

BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND COMMERCE,  
SAINIKPURI, SECUNDERABAD.

Autonomous College

Affiliated to OSMANIA UNIVERSITY, Hyderabad.

BSc I Year Electronics

SEMESTER I

Circuit Analysis

Unit-wise Lesson Plan for the academic year 2018-19

Unit	Topic	No. of classes required	Classes stipulated	Remarks
I	AC Fundamentals	6	16	
	V-I Relation in R,L,C Combinations	4		
	Polar, Rectangular forms, Complex numbers, Circuit Analysis using complex numbers	4		
	T and $\pi$ networks and their conversions.	2		
II	Kirchhoff's Laws, Nodal and Mesh Analysis	7	17	
	Network theorems	10		
III	Transient response of RC and RL circuits	6	13	
	Frequency response of RC and RL circuits	7		
IV	Series and Parallel Resonance	7	14	
	Cathode ray Oscilloscope	7		

Pravin  
Daware  
22/6/18

St. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Sainikpuri Secunderabad-508 004

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**BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND COMMERCE,  
SAINIKPURI, SECUNDERABAD.**

Autonomous College

Affiliated to OSMANIA UNIVERSITY, Hyderabad.

**BSc I Year Electronics**

**SEMESTER I**

**Circuit Analysis**

**Month -wise Lesson Plan for the academic year 2018-19**

Month	No. of classes scheduled (extra classes)	Topic proposed to be covered	No. of classes required	Remarks
June	5	Periodic Waveforms, peak, average, RMS value, form factor, phase and phase difference Phasor and 'J' operator V-I relationship in circuits containing R,L and C	2  1 2	
July	16	Complex impedance, admittance Polar, and Rectangular forms Circuit Analysis using complex numbers Series and parallel combinations of R,L and C T and $\pi$ networks and their conversions. KVL,KCL-problems Nodal Analysis mesh analysis	3  2 3 3 5	
August	12(2)	Theorems Transient response of RC circuit	12 2	
September	16	Transient response of RL circuit Types of filters, frequency response Differentiator and Integrator Series and parallel resonance	2 4 4 6	
October	3	Cathode Ray Oscilloscope	3	

*Lavanya*  
22/6/18

*Pooja*

Dr. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Sainikpuri, Secunderabad-509 002

**Sem III Electronics - Analog Circuits**

**Unit-wise Lesson Plan for the academic year 2018-19**

Unit	Topic	Classes stipulated		Remarks
I	Introduction - Diodes	3	15	
	Rectifiers – half wave, full wave, bridge	5		
	Filters – Inductor, capacitor, L and $\pi$	5		
	Pspice	2		
II	Zener - regulation	2	15	
	Regulated power supplies – series and shunt	5		
	IC regulators - 78xx, 79xx	2		
	SMPS and UPS	4		
	Pspice	2		
III	Transistor basics	2	15	
	Classification of amplifiers	2		
	RC Coupled Amplifier	5		
	Feedback in amplifiers	4		
	emitter follower, Darlington pair	2		
IV	Oscillators – Barkhausen criteria	2	15	
	RC and LC and crystal oscillators	4		
	Multivibrators –astable, monostable, bistable	4		
	Schmitt trigger	2		
	Revision	3		

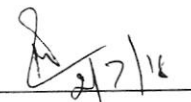
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**Month-wise organizer for the academic year 2018-19**

Month	No. of classes scheduled	Topic proposed to be covered	No. of classes required	Remarks
June	7	Introduction, diodes Rectifiers Filters	2 6 6	
July	16	Regulators- series, shunt IC regulators, SMPS & UPS Pspice	5 4 4 2	
August	12	Transistor basics, Amplifiers RC Coupled Amplifier Feedback	4 5 4	
September	16	emitter follower, Darlington pair Oscillators Multivibrators, Schmitt trigger	2 6 4	
October	3	Revision	2	

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Mrs. M.Prasanna

  
2/7/18

Mr. T Prasad



*Box mill*

**BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND COMMERCE,  
SAINIKPURI, SECUNDERABAD.  
Autonomous College  
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**SEMESTER V  
Digital Electronics**

**Unit-wise Lesson Plan for the academic year 2018-19**

Unit	Topic	No. of classes required	Classes stipulated	Remarks
I	Boolean Algebra, De-morgan's theorem Simplification Of Boolean Expressions	4	11	
	Sum of products (SOP) Product of sums(POS), Karnaugh maps minimization	4		
	Logic gates & Universal gates -multi level implementation	3		
II	Adders,Subtractors,Multiplexer,Dmultiplexer	5	11	
	Decoder & Encoder	3		
	Parity checker & Parity generators	3		
III	Latches, Flip -flops-RS,D,JK,T and Master slave	3	11	
	Shift registers-Universal shift registers	3		
	Counters-Ring counter, Asynchronous and Synchronous counters	5		
IV	Logic families –TTL and CMOS	3	12	
	Memory-classification, RAM,ROM	3		
	D/A and A/D converters	6		

*Pravin*  
*Jaware*  
13/6/18

**BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND COMMERCE,  
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Autonomous College  
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**SEMESTER V  
Digital Electronics**

**Month-wise organizer for the academic year 2018-19**

Month	No. of classes scheduled (extra classes)	Topic proposed to be covered	No. of classes required	Remarks
June	6	Boolean Algebra, De-morgan's theorem Simplification Of Boolean Expressions SOP ,POS	3 3	
July	12	Karnaugh maps Logic gates & Universal gates -multi level implementation Adders, Subtractor, MUX , DEMUX  Decoder & Encoder	3 2 5 2	
August	10	Parity checker & Parity generators Flip -flops-RS,D,JK,T and Master slave Counters-Ring counter, Asynchronous and Synchronous counters	3 3 4	
September	12	Shift registers-Universal shift registers Logic families –TTL and CMOS D/A and A/D converters	4 3 5	
October	3	Memory-classification, RAM,ROM	3	

*Bosnic*

*Davane*

13/6/18

Pl. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Sainikpuri, Secunderabad-500 086

B Sc III Year Electronics - Semester V				
Elective Paper - 8085 Microprocessor – EL524 A				
Month wise lesson plan for 2018-19				
Month	Number of Classes Scheduled	Topics	Classes Required- Topic wise	Remarks
June	6	Introduction and Memory organization	5	
		Architecture of Intel 8085	3	
July	12	Pin configuration of 8085	2	
		Instruction set and Addressing modes	5	
		Addition, Subtraction, Multiplication and Division	4	
		Largest / Smallest , arranging the data in Ascending and Descending order	4	
August	10	Stack and Subroutines	2	
		Time delays	3	
		Software and Hardware Interrupts	2	
		Timing Diagrams	3	
September	12	Data transfer schemes, PPI 8255	4	
		Keyboard and Display interfacing (8279)	3	
		Seven segment LED interfacing	3	
		Stepper motor interfacing	2	
October	3	Revision		

B Sc III Year Electronics - Semester V					
Elective Paper - 8085 Microprocessor – EL524 A					
Unit wise lesson plan for 2018-19					
Unit	Topic	No. of Classes required	Classes Stipulated	Remarks	
1	<b>8085 Architecture</b>				
	Introduction and Memory organization	5	10		
	Architecture of Intel 8085	3			
	Pin configuration of 8085	2			
2	<b>Programming 8085</b>				
	Instruction set and Addressing modes	5	13		
	Addition, Subtraction, Multiplication and Division	4			
	Largest / Smallest , arranging the data in Ascending and Descending order	4			
3	<b>Counter and Time Delays</b>				
	Stack and Subroutines	2	10		
	Time delays	3			
	<b>Interrupts</b>				
	Software and Hardware Interrupts	2			
	Timing Diagrams	3			
4	<b>Interfacing Peripherals</b>				
	Data transfer schemes, PPI 8255	4	12		
	Keyboard and Display interfacing (8279)	3			
	Seven segment LED interfacing	3			
	Stepper motor interfacing	2			

Mrs M Prasanna

Mr TVLNH Prasad

Boonil  
2/7/2018

Dept of Physics & Electronics  
Shriatiya Vidya Bhawan's  
Vivekananda College  
Malkajgiri Secundershed-509 006

18/6/2018



Bharatiya Vidya  
**Bhavan**

**BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND COMMERCE**  
**, SAINIKPURI, SECUNDERABAD**

Autonomous College

**ACADEMIC ORGANIZER - 2018-2019**

**DEPARTMENT OF PHYSICS**

**PHYSICS- SEMESTER I**

**Mechanics**

**Unit-wise Lesson Plan for the academic year 2018-2019**

Unit	Topic	Classes stipulated		Remarks
I	Vector analysis	10	15	
	Newton's laws and Motion under different types of forces	5		
II	Collisions	7	15	
	Central forces	8		
III	Mechanics of rigid bodies	8	15	
	Mechanics of continuous media	7		
IV	Frames of reference and transformation	8	15	
	Consequences of relativistic transformations	7		

Mrs Lakshmi Savita  
Dr G S V R K Choudary

**PHYSICS- Semester II**  
**Waves and Oscillations**

**Unit-wise Lesson Plan for the academic year**

Unit	Topic	Classes stipulated		Remarks
I	Fundamental of vibration	7	15	
	Superposition of Harmonic motions	8		
II	Damped Oscillations	7	15	
	Forced Oscillation	8		
III	Fourier analysis of complex vibrations	8	15	
	Ultrasonics	7		
IV	Vibrations of bars	8	15	
	Transverse and Longitudinal waves	7		

