



## **RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL DIPLOMA IN ELECTRICAL ENGINEERING**

SEMESTER: SIXTH

SCHEME : Jul.08

COURSE CODE: 601

PAPER CODE: 6244

NAME OF COURSE: ENERGY CONSERVATION AND MANAGEMENT

COMMON WITH PROGRAM (S):

LECTURE HRS. PER WEEK : **TH. 06**

LECTURE HRS. PER SEMESTER : **TH. 90**

### **RATIONALE**

Electrical Engineering without the knowledge of energy conservation & management is imperfect. In the era of Globalization and Liberalization, this course of Energy Conservation & Management is utmost important to the entrepreneurs and industrialists. Energy audit is going to be mandatory by Govt. of India. This course is specially designed to help the students in widening their knowledge and also helpful to start their career in energy auditing field. Energy saving is also very relevant to the cost competition.



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
**DIPLOMA IN ELECTRICAL ENGINEERING**

SEMESTER: SIXTH  
COURSE CODE: 601

SCHEME : Jul.08  
PAPER CODE: 6244

NAME OF COURSE: ENERGY CONSERVATION AND MANAGEMENT  
COMMON WITH PROGRAM (S):

LECTURE HRS. PER WEEK : **TH. 06**  
LECTURE HRS. PER SEMESTER : **TH. 90**

**SCHEME OF STUDIES**

S.No.	Topics	Theory Hrs.
1.	Energy scenario	10
2.	Energy management and audit	12
3.	Waste heat recovery	12
4.	Heating, ventilation and air-conditioning	10
5.	Role of maintenance in energy conservation	8
6.	Demand side management	10
7.	Energy efficient motors and drives	12
8.	Energy conservation in various sectors and co-generation	10
9.	Economic analysis of energy conservation	6
	Total	90



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## DIPLOMA IN ELECTRICAL ENGINEERING

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COURSE CODE: 601

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PAPER CODE: 6244

NAME OF COURSE: ENERGY CONSERVATION AND MANAGEMENT  
COMMON WITH PROGRAM (S):

LECTURE HRS. PER WEEK : TH. 06  
LECTURE HRS. PER SEMESTER : TH. 90

### COURSE CONTENT

S.No.	COURSE CONTENT	
1.	Energy Scenario- Various types of renewable and non-renewable energy, energy consumption and use pattern, energy consumption and environment.	10
2.	Energy Management and audit-Energy Management and its objectives, energy audit, need of energy audit, types of energy audit, energy auditing instruments.	12
3.	Waste heat recovery-Sources of waste heat, advantages of waste heat recovery, commercial waste heat recovery devices-Recuperators, Heat regenerators, heat pumps etc. Agricultural use of waste heat.	12
4.	Heating ventilation and air conditioning-Definition of Heating, ventilation and air conditioning, Energy saving opportunities in Heating ventilation and air conditioning, Conducting Audit in Heating ventilation and air conditioning.	10
5.	Role of maintenance in energy conservation-Types of maintenance-breakdown, predictive & preventive, maintenance and energy conservation.	8
6.	Demand side management .Benefits, Demand side management Techniques, implementation of Demand side management programme, Tariff options of Demand side management.	10
7.	Energy efficient motor and drives-Motor efficiency, energy efficient motors, energy efficient electric drives, use of variable speed drives. Power factor improvement-Causes of low power factor, advantages of power factor improvement, methods of power factor improvement.	12
8.	Energy conservation in various sectors- - For residential and commercial sector - in transportation - in energy intensive industries. Co-Generation - benefits, types of co-generation.	10
9.	Economic Analysis of energy conservation-Economic analysis of investment, Economic analysis techniques, Risk analysis.	6



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LECTURE HRS. PER SEMESTER : **TH. 90**

