product mix
5.5	**New product development (NPD)**
5.5.1	Significance & classification of new product
5.5.2	Stages in NPD
5.5.3	Estimating the demand for new product
5.5.4	Test marketing
5.6	**Product life cycle (PLC)**
5.6.1	Concepts & benefits of PLC
5.6.2	Different stages in PLC
5.6.3	Strategies used in different stages
5.7	**Place management**
5.7.1	Physical distribution • Definitions & importance of physical distribution • Designing the physical distribution system
5.7.2	The distribution channel • The role & importance of distribution channel • Planning & designing of distribution channel • Types of distribution intermediaries
5.8	**Price management**
5.8.1	The meaning & importance of pricing
5.8.2	Objectives of pricing
5.8.3	Factors affecting pricing ï Internal & external
5.8.4	Pricing methods • Cost based pricing • Break even pricing • Demand based pricing • Competition based pricing • Product line pricing • Tender pricing

	• Affordability pricing • Differentiated pricing
5.8.5	Pricing policies & setting the price
5.9	**Promotion management**
5.9.1	Sales promotion • Importance & objectives of sales promotion • Tools &techniques of sales promotion
5.9.2	Advertising • Role & importance of advertising • Types of advertising • Deciding on the advertising budget • Evaluating advertising effectiveness
5.9.3	Difference between sales promotion & advertising
6	**Understanding consumer**
6.1	**Factor influencing buyer behavior** • Information from variety of sources • Socio-cultural environment of buyer • Group influence • Religion & language • Concern about status
6.2	**Buying motives –Product & patronage motive**
6.3	**Buying habits – Convenience, shopping and spatiality goods**
7	**Marketing research & sales forecasting**
7.1	**Definition & importance of marketing research**
7.2	**Steps in marketing research** • Defining problem • Problem analysis • Developing research design • Developing research procedure • Data collection ï Primary & secondary • Analyzing & interpretation • Summarizing & preparing the research report
7.3	**Method of market research**
7.4	**Necessity & purpose of sales forecasting**
7.5	**Methods of sales forecasting**

8	**Sales management**
8.1	**Designing the sales force**
8.2	**Managing the sales force** • Recruitment & selection • Training, compensation, control • Supervision & direction • Motivation of salesman
8.3	**Fixing sales quota**
8.4	**Duties & responsibilities of sales manager**

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LIST OF REFERENCE BOOKS

1. Marketing management - Analysis, Planning & Control - Philip Kotler
2. Principles & practice of Marketing in India - C.B.Memoria & R.L.Joshi
3. Contemporary Marketing ï Louis & Bone & David L. Kurtz
4. Essential of Management ï Koontz
5. Marketing management- S.A. Sherlekar

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SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**406**
NAME OF COURSE (SUBJECT)	:	**PROFESSIONAL ACTIVITIES**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**--**
COMMON WITH PROGRAMME (BRANCH)	:	**--**
LECTURE HRS. PER WEEK	:	**TH. 00, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 00, PR. 30**

RATIONALE:

In todayôs competitive world, the nature of organizations is changing at very rapid speed. In this situation the responsibility of diploma holder is not unique. He will be a part of a team in the organization. As such the individual skills are not sufficient to work at his best.

This subject will develop the student as an effective member of the team. It will develop the abilities and skills to perform at highest degree of quality as an individual as well as a member of core group or team. Such skills will enhance his capabilities in the field of searching, assimilating information, managing the given task, handling people effectively, solving challenging problems.

This subject is classified under humanity science

OBJECTIVES:

THE STUDENTS WILL BE ABLE TO:

1. Developing working in teams
2. Apply problem solving skills for a given situation
3. Use effective presentation techniques
4. Apply techniques of effective time management
5. Apply task management techniques for given projects
6. Enhance leadership traits
7. Resolve conflict by appropriate method
8. Survive self in todayôs competitive world
9. Face interview without fear
10. Follow moral and ethics
11. Convince people to avoid frustration

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LECTURE HRS. PER SEMESTER	:	**TH. 00, PR. 30**