Mrs V R MANJULA  
Mrs Lakshmi Savita

*Prasanna*  
26/06/2018

Dept. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Sainikpuri, Secunderabad-500 087



**PHYSICS- SEMESTER I Mechanics-PH123**

**Month-wise organizer for the academic year 2018-2019**

Month	No. of classes scheduled	Topic proposed to be covered	Classes required	Remarks
June	5	<b>Vector analysis-</b> Introduction Gradient of a scalar, Divergence and curl of a vector.	5	
July	16	Stokes. Gauss and green theorem. problems	5	
		<b>Newton's laws</b> –Laws of motion. System of variable mass-Motion of rocket, Motion under different forces.	5	
		<b>Collisions-</b> Collisions in two and three dimensions, impact parameter, scattering cross – section, Rutherford scattering,	6	
August	12	<b>Central Forces</b> characteristics Keplers laws	6	
		<b>Mechanics of rigid bodies-</b> Euler's equation, Symmetric top and precessional motion, Gyroscope	6	
September	16	<b>Frames of reference and transformation:</b> Frames of reference Galilean relativity, Michelson – Morley experiment,	4	
		<b>Consequences of relativistic transformations</b> Lorentz transformation, time dilation, length contraction, addition of velocities, position and velocity as four vectors, Energy momentum transformation mass – energy relation	8	
		<b>Mechanics of continuous media</b> Stress and strain relation, Elastic constants, strains with examples, Relation between $y$ , $n$ , $k$ and $\sigma$ .	4	
October	3	Catilever beam- depression in Uniform and non uniform bending	3	

*Pooni*  
26/06/2018

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**BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND  
COMMERCE , SAINIKPURI, SECUNDERABAD**

Autonomous College- (Accredited with A grade by NAAC)

**ACADEMIC ORGANIZER - 2018-2019**

**DEPARTMENT OF PHYSICS**

**Semester III**

**PAPER 323-- THERMODYNAMICS**

**Unit-wise Lesson Plan for the academic year 2018-2019**

Unit	Topic	Classes stipulated		Remarks
I	Introduction to thermodynamics	7	15	
	Second law of thermodynamics and Entropy	8		
II	Thermodynamic potentials and Maxwell's equations	8	15	
	Low temperature Physics	7		
III	Kinetic theory of gases	7	15	
	Statistical Mechanics	8		
IV	Radiation Laws	9	15	
	Measurement of Radiation	6		

*Prasanna*  
28/06/2018

*Rifaqul*  
28/6

**Semester III**  
**PAPER 323-- THERMODYNAMICS**

**Month-wise organizer for the academic year 2018-2019**

Month	No. of classes scheduled	Topic proposed to be covered	classes required	Remarks
June	9	Thermodynamic Laws-Introduction to thermodynamics and First Law	7	
		Second law of thermodynamics	2	
July	14+1	Second Law of thermodynamics and Applications	4	
		Thermodynamic potentials and Maxwell's equations- Applications	7	
		Low temperature physics-Methods of production	4	
August	12+2	Low temperature physics- Refrigeration	2	
		Kinetic theory of gases –Introduction, Ideal and Vander wall's gases, transport phenomena	6	
		Statistical Mechanics- Classical statistics	6	
September	12+2	Quantum Statistics	2	
		Radiation Laws- Blackbody Radiation: Classical and Quantum theory	8	
		Measurement of Radiation	4	
October	2	Solar constant and Estimation of temperature of Sun	2	

*Pravin*  
28/06/2018

*Shafiqul*  
28/6



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**BHAVAN'S VIVEKANANDA COLLEGE OF SCIENCE, HUMANITIES AND COMMERCE**  
**, SAINIKPURI, SECUNDERABAD**

Autonomous College

**ACADEMIC ORGANIZER - 2018-2019**

**DEPARTMENT OF PHYSICS**

**SEMESTER V –Paper Code PH523**

**ELECTRICITY AND MAGNETISM**

**Unit-wise Lesson Plan for the academic year 2018-2019**

Unit	Topic	Classes stipulated	Remarks
I	Electrostatics	10	
II	Dielectrics, Capacitance	10	
III	Magnetostatics	10	
	Moving charge in EM fields		
IV	Electromagnetic Induction	15	
	Maxwell's equations & EM waves		

*Santosh*

**SEMESTER V –Paper Code PH523A**

**Solid State Physics and Spectroscopy**

**Unit-wise Lesson Plan for the academic year 2018-2019**

Unit	Topic	Classes stipulated	Remarks
I	Bonding in crystals	10	
	Crystal Physics and diffraction		
II	Magnetism , Superconductivity	15	
	Nanomaterials		
III	Atomic Spectra	10	
	One electron spectra		
IV	Molecular Spectra	10	
	Raman Spectra		

*Poojitha*  
*26/06/2018*

*Ashutosh*

Dep. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Sainikpuri, Secunderabad-508 004



**Month-wise organizer for the academic year 2018-2019**

**Paper Code PH523**

Month	No. of classes scheduled	Topic proposed to be covered	classes required	Remarks
June	6	<b>Electrostatics</b> -Electric field and potential, relation between them Gauss law	6	
July	12	Applications of Gauss law <b>Dielectrics</b> -Atomic view of dielectrics, Polarization and charge density, Relation between D,E, and P. Gauss law in dielectrics. Relation between dielectric constant and susceptibility. <b>Capacitors</b> -Capacitance of parallel plate condenser with and without dielectric, spherical and cylindrical capacitors, Electric energy stored in a condenser force between plates-condenser <b>Magnetostatics</b> :Magnetic induction (B) and field (H) permeability and susceptibility	2 4 4 2	
August	10	Hysteresis loop –magnetic constants <b>Moving charge in EM fields</b> Hall effect, cyclotron, synchrocyclotron and synchrotron Biot –Savart's law B- straight long wire, circular current loop and solenoid.	2 8	
September	12	<b>EMI</b> -Faraday's law –Lenz's law Betatron Ballistic galvanometer -Self and Mutual inductance, Solenoid, toroid, energy in magnetic field, Transformer <b>Maxwell's equations</b> :Maxwell's eqs-Integral & differential form Maxwell's wave equation	8 4	
October	3	Production of EM waves (Hertz experiment) plane EM waves	3	

Mrs T SAI SANTOSHI

*Santoshi*

43

*Boonika*  
*22/06/2018*

**Paper Code PH523A**

**Month-wise organizer for the academic year 2018-2019**

Month	No. of classes scheduled	Topic proposed to be covered	classes required	Remarks
June	6	<b>Crystal Physics and diffraction</b> Amorphous and Crystalline nature of matter, Crystal systems, Bravais lattices. Miller indices. Simple crystal structures, Types of bonding in crystals, Lattice energy, Madelung's Constant,	6	
July	12	Born's repulsive coefficient and exponent. Born - Haber cycle. Diffraction of X-rays by crystals-Bragg's law, Laue's and powder diffraction method <b>Magnetism (5)</b> Magnetic properties of materials-Langevin's theory-Quantum theory-Weiss' theory, Molecular field and exchange interactions. Magnetic domains, Antiferromagnetism.Ferrites -applications. <b>Superconductivity</b> Meissner effect. Type-I and Type-II superconductors. BCS theory: Cooper pairs and Phonons. Quantum Hall Effect, High $T_c$ superconductors. Applications	2 2 4 4	
August	10	<b>Nanomaterials-</b> semi conductor nano particles, metal - carbon nanoparticle. Carbon nanoclusters and nanotubes. Quantum nano structures: nano dot, nanowire and quantum well. Size, dimensionality effect. Fabrication of quantum nanostructures. STM and AFM <b>Atomic Spectra</b> Atoms in Electric, Magnetic fields: angular momentum, space quantization. Stern Gerlach experiment. Vector atom model, quantum numbers associated with LS-JJ coupling schemes. Larmor's theorem - spin magnetic moment. Spectral terms and notations	4 6	
September	12	<b>One electron spectra</b> Alkali Spectra, doublet fine structure. Zeeman Effect, Paschen-Back Effect and Stark Effect. <b>Molecular Spectra</b> Types of molecular spectra, pure rotational energies and spectrum determination of inter nuclear distance. Vibrational energies - spectrum of diatomic molecule. fluorescence phosphorescence.	5 7	
October	3	<b>Raman Spectra</b> Raman Effect: Classical and quantum theory of Raman Effect. Raman's Spectrometer, Applications of Raman Effect.	3	



**Bhavan's Vivekananda College**  
of Science, Humanities and Commerce  
Autonomous – Affiliated to Osmania University

2018-19

**Program: B Sc MECS**

**Course Title: Semiconductor Devices**

Name of the faculty: Mrs B Niraimathi	Department: Physics and Electronics	Year/Semester: I Year/2 <sup>nd</sup> Semester	No. of classes per week: 4 Credits: 4
Learning objectives: Understand the working and operation of semiconductor devices, their applications in Rectifiers, power supplies and amplifiers and in turn understand the capabilities and limitations of these devices.			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity
1	November 3 <sup>rd</sup> week	I	Review of basics of semiconductor Physics		Chalk & Board Video on effect of temperature on conductivity of semiconductor	
2	November 4 <sup>th</sup> week	I	Continuity equation PN Junction theory, VI Characteristics. Diode equation		Chalk & Board	<ul style="list-style-type: none"> <li>• Problems on diodes</li> <li>• Study of VI Characteristics of diode during lab session</li> </ul>
3	December 1 <sup>st</sup> week	I	Junction capacitance, Varactor diode, Characteristics		Chalk & Board	
4	December 2 <sup>nd</sup> week	I	Zener diode-VI Characteristics-Application Tunnel Diode-characteristics		Chalk & Board Video of working of tunnel diode	<ul style="list-style-type: none"> <li>• Problem solving on zener voltage regulator</li> <li>• Study of VI Characteristics of zener diode during lab session</li> </ul>
5	December 3 <sup>rd</sup> week	II	PNP, NPN Transistors, Current components-Configurations	Assignment on applications on diodes- PN Junction, Zener, Varactor & Tunnel diodes	Chalk & Board	
6	December 4 <sup>th</sup> week	II	Static characteristics in CB, CE & CC Configurations		Chalk & Board	<ul style="list-style-type: none"> <li>• Study of VI Characteristics of transistor in CE during lab session</li> </ul>
7	January 1 <sup>st</sup> week	II	Transistor as an amplifier. Transistor as two port network, h parameters, Determination of h parameters		Chalk & Board	<ul style="list-style-type: none"> <li>• Determination of h parameters during lab session</li> </ul>
8	January 2 <sup>nd</sup> week	II	Load line analysis, Transistor biasing fixed and self bias		Chalk & Board	

