



**Electronics Practical
[CORE COURSE]**

Semester: I	Credits: 1.5	Subject Code: BSP12012	Lectures: 40
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Course Outcomes:

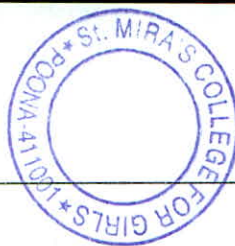
At the end of this course, the learner will be able to:

- Identify and measure different components, measure ac/dc voltages, frequency and amplitude of a signal, relate to the electronic communication between devices, understand the basics of analog and digital electronics,
- Describe the characteristics of semiconductor devices, illustrate applications in voltage regulated power supplies and amplifiers.
- Construct basic combinational circuits and verify their functionalities.
- Apply knowledge and perform electronics experiment as well as to analyse and interpret data of electronics in computer science.
- Work effectively and responsibly as a team member to perform experiment and presentations.
- Develop skills in scientific writing to make lab reports, activity reports, collecting relevant information.
- Acquire skills in handling scientific instruments, planning and performing Laboratory experiments using modern tools and techniques.
- Communicate effectively in oral and written communication skills

The practical course consists of 10 experiments out of which two will be preparatory experiments. These will be evaluated in an oral examination for 15% marks at internal and external semester examination.

Compulsory Practical: Preparatory Experiments	8
<ul style="list-style-type: none"> • Identification of Components / Tools <ul style="list-style-type: none"> ○ Different types of active and passive components must be given ○ Identification based on visual inspection / data sheets be carried out • Use of Digital Multimeters. <ul style="list-style-type: none"> ○ Measurement of AC/DC voltage and Current – on different ranges ○ Measurement of R & C ○ Testing of Diodes & Transistors ○ Measurement of hfe. ○ Use of Multimeter in measurement of resistance of LDR and Thermistor. • Study of Signal Generator/CRO <ul style="list-style-type: none"> ○ Understand how to use Signal Generator/CRO ○ Study of front panel controls ○ Measurement of amplitude and frequency of Sine/Square waveform 	

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Group A: Any Four	16
<ul style="list-style-type: none"> • Study of forward and Reverse biased characteristics of PN Junction Diode • Study of low voltage Half-wave, Full-wave and Bridge rectifier circuits. • Study of breakdown characteristics and voltage regulation action of Zener diode • Study of output characteristics of Bipolar Junction Transistor in CE mode • Study of Opto-coupler using LED and Photodiode (Package may be used here); it's application as burglar alarm. • Study of Single Stage RC coupled Amplifier for its Gain and frequency response. • Study of output and transfer characteristics of MOSFET. 	<p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>4</p>

Group B: Any Four	16
<ul style="list-style-type: none"> • Inter conversions and realizations of logic expressions using ICs • Build and Test Half & Full Adder /half & full Subtractor using basic gate • Study of Four-bit Universal Adder/Subtractor • Build and Test 4-bit parity checker/ generator using X-OR gate IC • Build and Test 4:1 Multiplexer and 1:4 Demultiplexer using gates • Study BCD to seven segment decoder using Thumbwheel switch • Study of Decimal to BCD/Binary Converter 	<p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>4</p> <p>4</p>

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Chairman (HoD)	Swatee Sarwate	<i>Swatee Sarwate</i> 22/7/20	
Faculty	Anitha Menon		<i>P.A. Menon</i> 22/7/20
VC Nominee (SPPU)	Dr. Neha Deshpande	<i>N. Deshpande</i> 22/7/20	
Subject Expert (Outside SPPU)	Dr. R.K.Kamat		<i>R. Kamat</i> 22/7/20
Subject Expert (Outside SPPU)	Dr. Sangeeta Kale	<i>S. Kale</i> 22/7/20	
Industry Expert	Amber Mukherjee		<i>Amber Mukherjee</i> 22/7/20
Alumni	Supriya Palande	<i>S. Palande</i> 22/7/20	<i>S. Palande</i> 22/7/20

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