**REFERENCES**

S. No.	Name of Book
1.	Energy Conservation and Management by S. K. Soni and Manoj Nair, Satya Prakashan, New Delhi
2.	Energy management- W.R.Murphy & G.M. ckey, Butter worths
3.	Electrical Energy utilization & conservation . Dr. S.C.Tripathi
4.	Four books published by BEE (Bureau of Energy Efficiency) Govt. of India



## RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL DIPLOMA IN ELECTRICAL ENGINEERING

SEMESTER: SIXTH

SCHEME : Jul.08

COURSE CODE: 602

PAPER CODE: 6245

NAME OF COURSE: INSTALLATION, MAINTENANCE, TESTING

COMMON WITH PROGRAM (S):

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

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

### RATIONALE

This subject is very important as most of the technician who get employment in Electricity Board, Industries etc. are required to install, test and commission the electrical equipments and further required to maintain the same, The syllabus of this installation, testing commissioning and maintenance of electrical equipments.

The topics of preventive maintenance which have been included in the syllabus will help the student in the field to follow the program of preventive maintenance thus avoiding undue shut downs of the system. A component of environmental pollution being very important finds a place in this subject.

Stress has been laid for making use of I.E. Rules and I.S.S. wherever applicable in order to follow the same in the field. A topic on safety measures has also been introduced in order to avoid electrical accidents.

List of practical has been prepared in such a way that student will be able to acquire and develop the desired practical skills for job.



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SCHEME : Jul.08  
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NAME OF COURSE: INSTALLATION, MAINTENANCE, TESTING  
COMMON WITH PROGRAM (S):

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

**SCHEME OF STUDIES**

S.No.	Topics	TH Hrs.	PR Hrs.	TOTAL Hrs.
1.	INSTALLATION.	5	4	9
2.	COMMISSIONING.	3	4	7
3.	EARTHING.	4	2	6
4.	INSULATION TESTING AND MAINTENANCE.	6	4	10
5.	PREVENTIVE MAINTENANCE AND ENVIRONMENTAL POLLUTION PREVENTION.	8	6	14
6.	TROUBLE SHOOTING.	10	4	14
7.	ELECTRICAL ACCIDENTS AND SAFETY MEASURES.	4	2	6
8.	TEATING AND MAINTENANCA OF RELAYS & CIRCUIT BREAKERS.	4	4	8
9.	HOT LINE MAINTENANCE.	4	2	6
	Total	48	32	90



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PAPER CODE: 6245

NAME OF COURSE: INSTALLATION, MAINTENANCE, TESTING  
COMMON WITH PROGRAM (S):

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

### COURSE CONTENT

S.No.	COURSE CONTENT	
1.	Installation - Types of heavy Electrical equipment, unloading accessories precautions for unloading, installation of small and large machines of both static and rotating type. Installation of pole mounted transformer.	5
2.	Commissioning - Tests required before commissioning procedure to be adopted for commissioning the electrical equipment in respect of - (a) Mechanical fixture and alignment. (b) Electrical tests. (c) Initial precautions for starting.	3
3.	Earthing - Reasons of earthing, earthing system, earth lead and its size, permissible earth resistance for different installations, improvement of earth resistance, double earthing, earth resistance measurement, rules for earthing.	4
4.	Insulation testing and maintenance - Instruments used for measuring insulation resistance, reasons for deterioration of insulation resistance, improving insulation resistance, drying of insulation, Measurement of internal temperature of winding, vacuum impregnation / filtering of insulating oil, testing of insulating oil.	6
5.	Preventive maintenance and environmental pollution prevention - Concepts of preventive maintenance, advantages, preventive maintenance schedule for transformer, induction motor, transmission line, circuit breaker and underground cable. Preventive measures to control environmental pollution results due to production of smokes gases flow of waste material and automatic reactions in research stations, plants, electrical and electronic equipments and accessories.	8
6.	Trouble Shooting - Normal performance of equipment, trouble shooting internal and external faults, instruments and accessories for trouble shooting, trouble shooting charts.	10
7.	Electrical Accidents and Safety Measures - Electrical accidents, Safety regulations, treatment of shock, fire extinguishers.	4
8.	Testing and maintenance of Relays and Circuit Breakers - Testing of Relays Factory test, commissioning test and preventive periodic maintenance test. Testing of circuit breakers, voltage test, type test, preventive maintenance of circuit breaker.	4
9.	Hot Line Maintenance - Meaning and advantages, special types of non-conducting materials used for tools for hot line maintenance.	4



