

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING AND TECHNOLOGY (DIPLOMA PROGRAMMES)									
Programme		Diploma Engineering			Branch/Spec.		Mechatronics Engineering		
Semester		II			Version		1.0.0.0		
Effective from Academic Year			2018-19		Effective for the batch Admitted in			June 2018	
Subject code		1ES209	Subject Name		Fundamentals of Electronics Engineering				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50
Pre-requisites:									
Learning Outcome:									
The theory should be taught and practical should be carried out in such a manner that students are able to acquire different learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.									
I. To apply the basic electronic skills as required in the field of automation									
II. To design basic electronic circuits using IC									
III. To understand principle of optoelectronic devices									
IV. To understand working of regulated dc power supply, SMPS, UPS									
Theory syllabus									
Unit	Content								Hrs
1	DIODE AND RECTIFIER Comparison between Conductor, Insulator and Semiconductor, P-type and N-type semiconductor, PN junction diode, Formation of Depletion Region, Forward Bias, Reverse Bias, V-I characteristics of PN junction diode, Zener Diode, Rectifier, Half Wave Rectifier, Full Wave Rectifier, Bridge Rectifier, Filter Circuit								12
2	OPTO ELECTRONIC DEVICES Photo diode, Light Emitting Diode (LED), Seven Segment Display, Liquid Crystal Display (LCD), Opto Coupler, Light Dependent Resistor (LDR)								08
3	TRANSISTOR Symbols and Basics of Transistor, Working of NPN transistor, Operating Regions for Transistor, Transistor Configurations: Common Base, Common Emitter and Common Collector, Comparison of CB, CE and CC Configurations, Transistor as a switch, Transistor as an Amplifier								09
4	TIMER IC555 & OPAMP IC741 Pin Diagram of IC555, Multivibrator Circuit using IC555: Astable, Monostable and Bistable. Pin Diagram of IC741, OPAMP Applications: Inverting Amplifier, Non-Inverting Amplifier, Integrator, Differentiator and Comparator								08

5	REGULATED POWER SUPPLY Zener Diode as Voltage Regulator, Three Terminal IC Voltage Regulator, Switch Mode Power Supply (SMPS), Uninterrupted Power Supply (UPS)	08
Practical content		
Practical based on above syllabus are: 1. Perform V-I characteristics of PN Junction Diode 2. Perform Half Wave Rectifier Circuit 3. Perform Full Wave Rectifier Circuit 4. Perform Bridge Rectifier Circuit 5. Perform Capacitor Filter Circuit 6. Test optoelectronic components 7. Perform Transistor as a switch 8. Perform Transistor as an amplifier 9. Perform Astable Multivibrator Circuit using Timer IC555 10. Perform Monostable Multivibrator Circuit using Timer IC555 11. Perform Integrator using OPAMP IC741 12. Perform Differentiator using OPAMP IC741 13. Perform Zener Diode as Voltage Regulator 14. Perform Voltage Regulator using IC7805		
Text Books		
1	Principle of Electronics, V. K. Mehta, S. Chand & Co.	
Reference Books		
1	Electronics Principles with Simulation CD, Albert Paul Malvino, MGH	
2	Basic Electronics: A text lab manual, Paul B. Zbar, MGH	
3	Electronic Devices & Circuit Theory, Robert Boylestad, PHI	