# GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

## SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EE207** SUBJECT NAME : **POWER SYSTEM I**

FACULTY NAME : **RASHMI RAJORA** DESIGNATION : **SR. LECTURER (ELECTRICAL)**

| TOPIC | LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC | MONTHS IN WHICH THE TOPIC WILL BE COVERED | POWER SYSTEM I | REASON FOR NOT COVERING THE TOPIC IN DUE TIME | E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC |
|---|---|---|---|---|---|
| Electrical energy demand and electrical energy growth in India<br>Electrical energy growth in India | 1 | AUG | | | |
| Electrical energy sources<br>Fossil fuels and nuclear fuels | 3 | AUG | | | |
| Preesent status of electrical demand in Rajasthan | 1 | SEP | | | |
| Selection of plant location<br>Block diagram of plant and its working | 4 | SEP | | | |
| Coal handling plant<br>Pulverising plant | 3 | SEP | | | |
| Draft system<br>Boilers | 2 | OCT | | | |
| Ash handling plant | 2 | OCT | | | |
| Turbine<br>Different types of condensers | 2 | OCT | | | |
| Cooling towers and ponds<br>Feed water heater | 1 | OCT | | | |
| Economiser<br>Super heater and reheater<br>Air preheater | 2 | OCT | | | |
| Selection of site<br>Advantages and disadvantages of hydro power plant<br>Hydrology | 3 | NOV | | | |
| Classification Element of hydro power plant and their functions | 3 | NOV | | | |
| Brief idea about small and mini hydro plants<br>Pumped storage plant | 2 | NOV | | | |
| Introduction and selection of site<br>Block diagram of plant and its working | 1 | DEC | | | |
| Main components and their function<br>Energy mass relationship | 1 | DEC | | | |
| Energy due to fission and fusion<br>Nuclear chain reaction<br>Multiplication factor and critical size<br>Moderators materials<br>Fissile and fertile materials | 1 | DEC | | | |

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|---|---|---|---|---|---|
| Classification of Nuclear reactor, main parts and their functions<br>Safety measures required in nuclear plant<br>Disposal of nuclear waste | 1 | DEC | | | |
| Main components and working of diesel power plant with the help of block diagram<br>Advantage and disadvantage of diesel power plant<br>Application of diesel power plant | 2 | JAN | | | |
| Principle and operation of gas turbine plants<br>Comparison of different power stations<br>Inter connection of power stations | 2 | JAN | | | |
| A6.1 Application<br>Unit of solar power and solar energy<br>Historical review and future prospects | 1 | JAN | | | |
| Schematic diagram of a solar thermal power plant<br>Solar central receiver thermal power plant<br>Solar pond thermal plant<br>Solar thermal power supply system for space station | 2 | JAN | | | |
| Introduction to photo voltaic system<br>Merits and limitation of solar PV system<br>Principle of photo voltaic cell | 1 | JAN | | | |
| Transparent, insulating and absorbing materials<br>Building heating by active and passive system<br>Solar still, solar dryer and solar cooker | 2 | FEB | | | |
| Introduction to wind energy<br>Merits and demerits of wind energy<br>Wind power and energy pattern factor | 1 | FEB | | | |
| Wind machine Site selection of a wind machine<br>Application of a wind machine | 1 | FEB | | | |
| Introduction to bio-gas energy<br>Properties of bio-gas<br>Principle of bio-gas production<br>Chemical and microbiological processors | 1 | FEB | | | |
| Factors which affects bio-gas production<br>Different feed stocks for bio-gas production<br>Classification of bio-gas plant | 2 | FEB | | | |
| Comparison between fixed dome and floating type bio-gas plant<br>Site selection of bio-gas plant | 2 | MAR | | | |
| Bio gas lamp and chulha<br>Bio gas storage and transportation | 2 | MAR | | | |
| Introduction to ocean energy<br>Types of ocean energy | 2 | MAR | | | |
| TOTAL | 54 | | | | |

# GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

## SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EE303** SUBJECT NAME : **ESTIMATING , COSTING & DESIGN OF ELECTRICAL INSTALLATIONS**

FACULTY NAME : **RASHMI RAJORA** DESIGNATION : **SR. LECTURER EIECTRICAL ENGG**

| TOPIC | LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC | MONTHS IN WHICH THE TOPIC WILL BE COVERED | ACTUAL DATE OF COVERING OF THE TOPIC | REASON FOR NOT COVERING THE TOPIC IN DUE TIME | E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC |
|---|---|---|---|---|---|
| Wiring Materials and Accessories:<br>Different electrical symbols<br>Brief description, general specification and approximate cost of<br>Different types of wire and cable<br>Switches, socket outlets, ceiling roses, lamp holders, plug | 4 | AUG | | | |
| Conduits and it accessories<br>Distribution boards and boxes | 1 | SEP | | | |
| A Fuses, MCB, isolators, E.L.C.B. and energy meters<br>Incandescent, Fluorescent and discharge lamps<br>D.C. and A.C. motors and starters | 1 | SEP | | | |
| General Principle of Estimating and Costing :<br><br>Purpose and essential of estimating and costing<br>Preparation of list of materials<br>Market survey, price list and net price | 3 | SEP | | | |
| Calculation of material and labour cost, contingencies, supervision, overhead charges, profit and total cost.<br>Purchase process: quotations, comparative statement, purchase order, tender order, security money | 2 | SEP | | | |
| Need of earthing<br>Pipe and plate earthing | 2 | SEP OCT | | | |
| Schedule of material and accessories, costing and estimates. | 2 | OCT | | | |
| Service Connection:<br><br>General rules and regulation<br>Overhead and underground service connection | 2 | OCT | | | |
| Schedule of material and accessories for single phase and three-phase service connection<br>Costing of material and work | 2 | OCT | | | |
| Plan Estimation of 1-φ and 3-φ Electrical load :<br>Installation plan Single line-wiring diagram<br>Calculation of conductor size<br>Design for main switch boards and distribution board<br>Calculation of number of circuits | 3 | OCT NOV | | | |
| List of material required for following and preparation of estimate, calculation of material cost using PWD B.S.R.<br>Single storey & Multi storey building | 4 | NOV | | | |

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| List of material required for following and preparation of estimate, calculation of material cost using PWD B.S.R. | 4 | NOV | | | |
| Design of Distribution Lines : | 4 | DEC | | | |
| Classification of substations<br><br>Indoor and Outdoor substation<br>Pole mounted substation<br>Platform type substation<br>Industrial substation | 2 | JAN | | | |
| Description and Layout of Grid Substation 33/11 and 220/132 KV :<br>Selection of site<br>8.2 Equipment used in G.S.S. with specification | 4 | JAN | | | |
| Single line diagram<br>Estimate and costing of material required | 2 | JAN | | | |
| G.S.S. Earthing | 1 | JAN | | | |
| Design of a Distribution Scheme for a Small Colony : | 1 | JAN | | | |
| Rating of sub-station transformer<br>Conductor size<br>Arrangement of street lighting<br>Arrangement of conductors on poles | 2 | FEB | | | |
| REVISION PROBLEM PRACTICE | 2 | FEB | | | |
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| TOTAL | 48 | | | | |