## Semester Lecture Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim-Goa										
Name of F	aculty: Aga D.	А.		Subject: Physics Ma	jor PHY-202 Elect	tronics				
Paper code	e:PHY-202 Ele	ctronics		Program/Course: S.	Y. B.Sc.	Division: A				
Academic	year: 2024 - 20	25		Semester: IV		Total Lecture Practical	es: 45 lectures Plus			
characteri	Course Objectives: Course Objectives: This course aims to provide the students with a foundation in basics of Electronics i.e.1) Detail study of Half, Full and Bridge type Rectifier 2) Bipolar junction transistor characteristics 3)CE and CB mode amplifier characteristics 4) Classes of Amplifier Operation 6) Transistor Biasing 7) Feedback circuits and 7) Linear Ics and OP-AMP Course Learning Outcome:									
Month	Lect From:	ures To:	No. of lectures allotted	Topic, Subtopic to be covered	Learning outcome	ICT Tools	Reference books			
December 24	09/12/2024	14/012/2024	03		2) The student	White Board and marker	1.A.P.Malvino,Electronic Principles-TMH 5th edition			
				Rectifiers and Regulators Volt- ampere characteristics of	will be able to: 1. Describe Volt-ampere characteristics of Junction diode,		(1996). 2. Allen Mottershed, Electronics Devices and Circuits an Introduction- 3rd			

				Junction diode,			edition PHI (1997). 3. Millman and Halkias, Intergrated electronics- TMH (1972).
December 24	09/12/2024	14/012/2024	03	Half wave, Full wave and Bridge rectifiers using Junction diodes without and with capacitive filters.	2) The student will be able to: 1)Describe and explain Half wave, Full wave and Bridge rectifiers using Junction diodes without and with capacitive filters	White Board and marker	<ol> <li>A.P.Malvino, Electronic Principles         <ul> <li>TMH 5th edition</li> <li>(1996).</li> <li>Allen</li> <li>Mottershed,</li> <li>Electronics Devices</li></ul></li></ol>
December 24	09/12/2024	14/012/2024	03	PRACTICAL			
	16/12/2024	18/12/2024	03	Percentage regulation, Ripple factor and Rectification efficiency. Zener diode characteristics and its use as a simple voltage regulator. Thermistor	2) The student will be able to: Describe Percentage regulation, Ripple factor and Rectification efficiency. Zener diode characteristics and its use as a simple voltage regulator. Thermistor characteristics	White Board and marker	<ol> <li>A.P.Malvino, Electronic Principles         <ul> <li>TMH 5th edition</li> <li>(1996).</li> <li>Allen</li> <li>Mottershed,</li> <li>Electronics Devices</li></ul></li></ol>

			characteristics and its use in A.C. voltage regulation.	and its use in A.C. voltage regulation.		
Jan-25 02/01/202	5 04/01/2025	03	Transistors Basic configurations of transistors, Transistor characteristic in CE and CB mode	2) The student will be able to: Describe Basic configurations of transistors, Transistor characteristic in CE and CB mode	White Board and marker	<ol> <li>A.P.Malvino, Electronic Principles         <ul> <li>TMH 5th edition</li> <li>(1996).</li> <li>Allen</li> <li>Mottershed,</li> <li>Electronics Devices</li></ul></li></ol>
Jan-25 02/01/202	5 04/01/2025	03	PRACTICAL			
			Current gains α and β and their interrelation,	2) The student will be able to: Describe Current gains $\alpha$ and $\beta$ and their interrelation, Leakage		<ol> <li>A.P.Malvino, Electronic Principles –TMH 5th edition (1996).</li> <li>Allen Mottershed, Electronics Devices and Circuits an Introduction- 3rd edition PHI (1997).</li> <li>Millman and Halkias, Intergrated electronics- TMH (1972).Devices and Circuits an</li> </ol>
Jan-25 06/01/202	5 11/01/2025	03	Leakage current in transistors.	current in transistors.	White Board and marker	Introduction- 3rd edition PHI (1997).