Lectures: 02 Hrs. per Week

S.NO	CONTENT	STUDY Hrs.
1	**SOCIAL SKILLS** SOCIETY, SOCIAL STRUCTURE, DEVELOP SYMPATHY AND EMPATHY	**01**
2	Swot Analysis ï Concept , How to make use of SWOT	**01**
3	Inter personal Relation Sources of conflict, Resolution of conflict , Ways to enhance interpersonal relations.	**02**
4	Problem Solving **I)STEPS IN PROBLEM SOLVING,** 1)IDENTIFY AND CLARIFY THE PROBLEM, 2)INFORMATION GATHERING RELATED TO PROBLEM, 3)EVALUATE THE EVIDENCE, 4)CONSIDER ALTERNATIVE SOLUTIONS AND THEIR IMPLICATIONS, 5)CHOOSE AND IMPLEMENT THE BEST ALTERNATIVE, 6)REVIEW **II)Problem solving technique**.(any one technique may be considered) 1) Trial and error, 2) Brain storming, 3) Lateral thinking	**02**
5	**Presentation Skills** Body language -- Dress like the audience Posture, Gestures, Eye contact and facial expression. PRESENTATION SKILL ï STAGE FRIGHT, Voice and language ï Volume, Pitch, Inflection, Speed, Pause Pronunciation, Articulation, Language, Practice of speech. Use of aids ï OHP,LCD projector, white board	**03**

Lectures: 02 Hrs. per Week

S.NO	CONTENT	STUDY Hrs.
6	**Industrial Visits** Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form a part of the term work. **TWO** industrial visits may be arranged in the following areas / industries : i) Manufacturing organizations for observing various manufacturing processes including heat treatment ii) Material testing laboratories in industries or reputed organizations iii) Auto workshop / Garage iv) Plastic material processing unit v) ST workshop / City transport workshop	**07**
7	**Lectures by Professional / Industrial Expert be organized from** ANY THREE **of the following areas :** i) Use of a plastics in automobiles. ii) Nonferrous Metals and alloys for engineering applications iii) Surface Treatment Processes like electroplating, powder coating etc. iv) Selection of electric motors. v) Computer aided drafting. vi) Industrial hygiene. vii) Composite Materials. viii) Heat treatment processes. ix) Ceramics x) Safety Engineering and Waste elimination	**07**

Lectures: 02 Hrs. per Week

S.NO	CONTENT	STUDY Hrs.
8	**Individual Assignments :** **Any two** from the list suggested a) Process sequence of any two machine components. b) Write material specifications for any two composite jobs. c) Collection of samples of different plastic material or cutting tools with properties , specifications and applications. d) Preparing models using development of surfaces. e) Assignments on bending moment , sheer forces , deflection of beams and torsion chapters of strength of material. f) Select different materials with specifications for at least 10 different machine components and list the important material properties desirable. g) Select 5 different carbon steels and alloy steels used in mechanical engineering applications and specify heat treatment processes employed for improving the properties. Also give brief description of the heat treatment processes. h) List the various properties and applications of following materials ï a. Ceramics b. fiber reinforcement plastics c. thermo plastic plastics d. thermo setting plastics e. rubbers. OR Conduct **ANY ONE** of the following activities through active participation of students and write report i) Rally for energy conservation / tree plantation. ii) Survey for local social problems such as mal nutrition, unemployment, cleanliness, illiteracy etc. iii) Conduct aptitude , general knowledge test , IQ test iv) Arrange **any one** training in the following areas : a) Yoga. B) Use of fire fighting equipment and First aid Maintenance of Domestic appliances.	**08**

Lectures: 02 Hrs. per Week

S.NO	CONTENT	STUDY Hrs.
9	**Group discussion and Interview technique** ï Introduction to group discussion, Ways to carry out group discussion, Parametersð Contact, body language, analytical and logical thinking, decision making The students should discuss in a group of six to eight students and write a brief report on the same as a part of term work. Two topics for group discussions may be selected by the faculty members. Some of the suggested topics are - i) Sports ii) Current news items iii) Discipline and House Keeping iv) Current topics related to ELECTRICALengineering field. **INTERVIEW TECHNIQUE** NECESSITY, TIPS FOR HANDLING COMMON QUESTIONS	**03**
10	**Working in Teams** UNDERSTAND AND WORK WITHIN THE DYNAMICS OF A GROUPS. TIPS TO WORK EFFECTIVELY IN TEAMS, ESTABLISH GOOD RAPPORT, INTEREST WITH OTHERS AND WORK EFFECTIVELY WITH THEM TO MEET COMMON OBJECTIVES, TIPS TO PROVIDE AND ACCEPT FEEDBACK IN A CONSTRUCTIVE AND CONSIDERATE WAY , LEADERSHIP IN TEAMS, HANDLING FRUSTRATIONS IN GROUP	**. 02**
11	**Task Management** INTRODUCTION, TASK IDENTIFICATION, TASK PLANNING ,ORGANIZING AND EXECUTION, CLOSING THE TASK	**02**
	TOTAL	**38**

