

# GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

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

SUBJECT CODE **109 (Electrical Workshop)** SUBJECT NAME : **Electrical & Electronics Workshop**

FACULTY NAME **SHABEENA SAGAR**

DESIGNATION : **LECTURER (ELECTRICAL ENGINEERING)**

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
<b>A - ELECTRICAL WORKSHOP</b>					
1. Study of Symbol, Specification and Approximate Cost of Common Electrical Accessories, Tools and Wires & Cables Required for Domestic Installation.	6	October			
2. Study of : 2.1 Basic Electricity Rules for a Domestic Consumer 2.2 Safety Precautions & use of Fire Fighting Equipments	3	October, November			
3. Use of series of Phase Tester, Series Test Lamp, Tong Tester and Megger in Testing of Electrical Installation.	3	November			
4. 4.1 Prepare a Potential Divider and Measure Resistance of a Filament Lamp Using Voltmeter and Ammeter.  4.2 Measurement of Power and Energy Consumption by an Electric Heater using Watt Meter and	3	November, December			
5. Preparation of Wiring Diagram, Wiring, Testing, Fault Finding & Costing for : 5.1 Control of one Lamp by one Switch (using Batten and Tumbler Switch)  5.2 Control of Stair Case Wiring (using Casing Capping, CFL and Flush Type Switches)  5.3 Control of one Bell Buzzer and Indicator by one Switch (using Conduit and Flush type Switch)	9	December, January			
6. Prepare one Switch Board as per Institutional Requirement . (using Flush type Switches, Sockets, MCB, ELCB, Etc.)	3	January			
7. Study, Connecting, Testing and Fault Finding of 7.1 Fluorescent Tube and its Accessories 7.2 Ceiling Fan with resistance type and Electronic Regulator	6	January, February			

8. Study, Functioning, Fault Finding & Repairing of following Domestic Appliances - 8.1 Automatic Electric Iron 8.2 Air Cooler 8.3 Electric Water Pump	6	February			
9. Design, Draw and Estimate the Material required for Installation For a small Residential Building/ Office/ Hall.	6	March			
TOTAL	45				

# GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

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

SUBJECT CODE **EE201**

SUBJECT NAME : **BASIC ELECTRONICS**

FACULTY NAME **SHABEENA SAGAR**

DESIGNATION : **LECTURER (ELECTRICAL)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRE	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
Analog & Digital signals and its representation Advantages of digital techniques Symbol and truth table of NOT, AND, OR, NAND, NOR, EX-OR, EX-NOR gates	2	AUG			
Universal gates and realization of other gates Positive, negative logic	1	AUG			
Boolean Algebra : Basic laws of Boolean algebra Proof by perfect induction De'Morgan's theorem and its applications	2	AUG			
Simplification of expression by Boolean algebra K-Map Realization of simplified expression by logic gates	3	SEP			
Combinational Circuits : Binary half and full adder Binary half and full subtractor Binary serial, parallel and BCD	3	SEP			
Basic idea of multiplexer, demultiplexer, encoder and decoder	2	SEP			
Parity bit generator and checker Binary comparator	1	SEP			
Introduction to R-S,D,J-K,T, M/s J-K and their truth table Concept of edge and level triggering Asynchronous and synchronous counters – up, down and up-down	4	OCT			
Mode counter – Mod - 3, Mod - 5, decade counter Ring counter, Johnson counter	2	OCT			
Left, right and bi-direction shift register	2	OCT			
Series and parallel shift register Use of shift register for binary multiplication and division	2	NOV			
Semi Conductor Diode : Basic Introduction of P-N junction diode Semiconductor diode as half wave rectifier, its efficiency and ripple factor Semiconductor diode as full wave	2	NOV			
Bridge rectifier, Overall comparison between half wave and other full wave rectifiers Peak inverse voltage (PIV)	2	NOV			
Use of filter circuit in rectifiers L filter C filter LC section filter $\pi$ Section filter	2	NOV			