				Basic Amplifier Characteristics Current gain, Voltage gain, Power gain, Input resistance, Output resistance, Conversion	2) The student will be able to: Describe Current gain, Voltage gain, Power gain, Input resistance, Output resistance, Conversion	White Board	<ul> <li>3. Millman and Halkias, Intergrated electronics- TMH (1972).S.CHAND</li> <li>A.P.Malvino, Electronic Principles –TMH 5th edition (1996).</li> <li>2. Allen Mottershed, Electronics Devices and Circuits an Introduction- 3rd edition PHI (1997).</li> <li>3. Millman and Halkias, Intergrated electronics- TMH</li> </ul>
	13/01/2025	16/01/2025	03	efficiency	efficiency	and marker	(1972).
	13/01/2025	16/01/2025	03	PRACTICAL			
				Classes of amplifier operations, Decibel, Erequency	2) The student will be able to: Explain Classes of amplifier operations, Decibel, Erequency		<ol> <li>A.P.Malvino, Electronic Principles         <ul> <li>TMH 5th edition</li> <li>(1996).</li> <li>Allen</li> <li>Mottershed,</li> <li>Electronics Devices</li></ul></li></ol>
				Frequency	Frequency		
				response, Amplifier bandwidth.	response, Amplifier	White Board	Halkias, Intergrated electronics- TMH
	20/01/2025	25/01/2025	03		bandwidth.	and marker	(1972).
	20/01/2025	25/01/2025	03	PRACTICAL			
Jan-Feb 2025	27/01/2025	01/02/2025	03	C-E amplifier: Class A Graphical analysis,	2) The student will be able to: Explain	White Board and marker	1. A.P.Malvino, Electronic Principles –TMH 5th edition

				Effect of adding A.C. load, Input and Output resistance	Graphical analysis, Effect of adding A.C. load, Input and Output resistance		<ul> <li>(1996).</li> <li>2. Allen</li> <li>Mottershed,</li> <li>Electronics Devices</li> <li>and Circuits an</li> <li>Introduction- 3rd</li> <li>edition PHI (1997).</li> <li>3. Millman and</li> <li>Halkias, Intergrated</li> <li>electronics- TMH</li> <li>(1972).</li> </ul>
Jan-Feb 2025	27/01/2025	01/02/2025	03	PRACTICAL			
Feb-25	03/02/2025	08/02/2025	03	Conversion efficiency, Phase relationship between input and output.	2) The student will be able to Explain, Conversion efficiency, Phase relationship between input and output	White Board and marker	<ol> <li>A.P.Malvino, Electronic Principles         <ul> <li>TMH 5th edition</li> <li>(1996).</li> <li>Allen</li> <li>Mottershed,</li> <li>Electronics Devices</li></ul></li></ol>
Feb-25	03/02/2025	08/02/2025	03	PRACTICAL			
	10/02/2025	15/02/2025	03	Transistor Biasing :- Bias stability, Stability factor,	<ul><li>2) The student</li><li>will be able to:</li><li>Explain Bias</li><li>stability,</li><li>Stability factor,</li></ul>	White Board and marker	<ol> <li>1) 1. Arthur Beiser, Concepts of Modern Physics, 5th Edition, McGraw Hill (1985).</li> <li>2) Modern Physics By B. L. Theraja S.CHAND</li> </ol>