9	January 3 <sup>rd</sup> week	III	FET-Classification Construction and characteristics		Chalk & Board	• Study of VI Characteristics of FET & determination of FET parameters during lab session
10	January 4 <sup>th</sup> week	III	FET parameters – applications MOSFET-Modes of operation, Applications		Chalk & Board	
11	February 1 <sup>st</sup> week	III	UJT-Construction, characteristics, application as relaxation oscillator		Chalk & Board	• Study of VI Characteristics of UJT & UJT relaxation oscillator during lab session
12	February 2 <sup>nd</sup> week	IV	Construction and characteristics of SCR, Two transistor analogy, applications		Chalk & Board	
13	February 3 <sup>rd</sup> week	IV	Construction and characteristics of photo electronics devices- LDR, LED, Photodiode, phototransistor, Solar cell		Chalk & Board	• Study of solar cell characteristics during lab session
14	February 4 <sup>th</sup> week	IV	Revision	• Assignment evaluation by Seminar presentation	PPT- Presentation	
15	March 1 <sup>st</sup> week	IV	Revision	• Assignment evaluation by Seminar presentation	PPT- Presentation	
<b>Learning outcomes: Students should be able to work with different types of semiconductor devices, understand their characteristics and applications.</b>						

*Poojitha*  
24/11/2018  
Signature of the Faculty

*Poojitha*  
Signature of the HOD

Dept of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Malkajgiri Secunderabad-500 084



**Bhavan's Vivekananda College**  
of Science, Humanities and Commerce  
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Program: B Sc MECS

Course Title: Semiconductor Devices  
Academic Year 2018-19

Course Code: EL 224

Name of the faculty: Mrs P Lavanya	Department: Physics and Electronics	Year/Semester: I Year/2 <sup>nd</sup> Semester	No. of classes per week: 4 Credits: 4
Learning objectives: Understand the working and operation of semiconductor devices, their applications in Rectifiers, power supplies and amplifiers and in turn understand the capabilities and limitations of these devices.			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Sign	Hod sign
1	November 3 <sup>rd</sup> week	I	Review of basics of semiconductor Physics		Chalk & Board				
2	November 4 <sup>th</sup> week	I	Continuity equation PN Junction theory, VI Characteristics, Diode equation		Chalk & Board	<ul style="list-style-type: none"> <li>• Problems on diodes</li> <li>• Study of VI Characteristics of diode during lab session</li> </ul>	completed	Lavanya	
3	December 1 <sup>st</sup> week	I	Junction capacitance, Varactor diode, Characteristics		Chalk & Board		} Transistors configurations & experiment components - Incomplete will take extra hours to complete		
4	December 2 <sup>nd</sup> week	I	Zener diode-VI Characteristics-Application Tunnel Diode-characteristics		Chalk & Board	<ul style="list-style-type: none"> <li>• Problem solving on zener voltage regulator</li> <li>• Study of VI Characteristics of zener diode during lab sessions</li> </ul>		Lavanya	
5	December 3 <sup>rd</sup> week	II	PNP, NPN Transistors, Current components-Configurations	Assignment on diodes-PN Junction, Zener, Varactor & Tunnel diodes	Chalk & Board				
6	December 4 <sup>th</sup> week	II	Static characteristics in CB, CE & CC Configurations		Chalk & Board	<ul style="list-style-type: none"> <li>• Study of VI Characteristics of transistor in CE during lab sessions</li> </ul>			
7	January 1 <sup>st</sup> week	II	Transistor as an amplifier, Transistor as two port network, h parameters, Determination of h parameters		Chalk & Board	<ul style="list-style-type: none"> <li>• Determination of h parameters during lab sessions</li> </ul>			



S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Sign	Hod sign
8	January 2 <sup>nd</sup> week	II	Load line analysis		Chalk & Board		} FET Concepts - plete will schedule entire hrs. to complete	Jawarega.	
9	January 3 <sup>rd</sup> week	III	Transistor biasing fixed and self bias		Chalk & Board				
10	January 4 <sup>th</sup> week	III	FET-Classification Construction and characteristics		Chalk & Board	• Study of VI Characteristics of FET & determination of FET parameters during lab sessions			
11	February 1 <sup>st</sup> week	III	FET parameters – applications MOSFET-Modes of operation, Applications		Chalk & Board		} covered	Jawarega.	
12	February 2 <sup>nd</sup> week	IV	UJT-Construction, characteristics, application as relaxation oscillator		Chalk & Board	• Study of VI Characteristics of UJT & UJT relaxation oscillator during lab sessions			
13	February 3 <sup>rd</sup> week	IV	Construction and characteristics of SCR, Two transistor analogy, applications	• Assignment on FET and UJT characteristics & applications	Chalk & Board s				
14	February 4 <sup>th</sup> week	IV	Construction and characteristics of photo electronics devices-LDR, LED, Photodiode, phototransistor, Solar cell			s			
15	March 1 <sup>st</sup> week	IV	Revision						covered
Learning outcomes: Students should be able to work with different types of semiconductor devices, understand their characteristics and applications.									

Jawarega.  
Signature of the Faculty

Dept. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Mumbai Secunderabad-500 054

Jawarega.  
Signature of the HOD



**Bhavan's Vivekananda College**  
of Science, Humanities and Commerce  
Autonomous – Affiliated to Osmania University

Teaching plan : 2018 – 19

**B Sc II Year Electronics – Operational Amplifiers and Analog communications**

Name of the faculty: TVLNH PRASAD	Department: ELECTRONICS	Year/Semester: IV	No. of classes per week: 4
<b>Learning objectives:</b> <ul style="list-style-type: none"> <li>To provide the basic education in linear integrated circuits; operational amplifiers – basic construction, characteristics, parameter limitations and its applications.</li> <li>To give basic knowledge of analog communications</li> <li>Become proficient with computer simulation skills (using Pspice) for the analysis and design of circuits.</li> <li>The students will be made to understand the working of operational amplifier ICs and its applications.</li> </ul>			

S.No	Month & Week	Unit	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity		
1	November 4 <sup>th</sup> week 2	I	Operational amplifiers – block diagram, equivalent circuit	Drawbacks of an amplifiers using discrete components	Charlk & Board	Student seminars on biasing & RC Coupled amplifier.	Covered In	
2	5 <sup>th</sup> week 3	I	Op – amps – Ideal & Practical characteristics	Types of op amps	Charlk & Board		Covered In	
3	December 1 <sup>st</sup> week 2	I	Differential Amplifier	Emitter follower	Charlk & Board		Covered In	
4	2 <sup>nd</sup> week 4	I	Op – amp as Inverting & Non – Inverting amplifiers	Construction & demonstration of amplifier circuits	Charlk & Board	Numerical problems in Amplifiers – inverting and non – inverting	Covered done In	
5	3 <sup>rd</sup> week 3	II	Op – amp Applications		Chalk & Board Lab demonstrations	Construction and simulation of amplifier circuits	Covered In	
6	4 <sup>th</sup> week	II	Op – amp Applications	Comparison of circuits with transistors	Chalk & Board Lab demonstrations	Numerical problems on summing, differentiator and integrator	Covered In	

S.No	Month & Week	Unit	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity		
7	January 1 <sup>st</sup> week	II	Waveform generators – sine	Comparison of circuits with transistors	Chalk & Board Lab demonstrations	Simulation of the circuits	Covered	
8	2 <sup>nd</sup> week	III	Square, triangular		Chalk & Board Lab demonstrations	Simulation of the circuits AMV	Covered	
9	3 <sup>rd</sup> week	III	Amplitude Modulation	Demonstration of AM modulation and detection	Chalk & Board Lab demonstrations	List the transmission frequencies of AM and FM	Covered 13/1	
10	4 <sup>th</sup> week	III	Demodulation		Chalk & Board Lab demonstrations	Construct modulator and demodulator & simulate	Covered 13/2	
11	February 1 <sup>st</sup> week	III	Frequency Modulation	Demonstration of FM modulation and detection using trainer boards	Chalk & Board Lab demonstrations		In	
12	2 <sup>nd</sup> week	IV	FM Detection				In	
13	3 <sup>rd</sup> week	IV	AM and FM transmitter and receivers	Demonstrate various blocks of a receiver in a radio	Chalk & Board LCD presentations	Assignments	In	
14	4 <sup>th</sup> week	IV	Pulse modulation	Applications will be discussed	Chalk & Board LCD presentations	Student seminars	Covered	
15	March 1 <sup>st</sup> week		Revision				In	

**Learning outcomes:**


After the completion of this course students acquire experience in building and troubleshooting simple analog circuits using IC – 741 and IC – 555 in various applications.