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COURSE CODE: 602

PAPER CODE: 6245

NAME OF COURSE: INSTALLATION, MAINTENANCE, TESTING

COMMON WITH PROGRAM (S):

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	Maintenance of Overhead Lines.
2	Maintenance of switchgear OCB
3	Maintenance of distribution transformer in distribution system.
4	Routine / Preventive maintenance of induction motor in textile mills / industrial establishments.
5	(a) Shut down and energizing procedure. (b) Accident report writing. (c) Permit to work. (d) Fire extinguisher.
6	Insulation oil testing.
7	Earth resistance testing.
8	Test report of electrical installation.
9	Maintenance schedule.
10	Trouble shooting.
11	Report on hot line maintenance.





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PAPER CODE: 6245

NAME OF COURSE: INSTALLATION, MAINTENANCE, TESTING

COMMON WITH PROGRAM (S):

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

LECTURE HRS. PER SEMESTER : TH. 90, PR 30

### REFERENCES

S. No.	Name of Book
1	Electrical Installations work by T.G. Ffancist. E.L.B.S (Vth metric edition)
2	Electrical Installations Maintenance & fault location work book by T.T.T.I.(W.R.) Bhopal
3	Preventive maintenance Electrical equipment by Charies J Hurburt.
4	Commission of Electrical plant by RCH Richardson.
5	Operation and maintenance of Electrical Equipments Vol. I & Vol.I by B.V.S. Rao, Asia Publishing or Media Promoter Publishers Pvt. Bombay.
6	Electrical Maintenance & Repair by J.I. Watts. Mc Millars London.
7	Troubles in Electrical Equipments by N.E. Stafford. McGraw Hills Pub.
8	A Text Book of Electrical installation work Vol.2. by R.A. Mee., Macdonald London.
9	Electrical Maintenance & Repairs by P.P.Gupta., Dhanpat Rai & Sons Pub.
10	Estimating Commissioning and maintenance of Electrical equipment by S. Rao, Khanna Pub.
11	Fundamentals of maintenance of Electrical Equipment by Bhatia Khanna Pub.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRICAL ENGINEERING

SEMESTER: SIXTH  
COURSE CODE: 611  
NAME OF COURSE: ELECTRIC TRACTION  
COMMON WITH PROGRAM (S):

SCHEME : Jul.08  
PAPER CODE: 6246

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

### RATIONALE

Rapid electrification of Railway tracks in M.P. and through out the country has opened new avenues of the job opportunities for the technical personnel. The electrification helps to reduce pollution and extends fast transportation of man and material.

The syllabus is designed to facilitate basic knowledge of various aspects of electric traction prevailing and likely to prevail in near future. The field visits are emphasized to make the students familiar with different equipments, accessories and hardwares used in traction system.

The attention has been paid to impart the knowledge of various aspect of maintenance including trouble shooting and repairs so that a technician will be able to operate, maintain and repair various traction devices and components, satisfactorily.



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NAME OF COURSE: ELECTRIC TRACTION  
COMMON WITH PROGRAM (S):

SCHEME : Jul.08  
PAPER CODE: 6246

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

**SCHEME OF STUDIES**

S.No.	Topics	Theory Hrs.
1.	General Description of Electric Traction system in India	9
2.	System of Track Electrification	12
3.	Power Supply Arrangements	12
4.	A.C. Electric Locomotive	24
5.	Train signaling	12
6.	Signaling	9
7.	Traction Mechanics	12
	Total	90



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LECTURE HRS. PER SEMESTER : TH. 90, PR 30