	10/02/2025	15/02/2025	03	PRACTICAL			
							1. A.P.Malvino,
							<b>Electronic Principles</b>
							-TMH 5th edition
							(1996).
							2. Allen
							Mottershed,
							Electronics Devices
					2) The student		and Circuits an
					will be able to:		Introduction- 3rd
					Explain about		edition PHI (1997).
					Different		3. Millman and
				Different methods	methods of	White Board	Halkias, Intergrated electronics- TMH
	17/02/2025	22/02/2025	03	of biasing, biasing	biasing, biasing	and marker	(1972).
	17/02/2025	22/02/2023	03	compensation PRACTICAL	compensation	and marker	(1972).
	17/02/2023	22/02/2023	05	PRACTICAL			1. A.P.Malvino,
							Electronic Principles
							-TMH 5th edition
							(1996).
							2. Allen
					2) The student		Mottershed,
					will be able to:		Electronics Devices
					Explain		and Circuits an
					Positive and		Introduction- 3rd
				Feedback	negative		edition PHI (1997).
				Positive and	feedback,		3. Millman and
				negative feedback,	Voltage and		Halkias, Intergrated
Feb-				Voltage and	current	White Board	electronics- TMH
march-25	24/02/2025	01/03/2025	03	current feedback,,	feedback,	and marker	(1972).
Feb-							
march-25	24/02/2025	01/03/2025	03	PRACTICAL			
					2) The student		1. A.P.Malvino,
				series and shunt	will be able to:		Electronic Principles –TMH 5th edition
					Explain series and	White Board	-1 MH 5th edition (1996).
March-25	03/03/25	08/03/25	03	feedback.	shunt feedback.	and marker	(1996). 2. Allen
Wiarch-23	03/03/23	00/03/23	05		shullt leeuback.		2. Alltli

							Mottershed, Electronics Devices and Circuits an Introduction- 3rd edition PHI (1997). 3. Millman and Halkias, Intergrated electronics- TMH (1972).
March-25	03/03/25	08/03/25	03	PRACTICAL			
					2) The student will be able to Describe Effect on negative feedback on		
				Effect on negative	gain, frequency		
				feedback on gain,	response, input		
				frequency	and output		
				response, input and	resistance and		
				output resistance	distortion.		
				and distortion.	Positive		1. A.P.Malvino,
				Positive feedback,	feedback,		Electronic Principles
				Barkhausen	Barkhausen		-TMH 5th edition
				criterion for	criterion for		(1996).
				oscillations, Phase	oscillations,		2. Allen
				shift oscillator,	Phase shift		Mottershed,
				Wein bridge	oscillator,		Electronics Devices
				oscillator, LC tank	Wein bridge		and Circuits an
				circuit, Hartley	oscillator, LC		Introduction- 3rd
				oscillator and	tank circuit,		edition PHI (1997).
				Colpitts oscillator.	Hartley		3. Millman and
				Topic-2Particle	oscillator and	White Deerd	Halkias, Intergrated
	10/03/25	15/03/25	03	Accelerators	Colpitts oscillator.	White Board	electronics- TMH
			1	Linear accelerator	oscillator.	and marker	(1972).
	10/03/25	15/03/25	03	PRACTICAL			
	17/03/25	22/03/25	03	Linear IC's and	2) The student	White Board	1. A.P.Malvino,

				Operation Amplifiers :- The Differential Amplifier, OP- Amp characteristics, Input and Output impedance, Input bias and offset currents, Input and output offset voltages.	will be able to Describe The Differential Amplifier, OP- Amp characteristics, Input and Output impedance, Input bias and offset currents, Input and output offset voltages.	and marker	Electronic Principles –TMH 5th edition (1996). 2. Allen Mottershed, Electronics Devices and Circuits an Introduction- 3rd edition PHI (1997). 3. Millman and Halkias, Intergrated electronics- TMH (1972).
March-	24/03/25	29/03/25	03	Differential and Common mode gains, CMRR, Slew rate, OP-Amp as inverting , Non Inverting amplifier and Difference amplifier Revision	The student will be able to Describe Differential and Common mode gains, CMRR, Slew rate, OP-Amp as inverting , Non Inverting amplifier and Difference amplifier	White Board and marker	<ol> <li>A.P.Malvino, Electronic Principles –TMH 5th edition (1996).</li> <li>Allen Mottershed, Electronics Devices and Circuits an Introduction- 3rd edition PHI (1997).</li> <li>Millman and Halkias, Intergrated electronics- TMH (1972).</li> </ol>
March- 25-April- 25	31/03/25	05/04/25	03	Revision			
April-25	07/03/25	11/04/25	03	Revision			

\*Note: Data filled in the above form is sample data.