After the completion of this course the students will become familiar with fundamental concepts of analog communications, working of transmitter and receiver.



Signature of the Faculty







Dept. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Vaidikpuri, Secunderabad-509 009


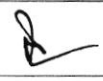




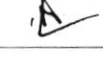
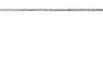


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**BHAVAN'S VIVEKANANDA COLLEGE**  
**OF SCIENCE, HUMANITIES AND COMMERCE**  
**Sainikpuri, Secunderabad-500094**  
**Autonomous College Affiliated to Osmania University**  
**TEACHING PLAN: 2018-19**  
**Program: B. Sc (M/E/Cs)**


**Course Title: EL 424 : OPERATIONAL AMPLIFIERS AND ANALOG COMMUNICATIONS**

Name of the faculty: Mrs M.Prasanna		Department: Physics and Electronics	Year/Semester: IIyr / IV		No. of Classes per week: (4 hrs/week) 4 Credits			
		<b>Learning Objective:</b> The course aims to – <ul style="list-style-type: none"> <li>• provide the basic education in linear integrated circuits; operational amplifiers – basic construction, characteristics, parameter limitations and its applications.</li> <li>• Become proficient with computer simulation skills for the analysis and design of circuits.</li> <li>• The students will be made to understand the working of Operational Amplifier IC's and its applications .</li> </ul>						
S. No	Month & Week	Units	Syllabus	Additional Input/Value addition	Teaching Method	Student/ Learning activity	Review	Sign
1.	November 4 <sup>th</sup> week	I	Operational Amplifiers – block diagram, equivalent circuit	Drawbacks of an Amplifier using discrete components	Chalk & Board, LCD presentation	Student seminars on biasing & RC coupled amplifier.		
2.	November 5 <sup>th</sup> week	I	Operational amplifiers – ideal characteristics, practical parameters.	Types of OpAmp packages	Chalk & Board, presentation			
3.	December 1 <sup>st</sup> week	I	Differential Amplifier	Emitter follower	Chalk & Board			
4.	December 2 <sup>nd</sup> week	I	Op Amp as inverting and non-inverting Amplifiers.	Construction & demonstration of amplifier circuits	Chalk & Board	Numerical problems in Amplifiers – inverting, Non inverting		
5.	December 3 <sup>rd</sup> week	II	Op Amp applications		Chalk & Board	Construction and simulation of amplifier circuits		
6.	December 4 <sup>th</sup> week	II	Op Amp applications	Comparison with circuits using	Chalk & Board	Numerical problems on Summing,		

				transistor		Integrator and differentiator circuits		
7.	January 1 <sup>st</sup> week	II	Waveform generators	Comparison with circuits using transistor	Chalk & Board	Simulation of WBO circuit		
8.	January 2 <sup>nd</sup> week	III	Square, triangular waveform generators		Chalk & Board	Simulation of the circuits AMV		
9.	January 3 <sup>rd</sup> week	III	Amplitude Modulation		Chalk & Board	List the transmission frequencies of AM and FM		
10.	January 4 <sup>th</sup> week	III	Demodulation	Demonstrate AM modulation and detection	Chalk & Board	Simulate modulator and demodulator ckts		
11.	February 1 <sup>st</sup> week	IV	Frequency Modulation		Chalk & Board			
12.	February 2 <sup>nd</sup> week	IV	FM detection		Chalk & Board			
13.	February 3 <sup>rd</sup> week	IV	AM and FM transmitter and receivers		Chalk & Board	Assignments		
14.	February 4 <sup>th</sup> week	IV	Pulse modulation	Applications will be discussed.	Chalk & Board	Student seminars		
15.	March 1 <sup>st</sup> week	IV	Revision					
<b>Learning Outcomes:</b> After completion of this course, students acquire experience in building and troubleshooting simple analog circuits using IC741/ 747 and IC 555 in various applications. After learning the course, students will be familiar with the fundamental concepts of analog communication, working of transmitter and receiver.								

  
 Signature of the Faculty

Dept. of Physics & Electronics  
 Bharatiya Vidya Bhavan  
 Vivekananda College  
 Rajkpur, Secunderabad-500 004

  
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**Bhavan's Vivekananda College**  
**of Science, Humanities and Commerce**  
**Autonomous – Affiliated to Osmania University**  
**Program – B Sc III Year Electronics Course – 8051 Microcontroller**  
**2018 - 19**

Name of the faculty: TVLNH PRASAD	Department: ELECTRONICS	Year/Semester: III year / VI	No. of classes per week: - 3 / credits 3
<b>Learning objectives:</b> To understand the need of microcontrollers in embedded systems To understand architecture and features of typical microcontroller The 8051 architecture, instruction set, assembly language program, serial communication and interfacing techniques of 8051 microcontroller Programming and debugging skills			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity		
1	November 3 <sup>rd</sup> week	1 ✓	Introduction to microcontroller and embedded systems, overview of 8051 family	Students will be introduced to microcontroller kits in lab	LCD projector is used to cover these fundamentals  Chalk & Board		Completed.	Jr
2	4 <sup>th</sup> week	1 3	Block diagram of microcontroller, 8051 functions of each block		LCD projector  Chalk & Board	Students will explain the details of selected part of block diagram	Completed	Jr
3	December 1 <sup>st</sup> week	1 ✓	Pin details of 8051 ALU, ROM, RAM memory organization of 8051, oscillator clock and SFRs		LCD projector  Chalk & Board	Students will come with block diagram and pin diagram, list of SFRs	Covered	Jr
4	2 <sup>nd</sup> week	1 4	Program counter, PSW register, stack, i/o ports, serial port, timer, interrupts		Chalk & Board	Setting and resetting the bits of psw, register bank selection examples	Covered	Jr
5	3 <sup>rd</sup> week	2 3	Addressing modes of 8051, instruction set of 8051, classification of instructions	Simulation software is introduced	Chalk & Board	Examples are given to identify the types of addressing modes and instructions	Covered	Jr
6	4 <sup>th</sup> week	2	Data transfer, arithmetic and branching instructions programming		Chalk & Board  Flow charts are drawn on board to explain the logics of the programs	Example programs	Covered	Jr

7	January 1 <sup>st</sup> week	2	Bit manipulation instructions and simple programs using these instructions		Chalk & Board Flow charts are drawn on board to explain the logics of the programs	Example programs	Covered In 9/2
8	2 <sup>nd</sup> week	2	Programming using Logical instructions		Chalk & Board Flow charts are drawn on board to explain the logics of the programs	Example programs	Covered In 11/2
9	3 <sup>rd</sup> week	3	Addition subtraction multiplication and division Time delay programming	Programming will be practiced by students during lab sessions	Chalk & Board	Example programs	Covered In 11/2
10	4 <sup>th</sup> week	3	Largest / smallest numbers ascending / descending order	Programming will be practiced by students during lab sessions	Chalk & Board	Example programs	Covered In 11/2
11	February 1 <sup>st</sup> week	3	BCD , HEX and ASCII code conversions, subroutines	Programming will be practiced by students during lab sessions	LCD projector Chalk & Board	Example programs	Timer programming also covered In 11/2
12	2 <sup>nd</sup> week	4	Interfacing ADC , DAC	Micro controller project Kits will be used to demonstrate the working of DAC and ADCs during lab sessions	Chalk & Board	Students will identify various Applications using DAC and ADCs	In
13	3 <sup>rd</sup> week	4	Waveform generation, interfacing LCD and display information		Keil software LCD projector Chalk & Board	Demos and video lectures	In
14	4 <sup>th</sup> week	4	Serial communication stepper motor interfacing		Keil software LCD projector Chalk & Board	Demos and video lectures	In Completed
15	March 1 <sup>st</sup> week	4	Revision				In Revision

**Learning outcomes:**

Define terms applicable to microcontrollers

Write programs using assembly language

Work with microcontroller based equipment and be capable of participating in product development efforts, including support and development of assembly language code



Signature of the Faculty

Dept. of Physics & Electronics  
Bharatiya Vidya Peeth  
Vivekananda College  
Bhatkpur, Secunderabad-508 007



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**Bhavan's Vivekananda College**  
**of Science, Humanities and Commerce**  
**Autonomous – Affiliated to Osmania University**  
**Program – B Sc III Year Electronics Course – 8051 Microcontroller EL624**  
**2018 - 19**

<b>Name of the faculty:</b> MrS M PRASANNA	<b>Department:</b> ELECTRONICS	<b>Year/Semester:</b> III year / VI	<b>No. of classes per week:</b> 3 / credits 3
<b>Learning objectives:</b> To understand the need of microcontrollers in embedded systems To understand architecture and features of typical microcontroller The 8051 architecture, instruction set, assembly language program, serial communication and interfacing techniques of 8051 microcontroller Programming and debugging skills			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity		
1	November 3 <sup>rd</sup> week	1	Introduction to microcontroller and embedded systems, overview of 8051 family	Students will be introduced to microcontroller kits in lab	LCD projector is used to cover these fundamentals  Chalk & Board			
2	4 <sup>th</sup> week	1	Block diagram of microcontroller, 8051 functions of each block		LCD projector  Chalk & Board	Students will explain the details of selected part of block diagram	} Completed A	
3	December 1 <sup>st</sup> week	1	Pin details of 8051 ALU, ROM, RAM memory organization of 8051, oscillator clock and SFRs		LCD projector  Chalk & Board	Students will come with block diagram and pin diagram, list of SFRs		
4	2 <sup>nd</sup> week	1	Program counter, PSW register, stack, i/o ports, serial port, timer, interrupts		Chalk & Board	Setting and resetting the bits of psw, register bank selection examples		
5	3 <sup>rd</sup> week	2	Addressing modes of 8051, instruction set of 8051, classification of instructions	Simulation software is introduced	Chalk & Board	Examples are given to identify the types of addressing modes and instructions		
6	4 <sup>th</sup> week	2	Data transfer, arithmetic and branching instructions programming		Chalk & Board  Flow charts are drawn on board to explain the logics of the programs	Example programs		