### COURSE CONTENT

S.No.	COURSE CONTENT	
1.	General Description of Electric Traction system in India- 1.1. Electric Traction . advantage and disadvantages. 1.2. Choice of traction system in India.	9
2.	System of Track Electrification. 2.1- Description of various systems - D.C., 1-Phase low frequency A.C., 1-Phase high frequency, 3-Phase A.C. and Composite system. 2.2- 25 K.V. A.C., 50 Hz System-Advantages and disadvantages. 2.3- Problems associated with A.C traction system, current and voltage unbalance, production of harmonics and induction effects, comparison between A.C. and D.C. system	12
3.	Power Supply Arrangements. 3.1- High Voltage Supply. 3.2- Constituents of supply system substation, feeding post, feeding and sectioning arrangements, sectioning post, elementary section. 3.3- Miscellaneous equipment at control posts and switching station. 3.4- Major equipment at substation, transformer, circuit breaker, interrupters. 3.5- Protection system for A.C. Traction.	12
4.	A.C. Electric Locomotive. 4.1- Block diagram of A.C. electric locomotive 4.2- Overhead equipment (O.H.E.) 4.3- Pentagonal O.H.E.- catanery construction. 4.4- OHE Supporting structure 4.5- Current collection system, current collection gear for OHE, pole collection bow collection, pantograph collector. 4.6- Air blast C.B. 4.7- Tap Changer (on load) 4.8- Transformer 4.9- Rectifier connection 4.10- Traction motor connection 4.11- Smoothing reactor 4.12- Desirable characteristics of traction motors 4.13- Traction motors-suitability of motors for traction, D.C. Series motors, A.C. Series single phase, repulsion motor, 3-phase I.M. linear I.M.	24

	<p>4.14- Control of D.C. traction motor, series parallel control, energy saving with series parallel starting, metadyne control, multiple unit control.</p> <p>4.15- Requirements of breaking systems, types of electric breaking Conditions necessary to achieve regenerative breaking, suitability of motor.</p>	
5.	<p>Train signaling</p> <p>5.1- System of train lighting, special requirements of train lighting, methods of obtaining unidirectional polarity and constant output.</p> <p>5.2- Battery System.</p> <p>5.3- Failure of under frame generating equipment</p>	12
6.	<p>Signaling.</p> <p>6.1- Requirements.</p> <p>6.2- Track circuits.</p> <p>6.3- Different signaling used</p>	09
7.	<p>Traction Mechanics.</p> <p>7.1 Types of services</p> <p>7.2 Speed time curve</p> <p>7.3 Simplified speed time curve</p> <p>7.4 Average speed and schedule speed</p> <p>7.5 Tractive effort</p> <p>7.6 Power of traction motor</p> <p>7.7 Specific energy consumption, factors affecting specific energy consumption.</p> <p>7.8 Mechanics of train movement</p> <p>7.9 Coefficient of adhesion, factors affecting the coefficient of adhesion.</p>	12



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LECTURE HRS. PER SEMESTER : TH. 90, PR 30

**LIST OF EXPERIMENTS**

<b>S,NO.</b>	<b>NAME OF EXPERIMENT</b>
1	DRAW SPEED CURRENT CHARACTERISTIC OF D.C. SERIES MOTOR.
2	DRAW SPEED TOOQUE CHARACTERISTIC OF D.C. SERIES MOTOR.
3	STUDY OF VARIOUS METHODS FOR SPEED CONTROL OF D.C.
4	STUDY OF POLE AND BOW CURRENT COLLECTOR.
5	STUDY OF PENTAGRAPH CURRENT COLLECTOR.
6	STUDY OF METADYNE CONTROL SYSTEM.



