

# **Dayanand Vedic College, Orai**

## **Department of Physics**

### **B.Sc. (NEP - 2020) - PROGRAMME OUTCOMES (POs)**

The practical value of science for productivity, for raising the standard of living of the people is surely recognized. Science as a power, which provides tools for effective action for the benefit of mankind or for conquering the forces of Nature or for developing resources, is surely highlighted everywhere. Besides the utilitarian aspect, the value of science, lies in the fun called intellectual enjoyment. Science teaches the value of rational thought as well as importance of freedom of thought. Our teaching so far has been aimed more at formal knowledge and understanding instead of training and application oriented.

Presently, the emphasis is more on training, application and to some extent on appreciation, the fostering in the pupils of independent thinking and creativity. Surely, teaching has to be more objective based. The process of application based training, whether we call it a thrill or ability, is to be emphasized as much as the content. Physics is a basic science; it attempts to explain the natural phenomenon in as simple a manner as possible. It is an intellectual activity aimed at interpreting the Multiverse. The starting point of all physics lies in experience.

Experiment, whether done outside or in the laboratory, is an important ingredient of learning physics and hence the present programme integrates six experimental physics papers focusing on various aspects of modern technology based equipments. With all the limitations imposed (even the list of experiments as given in the syllabus) if the spirit of discovery by investigation is kept in mind, much of the thrill can be experienced.

1. The main aim of this programme is to help cultivate the love for Nature and its manifestations, to transmit the methods of science (the contents are only the means) to observe things around, to generalize, to do intelligent guessing, to formulate a theory & model, and at the same time, to hold an element of doubt and thereby to hope to modify it in terms of future experience and thus to practice a pragmatic outlook.

2. The programme intends to nurture the proficiency in functional areas of Physics, which is in line with the international standards, aimed at realizing the goals towards skilled India.

3. Keeping the application oriented training in mind; this programme aims to give students the competence in the methods and techniques of theoretical, experimental and computational aspects of Physics so as to achieve an overall understanding of the subject for holistic development. This will cultivate in specific application oriented training leading to their goals of employment.

4. The Bachelor's Project (Industrial Training / Survey / Dissertation) is intended to give an essence of research work for excellence in explicit areas. It integrates with specific job requirements / opportunities and provides a foundation for Bachelor (Research) Programmes.

## **FIRST YEAR- CERTIFICATE IN BASIC PHYSICS & SEMICONDUCTOR DEVICES**

This programme aims to give students the competence in the methods and techniques of calculations using Newtonian Mechanics and Thermodynamics. At the end of the course the students are expected to have hands on experience in modeling, implementation and calculation of physical quantities of relevance.

An introduction to the field of Circuit Fundamentals and Basic Electronics which deals with the physics and technology of semiconductor devices is practically useful and gives the students an insight in handling electrical and electronic instruments.

Experimental physics has the most striking impact on the industry wherever the instruments are used. The industries of electronics, telecommunication and instrumentation will specially recognize this course.

## **SECOND YEAR- DIPLOMA IN APPLIED PHYSICS WITH ELECTRONICS**

This programme aims to introduce the students with Electromagnetic Theory, Modern Optics and Relativistic Mechanics. Electromagnetic Wave Propagation serves as a basis for all communication systems and deals with the physics and technology of semiconductor optoelectronic devices. A deeper insight in Electronics is provided to address the important components in consumer Optoelectronics, IT and Communication devices, and in industrial instrumentation.

The need of Optical instruments and Lasers is surely highlighted everywhere and at the end of the course the students are expected to get acquaint with applications of Lasers in technology. Companies and R&D Laboratories working on Electromagnetic properties, Laser Applications, Optoelectronics and Communication Systems are expected to value this course.

## **THIRD YEAR- DEGREE IN BACHELOR OF SCIENCE**

This programme contains very important aspects of modern day course curriculum, namely, Classical, Quantum and Statistical computational tools required in the calculation of physical quantities of relevance in interacting many body problems in physics. It introduces the branches of Solid State Physics and Nuclear Physics that are going to be of utmost importance at both undergraduate and graduate level.

Proficiency in this area will attract demand in research and industrial establishments engaged in activities involving applications of these fields.

This course amalgamates the comprehensive knowledge of Analog & Digital Principles and Applications. It presents an integrated approach to analog electronic circuitry and digital electronics.

Present course will attract immense recognition in R&D sectors and in the entire cutting edge technology based industry.