7	January 1 <sup>st</sup> week	2	Bit manipulation instructions and simple programs using these instructions		Chalk & Board Flow charts are drawn on board to explain the logics of the programs	Example programs		
8	2 <sup>nd</sup> week	2	Programming using Logical instructions		Chalk & Board Flow charts are drawn on board to explain the logics of the programs	Example programs	} completed S	
9	3 <sup>rd</sup> week	3	Addition subtraction multiplication and division Time delay programming	Programming will be practiced by students during lab sessions	Chalk & Board	Example programs		
10	4 <sup>th</sup> week	3	Largest / smallest numbers ascending / descending order	Programming will be practiced by students during lab sessions	Chalk & Board	Example programs		
11	February 1 <sup>st</sup> week	3	BCD , HEX and ASCII code conversions, subroutines	Programming will be practiced by students during lab sessions	LCD projector Chalk & Board	Example programs		
12	2 <sup>nd</sup> week	4	Interfacing ADC , DAC	Micro controller project Kits will be used to demonstrate the working of DAC and ADCs during lab sessions	Chalk & Board	Students will identify various Applications using DAC and ADCs		
13	3 <sup>rd</sup> week	4	Waveform generation, interfacing LCD and display information		Keil software LCD projector Chalk & Board	Demos and video lectures		
14	4 <sup>th</sup> week	4	Serial communication stepper motor interfacing		Keil software LCD projector Chalk & Board	Demos and video lectures	S	
15	March 1 <sup>st</sup> week	4	Revision					

**Learning outcomes:**

Define terms applicable to microcontrollers


Write programs using assembly language

Work with microcontroller based equipment and be capable of participating in product development efforts, including support and development of assembly language code



Signature of the Faculty

Dept. of Physics & Electronics  
Bharatiya Vidya Bhavan  
Vivekananda College  
Wajlkpuri, Secunderabad-500 080



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**Bhavan's Vivekananda College**  
of Science, Humanities and Commerce  
Autonomous – Affiliated to Osmania University

**Program: B Sc MECS**

**Course Title: Digital system design using VHDL**  
**Academic Year 2018-19**

**Course Code: EL 624A**

Name of the faculty: Mrs P Lavanya	Department: Physics and Electronics	Year/Semester: III Year/6 <sup>th</sup> Semester	No. of classes per week: 3 Credits: 3
Learning objectives: To learn hardware descriptive language and to write codes targeting Xilinx and FPGA devices.			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Sign	Hod sign
1	November 3 <sup>rd</sup> Week	I	Introduction to VHDL		Chalk&Board		Completed	Lavanya	
2	November 4 <sup>th</sup> Week	I	Entity and Architecture declaration Data objects and Classes		Chalk&Board	Introduction to Xilinx ISE simulator- A software tool for HDL design and simulation during lab session.			
3	December 1 <sup>st</sup> Week	I	Operators and data types		LCD	Modeling and simulation of gates during lab session.	Sequential & document statements Do complete will schedule Entire classes to complete	Lavanya	
4	December 2 <sup>nd</sup> Week	I	Introduction to behavioral, dataflow& structural model.		Chalk&Board				
5	December 3 <sup>rd</sup> Week	II	Process statement, Assignment statements, sequential statements and case statement.		Chalk&Board	Writing VHDL codes to design adders and subtractors			
6	December 4 <sup>th</sup> Week	II	Arrays & loops, concurrent statements		Chalk&Board	Attended Refresher course from 19/12/18 to 11/01/19			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Sign	Hod sign
7	January 1 <sup>st</sup> Week	II	Types of delays Structural modeling, component declaration & generics		Chalk&Board		} Few topics Do complete will schedule Eastern classes to complete		
8	January 2 <sup>nd</sup> Week	II	packages& libraries, Functions and procedures		Chalk&Board	Designing other sequential circuits like mux and demux during lab session			
9	January 3 <sup>rd</sup> Week	III	, VHDL models- simulation of mux,demux.decoders and encoders.		Chalk&Board	Structural style modeling of decoders and encoders			
10	January 4 <sup>th</sup> Week	III	VHDL models- Code converters and comparators.		Chalk&Board	Modeling comparator			
11	February 1 <sup>st</sup> Week	III	VHDL models for Implementation of Boolean functions, sequential circuits- flip-flops- SR and JK.		Chalk&Board		} covered January		
12	February 2 <sup>nd</sup> Week	IV	VHDL models- D and T flip-flops. Registers.		Chalk&Board	Design of flip flops			
13	February 3 <sup>rd</sup> Week	IV	VHDL models to design registers.		Chalk&Board				
14	February 4 <sup>th</sup> Week	IV	VHDL models to design counters- ripple counter and decade counter		Chalk&Board	Modeling sequential circuits like counters and registers.			
15	March 1 <sup>st</sup> Week		Over view on sequential concurrent statements and component declaration Modeling design at different abstractions	Students will be presenting a PPT – Design of any digital circuit in different models.	LCD		} covered January.		
Learning outcomes: Learning outcomes: On completion of course students will be able to model, simulate and synthesis various digital circuits.									

*Jawar*  
Signature of the Faculty

*Pravin*  
Signature of the HOD



**Bhavan's Vivekananda College**  
**of Science, Humanities and Commerce**  
**Autonomous – Affiliated to Osmania University**  
**Course Title: Digital System Design using VHDL**  
**Academic Year 2018-19**

Program: BSc MECs

Course Code: EL624A

Name of the faculty: B. Niraimathi	Department: Physics & Electronics	Year/Semester: III Year/VI Semester	No. of classes per week: 3
Learning objectives: To learn hardware descriptive language and to write codes targeting Xilinx and FPGA devices.			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity
1	November 3 <sup>rd</sup> Week	I	Introduction to VHDL		Chalk & Board	
2	November 4 <sup>th</sup> Week	I	Entity and Architecture declaration Introduction to behavioral, dataflow & structural model.		Chalk & Board	Introduction to Xilinx ISE simulator-A software tool for HDL design and simulation during lab session.
3	December 1 <sup>st</sup> Week	I	Data objects and Classes		PPT	Modeling and simulation of gates during lab session.
4	December 2 <sup>nd</sup> Week	I	data types and Operators		Chalk & Board and PPT	
5	December 3 <sup>rd</sup> Week	II	Process statement, Assignment Statements, sequential statements and case statement.		Chalk & Board and PPT	Writing VHDL codes to design adders and subtractors during lab session
6	December 4 <sup>th</sup> Week	II	Arrays & loops, concurrent statements		Chalk & Board and PPT	
7	January 1 <sup>st</sup> Week	II	Types of delays Structural modeling, component declaration & generics		Chalk & Board and PPT	Writing VHDL code for full adder using structural modeling during lab session
8	January 2 <sup>nd</sup> Week	II	Packages & libraries, VHDL models- simulation of Mux, Demux.		Chalk & Board and PPT	Designing other sequential circuits like mux and demux during lab session
9	January 3 <sup>rd</sup> Week	III	VHDL models- simulation of decoders, and encoders.		Chalk & Board	Structural style modeling of decoders and encoders
10	January 4 <sup>th</sup> Week	III	VHDL models- Code converters and comparators.		Chalk & Board	Modeling comparator

11	February 1 <sup>st</sup> Week	III	VHDL models for Implementation of Boolean functions, sequential circuits-flip-flops - SR and JK.		Chalk & Board	Modeling Flip flops and testing during lab session
12	February 2 <sup>nd</sup> Week	IV	VHDL models- D and T flip-flops. Registers.		Chalk & Board	
13	February 3 <sup>rd</sup> Week	IV	VHDL models to design registers.		Chalk & Board	Modeling sequential circuits like counters and registers.
14	February 4 <sup>th</sup> Week	IV	VHDL models to design counters- ripple counter and decade counter		Chalk & Board	
15	March 1 <sup>st</sup> Week	Revision	Over view on sequential concurrent statements and component declaration Modeling design at different abstractions	Student seminar by presenting a PPT – Design of any digital circuit in different models.		

