Paper Code	NPHY-130	**Cr. Hrs.**	03
Paper Title	BASIC ELECTRONICS		
Domain	Natural Sciences		

Learning outcomes	Courseisdesignedtointroducefundamentalprinciplesofcircuittheoryandelectronic
Contents	**Fundamental Solid-State Principles:** Atomic theory, Metals, insulators and semiconducto Conduction in Silicon and Germanium, doping, The forbidden energy gap, N and P ty semiconductors. **TheSemiconductorDiode:** Introductionto PNjunctiondiode,Bias,theidealdiode,thepractic diod model, other practical considerations, the complete diode model, voltage-curre characteristics Common Diode applications: Transformers and power supply, Half-wa rectifiers, full-wav rectifiers, full-wave Bridge rectifiers, wave shaping circuits using diod voltage multiplie circuits. **SpecialapplicationsDiodes:**Zenerdiodes,lightemittingdiodes,photodiodes,capacitanceeffec inthePNjunction,otherdiodes.Circuitanalysis:DCcircuitanalysis,singleandmulti-lo circuits, Kirchhoff's rules, RC circuits, Charging and discharging of a capacitor, RL circuits, A circuit analysis using the j-operator, RLC circuits,superposition theorem,Thevenin's theore Norton'stheorem,thehybridparameterequivalentmodel,graphicaldepictionofhybri parameters, variation of transistor parameters. **Bipolar Junction Transistors:** Introduction to Bipolar Junction Transistors (BJTs), transis constructionand operation,transistorcharacteristicscurves, conceptofload line.BipolarJuncti Transistorsapplications:Transistorasanamplifier,basictransistorconfigurations,transistoras switch,conceptofdecibels,Feedbackprincipleandcircuits
Teaching-learning Strategies	Classroomteaching/Lecturing
Assignments-Types and Number	Problemsheet:3-4
Assessmentand Examinations	Mid-TermAssessment:35% Formative Assessment: (25%): It includes classroomparticipation, attendance, assignments and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc. FinalTermAssessment:40%

TextBooks	1. IntroductoryElectronicDevicesandCircuits,byR.T.Paynter,PrenticeHall,7th edition,(2005). 2. IntroductoryElectricCircuits,byR.T.Paynter,PrenticeHall,(1998). 3. ElectronicDevices,byT.L.Floyd,Pearson,10thEdition,(2017) 4. Grob'sBasicElectronics,byM.ESchultz,McGraw-HillEducation,12thedition, (2015) 5. IntroductoryCircuitAnalysis,byR.L.Boylestad,Pearson,13thEdition,(2015) 6. Electronic Principles, by A. P. Malvino, David J. Bates, McGraw-Hill, 8thEdition, (2015