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### LIST OF REFERENCE BOOKS

S.No.	Title	Author	Publisher
1.	ELECTRIC TRACTION	A.T. DOVER	PITMIN & SONS
2.	ELECTRIC TRACTION SYSTEM EQUIPMENT	D.W. HINGLE	PERGAMO PRESS
3.	ELECTRIC TRACTION HAND BOOK.	R. BOOKS	PITMAN & SONS.
4.	MODERN ELECTRIC TRACTION.	H. PRATAP	PRITAM BURAI & BROS.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRICAL ENGINEERING

SEMESTER: SIXTH

SCHEME : Jul.08

COURSE CODE: 612

PAPER CODE: 6216

NAME OF COURSE: PROGRAMMABLE LOGIC CONTROLLER

COMMON WITH PROGRAM (S): Electronics & Telecommunication

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

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

### RATIONALE

Modern Industrial environment is guided with the latest technological advancement in computers and communication. Programmable Logic Controllers based automation is the outcome of that.

In view of keeping industrial automation a technician play an important role in maintaining normal working of control system. It is also necessary that a technician must understand modern control devices and schemes.

The curriculum has been designed to meet the requirements of a technician engineer, so that he can skillfully handle the problems of industrial automation and control system. The contents included in the subject are kept at level to develop proper skills, knowledge and attitude suiting to the job requirement.





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## DIPLOMA IN ELECTRICAL ENGINEERING

SEMESTER: SIXTH

SCHEME : Jul.08

COURSE CODE: 612

PAPER CODE: 6216

NAME OF COURSE: PROGRAMMABLE LOGIC CONTROLLER

COMMON WITH PROGRAM (S): Electronics & Telecommunication

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 (HRS)
1.	Introduction to PLC	9	2	11
2.	PLC Hardware, Timers & Counters	18	6	24
3.	Advance Instruction & Programming Techniques	18	4	22
4.	PLC Input-Output (I/O) Modules Power Supply	18	4	22
5.	PLC Applications	15	6	21
6.	Industrial Automation & Selection of Programmable Logic Controllers	12	8	20
	TOTAL	90	30	120



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NAME OF COURSE: PROGRAMMABLE LOGIC CONTROLLER  
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LECTURE HRS. PER WEEK : TH. 06, PR.02  
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### CONTENT DETAILS

Sr.no	Course content	Study of hours
01	Introduction to PLC- 1.1 What is PLC ,Technical Definition of a PLC 1.2 Advantage of PLC 1.3 Chronological Evolution of a PLC 1.4 Type of PLC 1.5 Block diagram PLC	09
02	PLC Hardware, Timers &Counters- 2.1 Relays 2.2 Ladder logic diagram 2.3 PLC Connection 2.4 Electrical Wiring diagram 2.5 JIC Wiring Symbols 2.6 Latches,Timer 2.7 Classification of Timer 2.8 PLC Counters 2.9 Operation of PLC Counter 2.10 Counter Parameters	18
03	Advance Instruction & Programming Techniques- a. Introduction b. Comparison Instruction c. Discussions on Comparison Instruction i. %EQUAL+ ii. %NOTEQUAL+ iii. %LESS THEN+ iv. %LESS THEN OR EQUAL+ v. %GRATER THEN+ vi. %MASKED COMPARISION FOR EQUAL+ vii. %LIMIT TEST+ d. Mathematical Instruction e. Logical Instruction Data handling Instruction	18

Sr.no	Course content	Study of hours
04	PLC Input-Output (I/O) Modules Power Supply Introduction Classification of Input Output Modules Input-Output System Sinking Sourcing Special Input Modules RTD Input Module Stepper Motor Control Module Thermocouple Input Module Power Supply Configuring Power Line conditioner Reliability, Safety and Redundancy Filter	18
05	PLC Applications- Distributed control system, (DCS) Industrial control systems, (ICS) Programmable automation controller, (PAC). Industrial safety systems SCADA	15
06	Industrial Automation & Selection of Programmable Logic Controllers- Introduction Utility of automation Example of some simple Automated Systems Selection of PLC	12



