COURSES

Department offers following courses for B. Tech. programme:

1. I-Semester: Physics-I [PH 1101] **03L 01 T**
2. II-Semester: Physics-II [PH1202] **03L 01 T**
3. I / II Semester: Physics Lab. [PH-1151/1251] **03P**

Ph.D. programme: Courses offered in the programme are

Sr. No	Code	Name
1.	**PH 6111/PH6211**	Advanced Characterization Techniques
2.	**PH 6112/PH6212**	Science and Technology of Thin Films
3.	**PH 6113/PH6213**	Gas-sensors Materials
4.	**PH 6114/PH6214**	Nonlinear Dynamics and Chaos
5.	**PH 6115/PH6215**	Nonlinear Fiber Optics
6.	**PH 6116/PH6216**	Synthesis and Optical Properties of Nanostructures
7.	**PH 6117/PH6217**	Biophysics and Quantum Chemistry
8.	**PH 6118/PH6218**	Advanced Solid State Physics

FACULTY PROFILE: Attached separately

RESEARCH

Faculty members are engaged in the research work in different fields like Theoretical and Experimental Condensed Matter Physics, Solid State Gas Sensors, Magnetism, Photovoltaic Solar Cell, Rapid Solidification, Nonlinear Dynamics, X-ray Absorption Spectroscopy, Nano Structured Materials, Ferroelectric thin films etc.

Research Projects

1. **Title of the Project:** *Investigation of chemical gas sensors based on low cost thin films of metal-oxide semiconductors*
   Funding Agency: Department of Science & Technology (DST), Govt. of India
   Amount: ₹18.84 lakhs
   Principal Investigator: Prof. P.P.Sahay
2. **Title of the Project:** *Symmetry and Integrability of Certain Nonlinear Dynamical Systems*
   Funding Agency: DST, Govt. of India
   Duration: 2008-2011
   Amount: ₹5.36 lakhs
   Principal Investigator: Dr. S.N.Pandey

3. **Title of the Project:** *Estimation of size of nanoparticles by various techniques: A comparative study*
   Funding Agency: World Bank-Technical Education Quality Improvement Programme (TEQIP)-Phase II
   Duration: 2013-14
   Amount: ₹3.5 lakhs
   Principal Investigator: Dr. Arvind Agarwal
4. **Title of the Project**: *Study of magnetodielectric effect in $BaTiO_3/Fe_3O_4$ core/shell nanostructures.*
   Funding Agency: DST Govt. of India (Under Fast Track Scheme for young scientists)
   Duration: 2009-2012
   Amount: ₹20.30 Lakhs
   Principal Investigator: Dr. Naresh Kumar
5. **Title of the Project:** *Effect of magnetic field on the laser ablated plasma plume and on the growth of oxide thin films for the various applications*
   Funding Agency: DST , Govt. of India
   Duration: 2010-2013
   Amount: ₹34.27 Lakhs
   Principal Investigator: Dr. Naresh Kumar
6. **Title of the Project:** *Synthesis and study of laser ablated magnetic / metallic / semiconducting nanostructures*
   Funding Agency: World Bank-Technical Education Quality Improvement Programme (TEQIP)-Phase II
   Duration: 2013-2014
   Amount: ₹4.40 Lakhs
   Principal Investigator: Dr. Naresh Kumar
7. **Title of the Project:** *DFT Study of Neutral and Zwitterionic Forms of Biologically Important Molecules in Polar and Non-polar Environments and Calculation of Dissociation Constants*
   Funding Agency: CSIR, Govt. of India
   Duration: 2011-2015
   Amount: ₹10.50 Lakhs
   Principal Investigator: Dr. A. K. Ojha
8. **Title of the Project:** *Synthesis and Optical Characterization of Low Dimension Systems*
   Funding Agency: DST, Govt. of India
   Duration: 2014-2017
   Amount: ₹23.00 Lakhs
   Principal Investigator: Dr. A. K. Ojha
9. **Title of the Project:** *Study on synthesis, optical and magnetic properties of multi layer graphene and its transition metal doped nanocomposites*
   Funding Agency: World Bank-Technical Education Quality Improvement Programme (TEQIP)-Phase II
   Duration: 2013-2014
   Amount: ₹2.00 Lakhs
   Principal Investigator: Dr. A. K. Ojha

10. **Title of the Project:** *Studies on Nanoparticles Decoration in Supercritical Fluid to Improve the Sorption Behavior of Most Promising Storage Material*
Funding Agency: DST, Govt. of India
Duration: 2013-18
Amount: ₹35 Lakhs
Principal Investigator: Dr. Rohit R Shahi

11. **Title of the Project:** *Electronic and optoelectronic properties of organic semi conductors on two dimensional nano materials*
Funding Agency: DST, Govt. of India
Duration: 2013-18
Amount: ₹35 Lakhs
Principal Investigator: Dr. Arun Kumar Singh

AWARDS, PRIZES, MEDAL, RECEIVED BY THE FACULTY MEMBERS OF THE DEPARTMENT

Prof. P.P. Sahay

- Awarded SERC Visiting Fellowship by DST, Govt. of India
- Awarded INSA Visiting Fellowship by Indian National Science Academy

Dr. S. N. Pandey

- SERC Visiting Fellowship 1998-99.
- JNCASR Visiting Fellowship 2000 - 2001
- Visiting Fellowship of the Mehta Research Institute of Mathematics & Mathematical Physics, Allahabad 2000.
- University Grants Commission (UGC) Research Award - 2001.
- Associateship of The Institute of Mathematical Sciences (Dept. of Atomic Energy), Chennai for three years from 2002 to 2004.
- Summer Fellowship - 2003 of the Indian Academy of Sciences.
- IASc-INSA-NASI Summer Fellowship – 2007.
- IASc-INSA-NASI Summer Fellowship – 2008.
- Mentor, "Innovation in Science Pursuit for Inspired Research (INSPIRE)" Programme, Department of Science & Technology (DST), India.
- Coordinator of Madhava Mathematics Competition (funded by National Board of Higher Mathematics).