**Learning outcomes: On completion of course students will be able to model, simulate and synthesize various digital circuits.**

*Boonil*  
Signature of the Faculty

Dept. of Physics & Electronics  
Bharatiya Vidya Bhavan's  
Vivekananda College  
Wankar, Secunderabad-502 004

*Boonil*  
Signature of the HOD

**Bhavan's Vivekananda College**  
of Science, Humanities and Commerce  
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**TEACHING PLAN: 2018-19**

**Program: B.Sc(MPCs) Course Title: WAVES AND OSCILLATIONS (PH223)**

Name of the faculty: <b>Mrs T Sai Santoshi</b>	Department: <b>PHYSICS &amp; Electronics</b>	Year/Semester: <b>I/II</b>	No. of classes per week: <b>4</b>
<b>Learning objectives:</b> <i>To introduce the students to fundamental concepts of wave mechanics and provide a foundation for more advanced topics in waves.</i>			

S.No.	Month & Week	Unit	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Signature	HODS signature
1	November 3 <sup>rd</sup> week	I	Simple harmonic oscillator, and solution of the differential equation- Physical characteristics of SHM,		Chalk & board	Solving exercise problems on SHM	-	-	
2	November 4 <sup>th</sup> week	I	Torsion pendulum, - measurements of rigidity modulus, compound pendulum, measurement of 'g'.		Chalk & board	Assignment	-	-	
3	December 1 <sup>st</sup> week	I	Addition of two simple harmonic motions with different frequencies and phases, addition of many simple harmonic motions		Chalk board & PPT		Completed	Santoshi	
4	December 2 <sup>nd</sup> week IA - 5 IB - 4	I	combination of two mutually perpendicular simple harmonic vibrations of same frequency and different frequencies, Lissajous figures.		Chalk board & PPT		Completed	Santoshi	
5	December 3 <sup>rd</sup> week IA - 3 IB - 4	II	Damped harmonic oscillator, solution of the differential equation of damped oscillator. Energy consideration with under damped harmonic oscillator,	Applications with regards to high and low damping	Chalk & board	Solving exercise problems on damped motion	Completed	Santoshi	
6	December 4 <sup>th</sup> week IA - 01 IB - 01	II	Logarithmic decrement, relaxation time, quality factor.		Chalk & board	Solving exercise problems Assignment	Completed	Santoshi	
7	January 1 <sup>st</sup> week IA - 4 IB - 2	II	Forced oscillations, differential equation of forced oscillator and its solution, amplitude resonance, velocity resonance		Chalk & board	Solving exercise problems	Completed	Santoshi	

						Review	Signature	HOD's Signature
8	IA-01 IA-03 January 2 <sup>nd</sup> week	II	Power considerations, quality factor, sharpness and Band width for resonance.		Chalk & board	Solving exercise problems	Completed	Santoshu
9	January 3 <sup>rd</sup> week IA-4 IB-4	III	Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic functions-square,		Chalk board & PPT		Completed	Santoshu
10	January 4 <sup>th</sup> week IA-3 IB-3	III	triangular, saw-tooth functions. Fourier energy theorem.			Assignment	Completed	Santoshu
11	February 1 <sup>st</sup> week IA-2 IB-2	III	Ultrasonic's, properties of ultrasonic waves, production of ultrasonics by piezoelectric and magnetostriction methods, detection of ultrasonics, determination of wavelength of ultrasonic waves. Velocity of ultrasonics in liquids by Sear's method. Applications of ultrasonic waves.		Chalk board & PPT		Completed	Santoshu
12	February 2 <sup>nd</sup> week IA-5 IB-4	IV	Transverse wave propagation along a stretched string, general solution of wave equation and its significance, Expression for velocity		Chalk & board	Solving exercise problems	Completed	Santoshu
13	February 3 <sup>rd</sup> week IA-4 IB-1	IV	Modes of vibration of stretched string clamped at both ends, overtones, energy transport, transverse impedance. Reflection and transmission of waves.	Importance of different modes of vibrations with reference to tuning of musical instruments	Chalk & board		Completed	Santoshu
14	February 4 <sup>th</sup> week IA-5 IB-5	IV	Longitudinal vibrations in bars – wave equation and its general solution. Expression for velocity. Special cases (i) bar fixed at both ends ii) bar fixed at the mid point		Chalk & board	Assignment	Completed	Santoshu
15	March 1 <sup>st</sup> week IA-3 IB-4+1	IV	iii) bar free at both ends iv) bar fixed at one end free at other end.		Chalk & board		Completed	Santoshu
<b>Learning outcomes:</b> Having completed this course, student should be capable of applying principles of wave superposition to various fields of physics. -								

Signature of the Faculty

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Signature of the HOD

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Dept. of Physics & Electronics  
 Bharatiya Vidya Bhavan's  
 Vivekananda College  
 Raikpur, Secunderabad-508 004

PLAN AND REVIEW SHEET FOR CURRICULAR PROGRAMMES FOR THE ACADEMIC YEAR- 2018 - 2019



Bharatiya Vidya  
**Bhavan**

MPCs IIA

**Bhavan's Vivekananda College**  
of Science, Humanities and Commerce  
Autonomous – Affiliated to Osmania University

**TEACHING PLAN: 2018-19**

Program: *B.Sc(MPCs)* Course Title: **OPTICS (PH423)**

Name of the faculty: <b>Dr. GSVRK CHOUDARY</b>	Department: <b>PHYSICS</b>	Year/Semester: <b>II/IV</b>	No. of classes per week: <b>4</b>
<b>Learning objectives:</b> <i>This course introduces the formalism of wave behavior in the context of physical optics.</i>			

S.No.	Month & Week	Unit	Syllabus	Additional Input/ value addition	Teaching method	Student /learning activity	REVIEW
1	November 3 <sup>rd</sup> week 1	I	Introduction to aberrations, Monochromatic aberrations-spherical aberration, methods of minimizing spherical aberration,		Chalk & board		Not Completed <i>ll</i>
2	November 4 <sup>th</sup> week 7	I	Chromatic aberration: Achromatic doublet, Minimizing of chromatic aberration by a separated doublet, coma, and astigmatism.		Chalk & board	Solving problems Assignment	Completed <i>ll</i>
3	December 1 <sup>st</sup> week 5	I	Principal of superposition of waves Coherence, temporal and spatial coherence, conditions for Interference of light, Young's double slit experiment, Theory of interference.		Chalk & board PPT		Completed <i>ll</i>
4	December 2 <sup>nd</sup> week 3	I	Fresnel's Bi-prism: Determination of wave length of light, determination of thickness of a transparent material using Bi-prism. Change of phase on reflection, Lloyd's mirror experiment.		Chalk & board PPT	Solving problems	Not Completed <i>ll</i>
5	December 3 <sup>rd</sup> week 5	II	Interference by a film with two non-parallel reflecting surfaces: Wedge shaped film, determination of diameter of wire. Newton's rings in reflected light with and without contact between lens and glass plate, Newton's rings in transmitted light Determination of wave length of monochromatic light.		Chalk & board PPT	Solving problems	Completed <i>ll</i>
6	December 4 <sup>th</sup> week 1	II	Michelson's Interferometer: Types of fringes, Determination of wavelength of monochromatic light, Difference in wavelength of sodium D <sub>1</sub> D <sub>2</sub> lines and thickness of a thin transparent plate, refractive index and visibility of fringes	Application of interference	Chalk & board PPT	Solving problems Assignment	Not Completed <i>ll</i>
7	January 1 <sup>st</sup> week 1	III	Introduction: Distinction between Fresnel and Fraunhofer diffraction. Fraunhofer diffraction: Diffraction due to single slit and circular aperture, Limit of resolution.		Chalk & board PPT		Not Completed <i>ll</i>
8	January 2 <sup>nd</sup> week 5	III	Fraunhofer diffraction due to double slit, Fraunhofer diffraction pattern with N slits (diffraction grating). Resolving Power of grating-derivation.		Chalk & board PPT		Completed <i>ll</i>



**PLAN AND REVIEW SHEET FOR CURRICULAR PROGRAMMES FOR THE ACADEMIC YEAR- 2018 - 2019**

9	January 3 <sup>rd</sup> week 3	III	Determination of wave length of light in normal and oblique incidence methods by using diffraction grating.		Chalk & board PPT	Solving problems	Not Complete <i>W</i>
10	January 4 <sup>th</sup> week 4	III	Fresnel diffraction: Fresnel's half period zones, area of the half period zones. zone plate – Comparison of zone plate with convex lens, Phase reversal zone plate. Diffraction at a straight edge. Distinction between interference and diffraction.	Applications of diffraction with regards to measurement of crystallite size	Chalk & board PPT	Assignment	Not Complete <i>W</i>
11	February 1 <sup>st</sup> week 4	IV	Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption.		Chalk & board PPT		Completed <i>W</i>
12	February 2 <sup>nd</sup> week 4	IV	Scattering of light, Brewster's law, Malus law, Nicol prism: polarizer , analyzer. Refraction of plane wave incident on negative and positive crystals- Huygen's explanation.		Chalk & board PPT		Completed <i>W</i>
13	February 3 <sup>rd</sup> week 3	IV	Quarter wave plate and half wave plate. Babinet's compensator: Optical activity. Laurent's half shade polarimeter: Analysis of light.	Importance of polarization with specific examples	Chalk & board PPT	Solving problems	Completed <i>W</i>
14	February 4 <sup>th</sup> week 1	IV	Lasers: Introduction: Spontaneous emission and Stimulated emission. Population inversion. Principle of Laser – Einstein coefficients. Types of Lasers: He-Ne laser, Ruby laser and Solid state laser.		Chalk & board	Assignment	Completed <i>W</i>
15	March 1 <sup>st</sup> week	IV	Pumping methods , Applications of lasers.		Chalk & board		Completed <i>W</i>
<b>Learning outcomes:</b> <i>Having completed this course, student should acquire knowledge of, interference, diffraction and polarisation effects</i>							

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*Prasanna*  
Signature of the HOD

Dept of Physics & Electronics  
 Bharatiya Vidya Bhavan's  
 Vivekananda College  
 Malkajgiri, Secunderabad-500 086