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

**LIST OF EXPERIMENTS**

S.No.	Name of Experiment	Hours of Study
1	Develop a Simple Ladder Logic Program that will turn on an output X if input A and B or C is on	30
2	Develop a relay based Controller that will allow three switches in a room to control a single light	
3	How temperature control system can be developed in a process industry	
4	Develop a traffic control System	
5	Speed control of Induction Motor	



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### REFERENCES

1. PLC Programming Method and Application :-  
-John R Hackworth  
- Fredric D Hackworth  
(publication:- Pearson Education)
2. Process Dynamic and control  
-D.E.seborg  
-T.F.Edgar  
-D.A.Melichamp  
(publication:-Wiley publication)
3. Programmable Controllers operation and Application  
(publication :-PHI publication )
4. Programmable Logic Controllers and Industrial Automation an Introduction  
By:- Madhuchanda Mitra and Samarjit Sen Gupta  
(publication:-Penram International Publishing (India) Pvt.Ltd.
5. Programmable Logic Controllers  
By:-W. Bolten  
Programmable Logic Controllers and Industrial Automation  
By:- Kelvin Collins  
(publication:-Exposure Publishing)
6. Programmable Logic Controllers  
By:-Collin Simpson
7. Programmable Logic Controllers  
By:-Morriss Brian publication :-PHI



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## DIPLOMA IN ELECTRICAL ENGINEERING

SEMESTER: SIXTH  
COURSE CODE: E - 604  
NAME OF COURSE: PROJECT  
COMMON WITH PROGRAM (S):

SCHEME : Jul.08  
PAPER CODE:

LECTURE HRS. PER WEEK : PR.12  
LECTURE HRS. PER SEMESTER : PR 180

### RATIONALE

Project work is the area in which a student can show his creativity resources fullness, knowledge and various skills attained through the labs and work-shop during the course duration.

Project work leads the student to develop his original thinking, group discussion, leadership, interpersonal relations, inter disciplinary relation and polishes his behavior in the society.

He is also exposed to market survey for procurement of components, suiting to the circuit, their equivalents, the process of try outs of circuits, modification of circuit values and finally getting the desired result.

An electronics diploma student has very vast scope of preparing project, as electronics has entered in every walk of life of the society and every hour of one's daily life.

The support of the institution, faculty members, and supporting staff is of paramount importance and their quality is also reflected in the quality of the final shape of the project.

A good project work earns credit for all concerned and increase scope of employment / self employment when presented to potential employer. With this view curriculum can not be bound in any limits and boundary on papers. Reasonable freedom has to be given for selecting the project work as far as the project is feasible and economically viable and socially useful.

The objective of the course ~~Project~~ is

- To provide students with a comprehensive experience for applying the knowledge gained so far by studying various courses.
- To develop an inquiring aptitude and build confidence among students by working on solutions of small industrial problems.
- To students an opportunity to do some thing creative and to assimilate real life work situation in institution.
- To adapt students for latest developments and to handle independently new situations.
- To develop good experiences power and presentation abilities in students

Students already have a glimpse of project work as they have worked on Minor Project Work in V semester. This gives the students an occasion to observe the work on real life projects and select some application area in which he/she will be undertaking project. External guide from industry can also be selected for project work along with an internal guide to prepare innovative and real projects. Students also have the flexibility of extending the minor project work into Major project, if the area has a scope for that.

The purpose of providing six hours per week is to orient the students in-groups on the following objectives:

- Provide general guidelines regarding execution of work.
- Impart instructions regarding write-up work and preparation of project documents.
- Sharing and solving common problems associated with execution of project work.
- Monitor and evaluate the progress of project work.

The faculty and student should work according to following schedule:

1. Each student undertakes substantial and individual project in an approved area of the subject and supervised by member of staff.
2. The student must submit outline and action plan for the project execution (time schedule) and the same be approved by the concerned faculty.
3. The project development must be carried out according to following steps and final write-up should have the same sequence.
  - Project objectives.
  - Requirement gathering.
  - Modeling of project should be done in any well- known modeling tools.
  - Analysis of Project.
  - Design of Project.
  - Implementation of project.
  - Testing on project.
  - Quality consideration of project.
  - Designing a small user manual.
  - Estimating the cost of the project.
  - Future scope and suggestions.