Dr. A. Agarwal

- Academic Award: JSPS Fellowship "JSPS-DST Exploratory Exchange" under the Japan-India Cooperative Science Program for 2009 by Japanese Society for Promotion of Science (JSPS).
- Visiting Fellowship: 21 Short-Term Visiting Fellowships, Chiba University, Japan (2010, 2009, 2007, 2004, 2002 and 2001). Short-Term Visiting Fellowship, Tokai University, Japan (2007 & 2004). Visiting Fellow, The Abdus Salam International Center for Theoretical Physics, Trieste, Italy (2004 & 1989). Fellow, International Atomic Energy Agency, Vienna, Austria (IAEA) (2004). Short-Term Visiting Fellowship Hirosaki University, Japan (2002).

- Travel Award for attending international conferences International Society of X-rays(IXS) (2006 & 2000), European Society on X-ray Spectrometry[EXRS] [2006 & 2004], XAFS Society, Japan (2003), DST(2000), INSA(2000), UGC(1999), AICTE(1999).

Dr. Animesh Kumar Ojha

- Visited Germany in year 2001- 2002 under DST- DAAD fellowship
- Research Associate Fellowship (CSIR) with Prof. A. Roy at IITKgp, Kharagpur (2006-2007)
- Alexander von Humboldt (AvH) Fellow (2008-2010) at Jacobs University, Bremen, Germany.
- Attended Nobel Laureate Meeting, at Lindau, Germany, 2008.
- Visited Germany in year 2012 under DFG-INSA Research Initiation Grant (June-August, 2012)
- Visiting Fellowship of University of California, USA (June, 2013)
- Visiting Fellowship of University of Essen, Germany (June, 2014)
- Visiting Fellowship of Jacobs University, Bremen, Germany (June-July, 2015).

Dr. Naresh Kumar

- Visiting Scientist, Centre INRS-EMT (Énergie, Matériaux, Télécommunications) in Varennes (Greater Montreal) CANADA
- Post –Doctoral Fellow (Brain Korea BK 21 Fellowship) Inha University, 402751, Incheon KOREA

Dr. Rohit Ranjan Sahi [DST-Inspire Faculty]

- Young Scientist Award (Materials science) 2014; From Indian Science Congress Association
- International AssoINSPIRE FACULTY award by Department of Science and Technology, India (2013)
- ciation of Hydrogen Energy; Financial support to present a paper in WHEC-2014 Gwangju South Korea June 15-21 2014.
- Best poster Award 5nd One Day Conference on New Trends in Research March 2012 Department of Physics BHU Varanasi,
- Senior Research Fellow by Council of Scientific and Industrial Research, India (2009 to March 2011).

Dr. Arun Kumar Singh [DST-Inspire Faculty]

- International Travel Grant Award from Department of Science and Technology **(DST) to** attend International conference *"Fifth Molecular Meeting @ Singapore" Singapore* during August 3-5, 2015.
- DST INSPIRE Faculty Award- from Department of Science and Technology, in July2013.
- **Dr.D.S.Kothari Postdoctoral Fellowship**-University Grant commission **(UGC)** India in 2011.
- Senior Research Fellowship (from April-2011 to August 2011) (SRF-Extended) from Council of Scientific & Industrial Research (CSIR), Human Resource Development Group, India
- International Travel Grant Award from Department of Science and Technology (DST) to attend International conference *"Fifth International conference on Molecular Electronics and Bioelectronics"* (M&BE5) *Miyazaki, Japan* during March 15-18, 2009.

PUBLICATIONS

Please see the faculty profile for the publications of individual faculty member.

Year wise details of publications (2013 - 2015)

Year	2015	2014	2013
International Journals	31	39	29
National Journals	1	0	1
International Conferences	5	10	5
National Conferences	0	2	0

Research Achievements

Highest Citation of one Paper : 175

Highest H-index : 14

Highest Impact Factor Journal : 11.8

LABORATORIES

Laboratory Facilities

The department has one Physics Laboratory [B.Tech. programme] to prescribed experiments at UG level.

In addition, one Condensed Matter Physics Research Laboratory has been set up with the following research facilities:

S. No.	Name of the Equipments	Model & Make
1.	Programmable Electrometer	Keithley make; Model 6517
2.	6 ½ Digit USB Digital Multimeter	Keithley make; Model 2100
3.	Microbalance	Citizen make; Model CX 165
4.	LCR HiTester	HIOKI Model No. 3532-50
5.	UV/VIS Spectrophotometer	PerkinElmer; Model: Lambda 35
6.	Fluorescence Spectrometer	PerkinElmer; Model: LS 55
7.	Electrochemical Analyzer	Autolab Model: PGSTAT204
8.	Experimental set up for thin film deposition by Spray Pyrolysis, SILAR, Sol Gel, etc	Indigenous
9.	Tubular Furnace (up to 900 ^{0}C)	Indigenous