

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL 305**

SUBJECT NAME : **Power & Industrial Electronics**

FACULTY NAME : **Satish Chand Gupta**

DESIGNATION : **ATPO (IIC)**

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 and characteristics of SCR, TRIAC, DIAC, UJT, PUT, Power MOSFET, LASCR, solar cell	6	Sep-15			
Ratings of SCR , “Turn on” and “Turn off” mechanism of SCR , Snubber circuits ,	1	Oct-15			
Series and parallel connections of SCR ,	1	Oct-15			
UJT as a relaxation oscillator	1	Oct-15			
Power Control and Rectifiers : Phase control circuit of SCR, Simple R-C circuit	1	Oct-15			
Transformer circuit , UJT circuit , Ramp and Pedestal circuit ,	2	Oct-15			
Different methods of turning off SCRs	1	Oct-15			
SCR Half Wave rectifier (single phase), SCR with resistive load ,SCR with inductive load (with and without free wheeling diode)	2	Oct-15			
TRIAC as a power control circuit Three phase HW and FW rectifier using PN	1	Nov-15			
calculation of RMS value Average value Ripple factor PIV , TUF , Inverters,	3	Nov-15			
Choppers and Cyclo-converters :Basic principle of inverters , Series and parallel inverter circuits using SCR (Single phase)	2	Nov-15			
Basic idea of PWM inverter,Choppers	2	Nov-15			
Cycloconverters,Principle of operation,Single phase/single phase cycloconverters (mid point & bridge configuration)	2	Dec-15			

AC Stabilizer and Power Supply :Resonant stabilizer Electro mechanical stabilizer (using relay and servo motor)	2	Dec-15			
Electronic stabilizer,Block diagram of UPS (OFF line and ON line),Switched mode power supply (SMPS)	3	Jan-16			
Switched mode power supply (SMPS),Block diagram and basic principle,Merits and demerits of SMPS,Types of SMPS	2	Jan-16			
A.C., D.C. Motors & control :Principle, construction , operation & applications of A.C. & D.C. motors	2	Jan-16			
Concept of motor speed control (for D.C. motor only)	2	Jan-16			
Concept of motor speed control (for D.C. motor only)	2	Feb-16			
Speed torque relation for motor (for D.C. motor only)	1	Feb-16			
Armature voltage control method (using SCR) (for D.C. motor only)	1	Feb-16			
Heating, Welding and their Application :Principle and application of induction heating,Principle and application of dielectric heating	2	Feb-16			
Principle of resistance welding,Type of resistance welding	1	Feb-16			
Principle of resistance welding,Type of resistance welding	1	Feb-16			
Revision	16	Mar-16			
PRACTICALS					
To plot V-I characteristics of SCR	8	Sep-15			
To plot V-I characteristics of TRIAC	8	Sep-15			
To plot V-I characteristics of UJT	8	Oct-15			
To plot V-I characteristics of DIAC	8	Oct-15			
Observe the various waveforms of UJT relaxation oscillator	8	Nov-15			

Study of half wave rectifier using SCR with resistive load and inductive load.	8	Nov-15			
Application of TRIAC as light dimmer/fan regulator	8	Dec-15			
Study of phase inverter circuit using transistor	8	Jan-16			
Study of inverter circuit using SCR	8	Jan-16			
Study of electronic-mechanical/electronic A.C. stabilizer	8	Feb-16			
Study of UPS	4	Feb-16			
Study of SMPS	4	Feb-16			
Study of speed control of D.C. motor	4	Mar-16			
Study of resistance welding	4	Mar-16			
Assembling and testing of manual stabilizer with auto cut facility.	4	Mar-16			
Revision of practicals	20	Mar-16			