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NAME OF COURSE (SUBJECT)	:	**PROFESSIONAL ACTIVITIES**
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COMMON WITH PROGRAMME (BRANCH)	:	**--**
LECTURE HRS. PER WEEK	:	**TH. 00, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 00, PR. 30**

CONTENTS:

Lectures: 02 Hrs. per Week

Assignment: (Any Eight Assignment)

1) SWOT analysis:- Analyse yourself with respect to your strength and weaknesses, opportunities and threats. Following points will be useful for doing SWOT.
a) Your past experiences,
b) Achievements,
c) Failures,
d) Feedback from others etc.
2) Undergo a test on reading skill/memory skill administered by your teacher.
3) Solve the puzzles.
4) Form a group of 5-10 students and do a work for social cause e.g. tree plantation, blood donation, environment protection, camps on awareness like importance of cleanliness in slump area, social activities like giving cloths to poor etc.(One activity per group)
5) Deliver a seminar for 10-12 minutes using presentation aids on the topic given by your teacher.
6) Watch/listen an informative session on social activities. Make a report on topic of your interest using audio/visual aids. Make a report on the programme.####
7) Conduct an interview of a personality and write a report on it.
8) Discuss a topic in a group and prepare minutes of discussion. Write thorough description of the topic discussed
9) Arrange an exhibition, displaying flow-charts, posters, paper cutting, photographs etc on the topic given by your teacher.

Note: - Please note that these are the suggested assignments on given contents/topic. These assignments are the guide lines to the subject teachers. However the subject teachers are free to design any assignment relevant to the topic. The **term work** will consist of any eight assignments.

MINI PROJECT ON TASK MANAGEMENT. DECIDE ANY TASK TO BE COMPLETED IN ASTIPULATED TIME WITH THE HELP OF TEACHER. WRITE A REPORT CONSIDERING VARIOUS STEPS IN
TASK MANAGEMENT.

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Learning Resources:

Books:

Sr. No	Author	Title of the book	Publisher
1	Marshall Cooks Adams	Time management	Viva Books
2	E.H. Mc Grath , S.J.	Basic Managerial Skills for All	Pretice Hall of India, Pvt Ltd
3	Allen Pease	Body Language	Sudha Publications Pvt. Ltd.
4	Lowe and Phil	Creativity and problem solving	Kogan Page (I) P Ltd
5	by Adair, J	Decision making & Problem Solving	Orient Longman
6	Bishop , Sue	Develop Your Assertiveness	Kogan Page India
7	Marion E Haynes	Make Every Minute Count	Kogan page India
8	Steven L McShane and Mary Ann Glinow	Organizational Behavior	Tata McGraw Hill
9	Stephen P. Robbins	Organizational Behavior	Pretice Hall of India, Pvt Ltd
10	Michael Hatton	Presentation Skills	(Canada ï India Project) ISTE New Delhi
11		Stress Management Through Yoga and Meditation	Sterling Publisher Pvt Ltd
12	Richard Hale ,Peter Whilom	Target setting and Goal Achievement	Kogan page India
13	Chakravarty, Ajanta	Time management	Rupa and Company
14	Harding ham	Working in Teams	A Orient Longman

RAJIV GANDHI PROUDYOGIKI SHWAVIDYALAYA, BHOPAL

SCHEME	:	**JUL.08**
SEMESTER	:	**FOURTH SEMESTER**
COURSE CODE	:	**406**
NAME OF COURSE (SUBJECT)	:	**PROFESSIONAL ACTIVITIES**
OLD PAPER CODE	:	
NEW PAPER CODE	:	**--**
COMMON WITH PROGRAMME (BRANCH)	:	**--**
LECTURE HRS. PER WEEK	:	**TH. 00, PR. 02**
LECTURE HRS. PER SEMESTER	:	**TH. 00, PR. 30**

INTERNET ASSISTANCE

1. http://www.mindtools.com
2. http://www.stress.org
3. http://www.ethics.com
4. http://www.coopcomm.org/workbook.htm
5. http://www.mapfornonprofits.org/
6. http://www.learningmeditition.com http://bbc.co.uk/learning/courses/
7. http://eqi.org/
8. http://www.abacon.com/commstudies/interpersonal/indisclosure.html
9. http://www.mapnp.org/library/ethics/ethxgde.htm
10. http://www.mapnp.org/library/grp_cnfl/grp_cnfl.htm
11. http://members.aol.com/nonverbal2/diction1.htm
12. http://www.thomasarmstron.com/multiple_intelligences.htm
13. http://snow.utoronto.ca/Learn2/modules.html
14. http://www.quickmba.com/strategy/swot/