**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**  
**DIPLOMA IN ELECTRICAL ENGINEERING**

SEMESTER: SIXTH  
COURSE CODE: E - 604  
NAME OF COURSE: PROJECT  
COMMON WITH PROGRAM (S):

SCHEME : Jul.08  
PAPER CODE:

LECTURE HRS. PER WEEK : PR.12  
LECTURE HRS. PER SEMESTER : PR 180

**ACTION PLAN FOR PROJECT WORK AND EVALUATION SCHEME # (SUGGESTIVE):**

TASK/PROCESS	WEEK	EVALUTION
• Orientation of students by HOD/Project supervisor	1 <sup>st</sup>	-
• Literature survey and resource collection	2 <sup>nd</sup>	-
• Selection and finalization of topic before a committee*	3 <sup>rd</sup>	-
• Detailing and preparation of project (Modeling, Analysis and Design of Project work)	4 <sup>th</sup> to 6 <sup>th</sup>	Seminar-I
• Development Stage	7 <sup>th</sup> to 11 <sup>th</sup>	-
• Testing, improvements, quality control of project	12 <sup>th</sup>	-
• Acceptance testing	13 <sup>th</sup>	-
• Report writing	14 <sup>th</sup>	-
• Presentation before a committee (including user manual)	15 <sup>th</sup>	Seminar-II

\* Committee comprises of HOD, all project supervisors including external guide from industry (if any).

# the above marking scheme is suggestive, it can be changed to alternative scheme depending on the type of project, but the alternative scheme should be prepared in advance while finalizing the topic of project before a committee and explained to the concerned student as well.





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**LIST OF SUGGESTED TOPICS**

S. No.	Name of Topic
1	Solar power generating station
2	Wind power generating station
3	Load dispatch techniques in modern power system
4	Energy auditing of small industrial / commercial / residential / office building
5	Estimation and costing of wiring of industrial / commercial / residential / office building
6	Load survey
7	Software based projects
8	Industry based projects



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**REFERENCES / SOURCES FOR GUIDANCE TO STUDENT  
FOR SELECTION OF PROJECT WORK:**

1. Electronics Magazines & Journals.
2. District Industries Center.
3. Industry-Institution Interaction (III)
4. Small Scale industry
5. Industrial problems discussed during industry visit/training.
6. Entrepreneurship development Board Magazine.
7. Prime Minister Rojgar Yojana+projects from district Collectorate.



# RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

## DIPLOMA IN ELECTRICAL ENGINEERING

SEMESTER: SIXTH  
COURSE CODE: E- 605  
NAME OF COURSE: PROFESSIONAL ACTIVITIES  
COMMON WITH PROGRAM (S):

SCHEME : Jul.08  
PAPER CODE:

LECTURE HRS. PER WEEK : PR.02  
LECTURE HRS. PER SEMESTER : PR 30

### RATIONALE

**Professional Activities** is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

#### OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organization of student chapter activities of professional bodies) i.e. Institute of engineers, ISTE or Computer Society of India etc.)
- TO allow for development of abilities in students for leadership and public speaking through organization of students seminar etc.
- To provide time for organization of guest lectures by expert engineers/eminent professionals of industry.
- To provide time for organization of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for social cause like awareness for environmental and ecology etc.

#### 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 marksheet 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.

<u>Grades</u>	<u>Level of performance</u>
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:
  1. Record of written quiz.
  2. Report/write up of seminar presented
  3. Abstract of the guest lectures arranged in the Institution.
  4. Topic and outcome of the group discussion held.
  5. Report on the problems solved through case studies.
  6. Report on social awareness camps( organized for social and environmental prevention).
  7. 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 teachers 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.