



**Maharashtra State Board of
Secondary & Higher Secondary School, Pune**

Department of Electronics
Bifocal

Subject: Electronics (C2)

Std: Twelve

Faculty: Science

Syllabus

XII Electronics(Theory & Practical)

Theory Index

Sr. No.	Units / Topics	Weightage	
		Compulsory	With option
1	Electronic Instruments	08	15
2	DC Power Supplies	10	20
3	Transducers	05	10
4	Operational Amplifier	12	25
5	Modern Electronic Communication	10	20
6	Study of IC's	05	10
	Total	50	100

Syllabus

Sr. No.	Name of the Topic	Scope of Syllabus
1.	Electronic Instrument's	<ul style="list-style-type: none">• Study of CRT• Study of CRO• Function Generator• Digital Multimeter
2.	DC Power Supplies	<ul style="list-style-type: none">• Half wave rectifier• Full wave rectifier• Filter circuits• Load Regulation & Line Regulation• Zener as voltage Regulator• Basic principle of Voltage Regulation using Transistor circuit• Three terminal Regulator - SMPS
3.	Transducers	<ul style="list-style-type: none">• Classification of Transducer• Selection of Transducer• Types of Transducer• Thermistor• LDR• Capacitive Transducer• LVDT• Piezo electric crystal• Loud speaker• Gas sensor• Opto-Coupler
4.	Operational Amplifier	<ul style="list-style-type: none">• Necessity of OPAMP• Block diagram OPAMP• OPAMP Parameters• Linear application of OPAMP• Inverting & Non-inverting OPAMP• Buffer Amplifier• Concept of virtual ground• Adder• Subtractor• Integrator• Differentiator

<p>5.</p>	<p>Modern Electronic Communication</p>	<ul style="list-style-type: none"> • The elements of communication system • Types of Electronic communication • Survey of communication applications • Electronics Spectrum • Concept of Bandwidth • AM principles • Modulation Index & Percentage of Modulation Index • Sidebands & frequency domain • Frequency modulator • Types of communication • Satellite communication system • Application overview of Satellite communication • Concept of Digital communication • Introduction to Modems • Introduction to Computer Network • Use of Fiber optic in communication • Review of some modern communication application • Concept of FACSIMILE • Cellular radio and RADAR
<p>6.</p>	<p>Study of Integrated Circuits</p>	<ul style="list-style-type: none"> • Block diagram, pin functions and application of IC 555 • Block diagram, pin functions and application of IC 741

Practicals

Sr.No.	Practical's Name
Electronics Paper I	
1.	Photo relay
2.	Zener Diode Regulated Power Supply
3.	Thermistor Characteristics
4.	Use of CRO
5.	Monostable Multivibrator using IC555
6.	Op-Amp as inverting Amplifier
7.	Op -Amp as Non - Inverting Amplifier
8.	Op-Amp as Adder
9.	OP- Amp as Subtractor
10.	Op-Amp as Comparator
11.	Op-Amp as Buffer
12.	Regulated Power Supply using LM317
13.	Astable Multivibrator