

Devrukh Shikshan Prasarak Mandal's

**Nya. TATYASAHEB ATHALYE ARTS, Ved. S.R. SAPRE  
COMMERCE & Vid. DADASAHEB PITRE SCIENCE  
COLLEGE, DEVRUKH [AUTONOMOUS]**



**Syllabus for T.Y. B.Sc.**

**Program: B.Sc.**

**Course: Physics**

**Practical -I**

**Credit Based Semester and Grading System with the**

**Effect from**

**Academic Year 2021-22**

## **Syllabus for B.Sc. Physics (Theory and Practical)**

**As per credit based system**

**Third Year B.Sc.2021–2022.**

The revised syllabus in Physics as per credit based system for the Third Year B.Sc. Course will be implemented from the academic year **2021–2022.**

Preamble: The systematic and planned curricula from these courses shall motivate and encourage learners to understand basic concepts of Physics.

### **Objectives:**

- To develop analytical abilities towards real world problems
- To familiarize with current and recent scientific and technological developments
- To enrich knowledge through problem solving, hands on activities, study visits, projects etc.

<b>SEMESTER VI</b>				
<b>Theory</b>				
<b>Course</b>	<b>UNIT</b>	<b>TOPICS</b>	<b>Credits</b>	<b>Lectures per Week</b>
<b>USPH601</b>	I	Classical Mechanics	<b>2.5</b>	<b>4</b>
	II	Classical Mechanics		
	III	Classical Mechanics		
	IV	Classical Mechanics		
<b>USPH602</b>	I	Electronics	<b>2.5</b>	<b>4</b>
	II	Electronics		
	III	Electronics		
	IV	Electronics		
<b>USPH603</b>	I	Nuclear Physics	<b>2.5</b>	<b>4</b>
	II	Nuclear Physics		
	III	Nuclear Physics		
	IV	Nuclear Physics		
<b>USPH604</b>	I	Special Theory of Relativity	<b>2.5</b>	<b>4</b>
	II	Special Theory of Relativity		
	III	Special Theory of Relativity		
	IV	Special Theory of Relativity		
<b>Practicals</b>				
<b>USPH605</b>	Practicals of Course USPH601 + Course USPH602		<b>2.5</b>	<b>6</b>
<b>USPH606</b>	Practicals of Course USPH603 + Course USPH604		<b>2.5</b>	<b>6</b>
<b>Project</b>				
<b>USPHPR2</b>	USPH601 + USPH602 + USPH603 + USPH604		<b>1</b>	<b>4</b>

## SEMESTER VI

The T. Y. B. Sc. Syllabus integrates the regular practical work with a series of demonstration experiments and the project. During the teaching and examination of Physics laboratory work, simple modifications of experimental parameters may be attempted. Attention should be given to basic skills of experimentation which include:

i)	Understanding relevant concepts.
ii)	Planning of the experiments.
iii)	Layout and adjustments of the equipments
iv)	Understanding designing of the experiments
v)	Attempts to make the experiments open ended
vi)	Recording of observations and plotting of graphs
vii)	Calculation of results and estimation of possible errors in the observation of results.

**Regular Physics Experiments:** A minimum of **06** experiments of the practical course are to be performed and reported in the journal.

**Demonstration Experiments:** The demonstration experiments are to be performed by the teacher in the laboratory and students should be encouraged to participate and take observation wherever possible.

Demonstration experiments are designed to bring about interest and excitement in Physics. Students are required to enter details of these ‘demonstration’ experiments in their journal.

The certified journal must contain a minimum of **06** regular experiments, **MINIMUM 06** demonstration experiments in semester VI

There will be **three hours** for the examination of practical courses.

<b>SEMESTER VI</b>	
<b>PRACTICAL COURSE: USPHP607</b>	
<b>Sr. No.</b>	<b>Name of the Experiment</b>
1	Study of JFET characteristics
2	JFET as switch (series and shunt)
3	UJT characteristics
4	UJT as relaxation oscillator
5	Study of Pulse width modulation (BB)
6	Study of Pulse position modulation (BB)
7	R. P. of Prism
8	Double refraction
9	Surface tension of mercury by Quincke's method
10	Specific heat capacity of water
11	Hooke's law and the simple harmonic oscillation
12	Study of SCR Characteristics

<b>DEMONSTRATION EXPERIMENTS</b>	
<b>Sr. No.</b>	<b>Name of the Experiment</b>
1	Open CRO, Power Supply, and Signal Generator: block diagrams
2	Data sheets: Diodes, Transistor, Op-amp & Optoelectronic devices
3	Zeeman Effect
4	Michelson's interferometer
5	Constant deviation spectrometer (CDS)
6	Digital storage oscilloscope (DSO)
7	Determination of Op-Amp parameters (offset voltage, slew rate, input impedance, output impedance, ACM)
8	Transformer (theory, construction and working), types of transformers and energy losses associated with them.

9	Use of LCR meter
10	Lux meter / Flux meter

<b>References:</b>	
1.	Advanced course in Practical Physics: D. Chattopadhyaya, PC. Rakshit & B. Saha (8 <sup>th</sup> Edition) Book & Allied (P) Ltd.
2.	BSc Practical Physics: Harnam Singh. S. Chand & Co. Ltd. – 2001.
3.	A Text book of Practical Physics: Samir Kumar Ghosh New Central Book Agency (4 <sup>th</sup> edition).
4.	B Sc. Practical Physics: C. L. Arora (1 <sup>st</sup> Edition) – 2001 S. Chand & Co.
5.	Practical Physics: C. L. Squires – (3 <sup>rd</sup> Edition) Cambridge Univ. Press.
6.	University Practical Physics: D C Tayal, Himalaya Publication.
7.	Advanced Practical Physics: Worsnop & Flint.