PLAN AND REVIEW SHEET FOR CURRICULAR PROGRAMMES FOR THE ACADEMIC YEAR- 2018 - 2019



**Bhavan's Vivekananda College**  
of Science, Humanities and Commerce  
Autonomous – Affiliated to Osmania University

MPCs - IIB

**TEACHING PLAN: 2018-19**

**Program: B.Sc(MPCs) Course Title: OPTICS (PH423)**

Name of the faculty: <b>Dr. GSVRK CHOUDARY</b>	Department: <b>PHYSICS</b>	Year/Semester: <b>II/IV</b>	No. of classes per week: <b>4</b>
<b>Learning objectives:</b> <i>This course introduces the formalism of wave behavior in the context of physical optics.</i>			

S.No.	Month & Week	Unit	Syllabus	Additional Input/ value addition	Teaching method	Student /learning activity	REVIEW
1	November 3 <sup>rd</sup> week 1	I	Introduction to aberrations, Monochromatic aberrations-spherical aberration, methods of minimizing spherical aberration,		Chalk & board		Not Completed /
2	November 4 <sup>th</sup> week 5	I	Chromatic aberration: Achromatic doublet, Minimizing of chromatic aberration by a separated doublet. coma, and astigmatism.		Chalk & board	Solving problems Assignment	Completed /
3	December 1 <sup>st</sup> week 2	I	Principal of superposition of waves Coherence, temporal and spatial coherence, conditions for Interference of light, Young's double slit experiment, Theory of interference.		Chalk & board PPT		Not Completed /
4	December 2 <sup>nd</sup> week 2	I	Fresnel's Bi-prism: Determination of wave length of light, determination of thickness of a transparent material using Bi-prism. Change of phase on reflection, Lloyd's mirror experiment.		Chalk & board PPT	Solving problems	Not Completed /
5	December 3 <sup>rd</sup> week 6	II	Interference by a film with two non-parallel reflecting surfaces: Wedge shaped film, determination of diameter of wire. Newton's rings in reflected light with and without contact between lens and glass plate, Newton's rings in transmitted light Determination of wave length of monochromatic light.		Chalk & board PPT	Solving problems	Completed /
6	December 4 <sup>th</sup> week 3	II	Michelson's Interferometer: Types of fringes, Determination of wavelength of monochromatic light, Difference in wavelength of sodium D <sub>1</sub> D <sub>2</sub> lines and thickness of a thin transparent plate, refractive index and visibility of fringes	Application of interference	Chalk & board PPT	Solving problems Assignment	Not Completed /
7	January 1 <sup>st</sup> week 0	III	Introduction: Distinction between Fresnel and Fraunhofer diffraction. Fraunhofer diffraction: Diffraction due to single slit and circular aperture, Limit of resolution.		Chalk & board PPT		Completed /
8	January 2 <sup>nd</sup> week 5	III	Fraunhofer diffraction due to double slit, Fraunhofer diffraction pattern with N slits (diffraction grating). Resolving Power of grating-derivation.		Chalk & board PPT		Not Completed /

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**PLAN AND REVIEW SHEET FOR CURRICULAR PROGRAMMES FOR THE ACADEMIC YEAR- 2018 - 2019**

9	January 3 <sup>rd</sup> week 3	III	Determination of wave length of light in normal and oblique incidence methods by using diffraction grating.		Chalk & board PPT	Solving problems	Not complete <i>ls</i>
10	January 4 <sup>th</sup> week 1.	III	Fresnel diffraction: Fresnel's half period zones, area of the half period zones. zone plate – Comparison of zone plate with convex lens, Phase reversal zone plate. Diffraction at a straight edge. Distinction between interference and diffraction.	Applications of diffraction with regards to measurement of crystallite size	Chalk & board PPT	Assignment	Completed <i>ls</i>
11	February 1 <sup>st</sup> week <del>4</del>	IV	Polarized light : Methods of Polarization, Polarization by reflection, refraction, Double refraction, selective absorption.		Chalk & board PPT		Comple <i>ls</i>
12	February 2 <sup>nd</sup> week 3	IV	Scattering of light, Brewster's law, Malus law, Nicol prism: polarizer , analyzer. Refraction of plane wave incident on negative and positive crystals- Huygen's explanation.		Chalk & board PPT		Completed <i>ls</i>
13	February 3 <sup>rd</sup> week 4	IV	Quarter wave plate and half wave plate. Babinet's compensator: Optical activity. Laurent's half shade polarimeter: Analysis of light.	Importance of polarization with specific examples	Chalk & board PPT	Solving problems	Completed <i>ls</i>
14	February 4 <sup>th</sup> week 3	IV	Lasers: Introduction: Spontaneous emission and Stimulated emission. Population inversion. Principle of Laser – Einstein coefficients. Types of Lasers: He-Ne laser, Ruby laser and Solid state laser.		Chalk & board	Assignment	Completed <i>ls</i>
15	March 1 <sup>st</sup> week 2	IV	Pumping methods , Applications of lasers.		Chalk & board		Completed <i>ls</i>
<b>Learning outcomes:</b> <i>Having completed this course, student should acquire knowledge of, interference, diffraction and polarisation effects</i>							

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*Prasanna*  
Signature of the HOD

Dept of Physics & Electronics  
 Bharatiya Vidya Bhavan's  
 Vivekananda College  
 Raikpur, Secunderabad-500 036



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**Bhavan**  
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of Science, Humanities and Commerce  
Autonomous – Affiliated to Osmania University  
*Academic Year 2018-19*

Program: B. Sc. M.P.Cs III yr 'A'

Course Title : Modern Physics

Semester: VI

Paper Code: PH 623

Name of the faculty:  
V.RManjula

Department:  
Physics

Year/Semester:

III yr VI sem

No. of classes per week:

3

**Learning objectives:** This course is a prerequisite to any advanced theoretical studies. The student is introduced to the fundamental aspects of Quantum Mechanics and Nuclear Physics through this course

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Hod's Review
1	November week: III (1)	I	Spectral Radiation		Chalk & board,	Group discussion on the Spectral distribution of Black body radiation and reasons for inadequacy of classical Physics	<i>Failures of Classical physics to be done next week</i>	
2	November week: IV (2)	I	Photoelectric Effect and Compton Effect	Experimental Demonstration	Chalk & board, PPT	Evaluate the time taken by the electron to get ejected from the metallic surface from the instance when the radiation strikes the metal by making classical considerations	<i>Compton shift Derivation to be done next week</i>	<i>Possible</i>

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Hod's Review
3	December week: I (2)	I	Verification of Compton Effect and deBroglie hypothesis	Compton Effect as a mechanical analogue of Raman Effect. Comparison with Rayleigh scattering	Chalk & board	Solving problems on Einstein's equation and Compton Shift	Completed de Broglie theory to be done next week	
4	December week: II (3)	I	Matter waves	Ehrenfest's theorem	Chalk & board	Solving problems on de-Broglie theory	Completed	Boonick
5	December week: III (3)	II	Uncertainty Principle	Mathematical proof of Uncertainty principle	Chalk & board	Solving problems on Uncertainty Principle	Proofs not given Completed	
6	December week: IV (4)	II	Schrodinger Equations		Chalk & board		Completed	Boonick
7	January week I (1)	II	Wave mechanics	Examples of orthogonal and orthonormal functions, Hermitian operator, Parity operator and , commuting operators	Chalk & board	Evaluate the position, momentum and energy values for various systems theoretically, making quantum considerations	Completed	Boonick
8	January week II (3)	II	Applications of Schrodinger equation	Discuss $\alpha$ decay and Tunnel diode on the basis of quantum tunneling	Chalk & board		Completed $\alpha$ -decay to be discussed next week	
9	January week III (2)	III	Nuclear Structure	Classification of nuclei (Nuclear Properties)	Chalk & board		Completed Properties discussed	Boonick

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Hod's Review
10	January week IV (4)	III	Nuclear Properties <sup>contd</sup> B, E Nuclear forces meson theory		Chalk & board		Completed fz	}
11	January week V (1)	III	Nuclear models	Experimental evidence for observed nuclear properties	Chalk & board	Solving problems based on Binding energy	Continued with Nuclear models fz	
12	February Week I (5)	IV	Nuclear Detectors	Radiation dosimeters	PPT	Perform G.M. counter based experiments using virtual lab: Studying the properties of Radioactive elements and measuring Half Life of Ba 137	Nuclear Detectors to be done later Completed $\alpha$ -decay fz	}
13	February Week II (4)	IV	Nuclear transformations $\alpha$ decay		Chalk & board	Students seminar on artificial transmutations	Completed $\beta$ -decay fz	
14	February Week III (3)	IV	Nuclear transformations $\beta$ decay	Non conservation of parity in $\beta$ decay	Chalk & board	Students seminar on artificial transmutations	Radiation Counters using LCD fz	}
15	February Week IV (5)	IV	Nuclear reactions		Chalk & board		Completed fz	
16	March week I (1)	IV	Revision					

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*Academic Year 2018-19*

Program: B. Sc. M.P.Cs III yr **B**

Course Title : Modern Physics

Semester: VI

Paper Code: PH 623

Name of the faculty:

V.RManjula

Department:

Physics

Year/Semester:

III yr VI sem

No. of classes per week:

3

**Learning objectives:** This course is a prerequisite to any advanced theoretical studies. The student is introduced to the fundamental aspects of Quantum Mechanics and Nuclear Physics through this course

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Hod's Review
1	November week: III (3)	I	Spectral Radiation		Chalk & board,	Group discussion on the Spectral distribution of Black body radiation and reasons for inadequacy of classical Physics	Completed Eq carried out discussion 12	
2	November week: IV (4)	I	Photoelectric Effect and Compton Effect	Experimental Demonstration	Chalk & board, PPT	Evaluate the time taken by the electron to get ejected from the metallic surface from the instance when the radiation strikes the metal by making classical considerations	Completed Eq demonstration given 12	Positive