Bi-Polar Junction Transistor : Concept of transistor Types of transistor and their working in forward and reverse bias	1	NOV			
Constants of transistor ( $\alpha, \beta, \gamma$ ) Analysis of transistor amplifier, load line Operating point and biasing Input - output characteristics in CB, CE, and CF	3	DEC			
Low frequency small signal hybrid equivalent circuit of transistor Derivation of voltage, current and power gain, input and output impedance of CE configuration	4	JAN			
R-C Coupled and Power Amplifier : Gain at low, mid and high frequency range, cut off frequencies Concept of power amplifiers Types of power amplifier Class A power amplifier, output power analysis	4	JAN			
Special Devices : Construction, operation, equivalent circuit and characteristics of JFET, MOSFET, CMOS	2	FEB			
Semiconductor photo devices such as LED, LDR, photo transistor Varactor diode	4	FEB			
Feed Back and Oscillators : Basic concept of feedback and types of feedback Advantages and disadvantages of negative feedback for gain, stability, frequency and nonlinear distortion Voltage series, shunt and current series and shunt feed back circuit	3	FEB			
Use of positive feedback for oscillators Barkhausen criteria Principles of RC phase shift, Wein	3	MARCH			
TOTAL	54				

# GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

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

SUBJECT CODE : **EE208PRACTI** SUBJECT NAME : **MICROPROCESSOR AND "C" PROGRAMMING**

FACULTY NAME : **SHABEENA SAGAR**

DESIGNATION : **LECTURER (ELECTRICAL)**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER	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
Study of Intel 8085 microprocessors	2	AUG			
Program to add two 8-bit numbers	2	AUG			
Program to subtract two 8-bit number	2	SEP			
Program to find 1's complement of a 8-bit numbers	2	SEP			
Program to find 2's complement of a 8-bit numbers	2	SEP			
Program to shift an 8-bit number left by one bit	2	SEP			
Program to mask of least significant 4 bits of a 8 bit number	2	SEP			
Program to mask of most significant 4 bits of a 8 bit number	2	OCT			
Program to find square from look up table	2	OCT			
Program to find largest of two numbers	2	OCT			
Program to find smallest of two numbers	2	OCT			
Problems based on arithmetic expression, fixed mode arithmetic	6	NOV			
Problems based on conditional statements and control structures.	12	NOV-DEC-JAN			
Problems based on arrays (1-D, 2-D), functions and pointers.	10	FEB-MARCH			
Problems based on engineering applications.	4	MAR			
<b>TOTAL</b>	<b>54</b>				

# GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

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

SUBJECT CODE **EE301**

SUBJECT NAME : **POWER ELECTRONICS**

FACULTY NAME **SHABEENA SAGAR**

DESIGNATION : **LECTURER (ELECTRICAL)**

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
Introduction: Principle, construction ,characteristics and ratings of SCR DIAC TRIAC Series connection of SCR Parallel connection of SCR	3	AUG			
UJT UJT as a relaxation oscillator Snubber circuit	2	AUG			
Transistor analogy of SCR Comparison of SCR and TRIAC Over voltage and over current protection circuit for SCR.	3	SEP			
Power Control Rectification: Phase control of SCR Different phase controlling circuits R RC UIT (Pulse-Width Modulation)	3	SEP			
Transformer circuit Different methods of turn off of SCR	3	SEP			
Single-phase and three-phase half wave With resistive load With inductive load With flywheel diode	2	OCT			
Single-phase and three-phase FULL wave With resistive load With inductive load With flywheel diode	3	OCT			
Basic principle of inverter Series inverter Parallel inverter	3	OCT			
Single phase voltage source inverter Three phase bridge inverter	3	NOV			
Applications UPS	2	NOV			
Chopper: Principle of chopper operation Control strategies Constant frequency system Variable frequency system	2	NOV			
Types of chopper circuits First quadrant or type A chopper Second quadrant or type B chopper Two quadrant type A chopper (Type C chopper)	2	NOV			

Two quadrant type B chopper (type D chopper) Four quadrant chopper (type E chopper)	1	DEC			
Cycloconverter : Principle of cycloconverter Single phase to single phase circuit step up cycloconverter Mid point cycloconverter Bridge type cycloconverter Single phase to single phase circuit step down cycloconverter Mid point cycloconverter	2	DEC			
Bridge type cycloconverter Three phase half wave cycloconverter Three phase to single phase cycloconverter Three phase to Three phase	3	JAN			
SMPS : Types of SMPS Protection circuits Merits and Demerits of SMPS	3	JAN			
AC Stabilizer : Introduction Working and basic circuits of Resonator stabilizer	2	JAN			
Electro-mechanical stabilizer Electronic stabilizer	2	FEB			
Speed Control of Motors: Introduction Speed control of motors using SCR for D.C. shunt motor and series motor	3	FEB			
Slip ring induction motor Brush less DC motor	2	FEB			
Time : Types of timer circuits Principles and operation	2	FEB			
Electronic timers D.C. operated timer A.C. operated timer	3	MARCH			
<b>TOTAL</b>	<b>54</b>				





TOTAL	28				