No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Hod's Review
3	December week: I (2)	I	Verification of Compton Effect and deBroglie hypothesis	Compton Effect as a mechanical analogue of Raman Effect. Comparison with Rayleigh scattering	Chalk & board	Solving problems on Einstein's equation and Compton Shift	Completed and more problems to be done in December	
4	December week: II (3)	I	Matter waves	Ehrenfest's theorem	Chalk & board	Solving problems on de-Broglie theory	Completed	Possible
5	December week: III (3)	II	Uncertainty Principle	Mathematical proof of Uncertainty principle	Chalk & board	Solving problems on Uncertainty Principle	Proof given only for the energy	
6	December week: IV (1)	II	Schrodinger Equations		Chalk & board		To be completed next week	Possible
7	January week I (1)	II	Wave mechanics	Examples of orthogonal and orthonormal functions, Hermitian operator, Parity operator and , commuting operators	Chalk & board	Evaluate the position, momentum and energy values for various systems theoretically, making quantum considerations	Completed	
8	January week II (3)	II	Applications of Schrodinger equation	Discuss $\alpha$ decay and Tunnel diode on the basis of quantum tunneling	Chalk & board		Completed	Possible
9	January week III (2)	III	Nuclear Structure	Classification of nuclei	Chalk & board		Completed	



S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Hod's Review
10	January week IV (3)	III	Nuclear Properties, $\beta$ Nuclear forces meson theory		Chalk & board		Completed js	
11	January week V (0)	III	Nuclear models	Experimental evidence for observed nuclear properties	Chalk & board	Solving problems based on Binding energy	To be continued in the next week js	Possible
12	February Week I (3)	IV	Nuclear Detectors	Radiation dosimeters	PPT	Perform G.M. counter based experiments using virtual lab: Studying the properties of Radioactive elements and measuring Half Life of Ba 137	Models Completed Continued with Nuclear transformations $\alpha$ -decay -js	Possible
13	February Week II (4)	IV	Nuclear transformations $\alpha$ decay		Chalk & board	Students seminar on artificial transmutations	Pauli neutrino theory of $\beta$ -decay -No seminar given	
14	February Week III (4)	IV	Nuclear transformations $\beta$ decay	Non conservation of parity in $\beta$ decay	Chalk & board	Students seminar on artificial transmutations	Radiation Counters done using LCD. js	
15	February Week IV (3)	IV	Nuclear reactions		chalk & board		Completed js	Possible
16	March week I (0)	IV	Revision					

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**Bhavan's Vivekananda College**  
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**TEACHING PLAN: 2018-19**

**Program: B.Sc(MPCs) Course Title : ELECTRONICS (PH623A)**

Name of the faculty: <b>Mrs T Sai Santoshi</b>	<i>Electronics</i> Department: <b>PHYSICS</b>	Year/Semester: <b>III/VI</b>	No. of classes per week: <b>3</b>
<b>Learning objectives:</b> <i>The objective of this course is to introduce students to the basic components of electronics: diodes, transistors, and op amps. It covers the basic operation and some common applications.</i>			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Signature
1	November 3 <sup>rd</sup> week <i>IIA - 1</i>	I	Kirchhoff Laws, Study of growth and decay of current/charge in LR		Chalk & board	Solving exercise problems	Completed	<i>Santoshi</i>
2	November 4 <sup>th</sup> week <i>IIA - 3</i> <i>IB - 3</i>	I	Study of growth and decay of current/charge in CR, LCR circuits, Alternating current relation between current and voltage in pure R, C, L		Chalk & board	Solving exercise problems	Completed	<i>Santoshi</i>
3	December 1 <sup>st</sup> week <i>IB - 1</i>	I	Alternating current relation between current and voltage in R L, R C, R L C, vector diagrams		Chalk & board			
4	December 2 <sup>nd</sup> week	I & II	Power in ac circuits. LCR Series resonant circuit, Parallel resonant circuit – Q-factor. Formation of energy bands in solids	Importance of resonance in tuning radio and television	Chalk & board	Solving exercise problems	<i>workload is re-scheduled.</i>	<i>Santoshi</i>
5	December 3 <sup>rd</sup> week	II	Classification of solids in terms of energy band diagram, Intrinsic and extrinsic semiconductors, Fermi level, continuity equation,		Chalk & board	Solving exercise problems		<i>4/12/18</i>
6	December 4 <sup>th</sup> week	II	p-n junction diode, Half wave and Full wave rectifiers and filters, ripple factor.		Chalk & board		<i>This paper is assigned to a new</i>	
7	January 1 <sup>st</sup> week	II & IV	Characteristics of Zener diode and its application as voltage regulator Binary number system: Converting Binary to Decimal and vice versa		Chalk & board		<i>faculty Ms Arifa Sultana from 05/12/18</i>	

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**Bhavan's Vivekananda College**  
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**TEACHING PLAN: 2018-19**

Program: *B.Sc(MPCs)* Course Title : **ELECTRONICS (PH623A)**

Name of the faculty: <b>Ms Asiya Sultana Ahmed</b>	<i>Electronics</i> Department: <b>PHYSICS &amp;</b>	Year/Semester: <b>III/VI</b>	No. of classes per week: <b>3</b>
<b>Learning objectives:</b> <i>The objective of this course is to introduce students to the basic components of electronics: diodes, transistors, and op-amps. It covers the basic operation and some common applications.</i>			

S.No.	Month & Week	Units	Syllabus	Additional Input/ value addition	Teaching method	Student/learning activity	Review	Signature
1	November 3 <sup>rd</sup> week	I	Kirchhoff Laws, Study of growth and decay of current/charge in LR		Chalk & board	Solving exercise problems	—	
2	November 4 <sup>th</sup> week	I	Study of growth and decay of current/charge in CR, LCR circuits, Alternating current relation between current and voltage in pure R, C, L		Chalk & board	Solving exercise problems	—	
3	December 1 <sup>st</sup> week	I <u>III A - 02</u> <u>III B - 03</u>	Alternating current relation between current and voltage in RL, RC, RLC, vector diagrams		Chalk & board		Completed	<i>AS</i>
4	December 2 <sup>nd</sup> week	I & II <u>III A - 03</u> <u>III B - 03</u>	Power in ac circuits. LCR Series resonant circuit, Parallel resonant circuit - Q-factor. Formation of energy bands in solids	Importance of resonance in tuning radio and television	Chalk & board	Solving exercise problems	Completed	<i>AS</i>
5	December 3 <sup>rd</sup> week	<u>III A - 03</u> II <u>III B - 03</u>	Classification of solids in terms of energy band diagram, Intrinsic and extrinsic semiconductors, Fermi level, continuity equation,		Chalk & board	Solving exercise problems	Completed	<i>AS</i>
6	December 4 <sup>th</sup> week	<u>III A - 02</u> II <u>III B - 01</u>	p-n junction diode, Half wave and Full wave rectifiers and filters, ripple factor.		Chalk & board		Completed	<i>AS</i>
7	January 1 <sup>st</sup> week	<u>III A - 03</u> II & IV <u>III B - 01</u>	Characteristics of Zener diode and its application as voltage regulator Binary number system: Converting		Chalk & board		Completed	<i>AS</i>

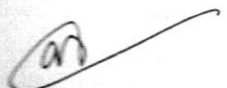
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8	January 2 <sup>nd</sup> week	IV IIIA-03 IIIB-03	Binary to Decimal and vice versa Binary addition and subtraction (1's and 2's complement methods) Hexadecimal number system. Conversion from Binary to Hexadecimal – vice versa and Decimal to Hexadecimal vice versa,		Chalk & board	Solving, conversions	Completed	an
9	January 3 <sup>rd</sup> week	IV IIIA-02 IIIB-01	Logic gates: OR, AND, NOT gates, truth tables, realization of these gates using discrete components. NAND, NOR as universal gates, Exclusive – OR gate		PPT	Solving, conversions	Completed	an
10	January 4 <sup>th</sup> week	IV & III IIIA-02 IIIB-03	De Morgan's Laws– Statement and Proof, Half and Full adders. p n p and n p n transistors(Working).		PPT+ Chalk & board		Completed	an
11	February 1 <sup>st</sup> week	III IIIA-02 IIIB-02	Current components in transistors (Two Port model)	Applications of logic gates in computers	Chalk & board		Completed	an
12	February 2 <sup>nd</sup> week	III IIIA-03 IIIB-03	CB,CE and CC configurations, h-parameters Concept of transistor biasing, Operating point,		Chalk & board		Completed	an
13	February 3 <sup>rd</sup> week	III IIIA-02 IIIB-03	Fixed bias and self bias (Qualitative only), Transistor as an amplifier, Concept of feedback		Chalk & board		Completed	an
14	February 4 <sup>th</sup> week	III IIIA-02 IIIB-03	Barkhausen criterion, RC Coupled Amplifier, Phase Shift Oscillator		Chalk & board	Solving exercise problems	Completed	an
15	March 1 <sup>st</sup> week	V IIIA-02 IIIB-02	Revision		(By student)	Seminars	Completed	an

**Learning outcomes:** Having completed this course, student should understand the behavior of basic electronic devices, principles of operation and design concepts and analysis of circuits built using these devices.

  
Signature of the Faculty

Dr. of Physics & Electronics  
Shrihariya Vidya Bhavan's  
Vivekananda College  
Mumbai. Secunderabad-500 084

  
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