



SANT BABA BHAG SINGH UNIVERSITY, JALANDHAR

Value Added Course:

Nuclear Instrumentation



Department of Physical Sciences (UISH)

DATE: 13/07/2020

DURATION: 30Hours

COORDINATOR:

Dr Honey Sharma

Assistant Professor (Physics)

Department of Physical Sciences

University Institute of Sciences & Humanities

Sant Baba Bhag Singh University, Jalandhar



REGISTRATION FORM

Value Added Course on : “Nuclear Instrumentation”

Name _____

Date of birth _____ Department _____

Class/Semester _____

Address for correspondence _____

Contact No. _____

Email _____

Signature of Applicant

VENUE

Block No.5, Room No. 310, Sant Baba Bhag Singh University, Jalandhar, Punjab, India.

For more Information Contact

Dr Honey Sharma

Assistant Professor (Physics)

Room No. 515, Block No.5

Department of Physical Sciences

University institute of Sciences & Humanities

Sant Baba Bhag Singh University, Jalandhar, 144030.

Contact No. 9465101307



APPLICATION FOR CONDUCTING VALUE ADDED COURSES

1. Name of the Department: Department of Physical Science

2. Programme: UG & PG

3. Details of the Value Added Courses:

a. Name of the Value Added Courses: Nuclear Instrumentation

b. Type of Value Added Courses :Theory

c. Short Description: Value added courses are the types of courses which help a particular individual to develop their skills in their chosen field of the study. The Value Added Courses aim to provide additional learner centric graded skill oriented technical training, with the primary objective of improving the employability skills of students. It is important for all institutions to supplement the curriculum to make students better prepared to meet industry demands as well as develop their own interests and aptitudes. Nuclear Instrumentation course encompasses the principle of operation of various types of instruments in nuclear industry.

d. Syllabus including:

Week 1: Radiation detection and measurement, Ionization chamber, Geiger Muller counters, Scintillation counters, Neutron detectors based on recoil measuring circuits including modulators; converters & stabilizers, Synchronous detectors.

Week 2: Nuclear techniques and analytical instruments, X.R.F techniques, Industrial instruments, density estimation of the fluids, Medical instrumentation, thyroid estimation, CT, MRI. Gamma Ray Spectroscopy Technique.

4. Target audience: UG Students (B.ScNM);PG Students (M.Sc Hons. Physics)

5. Details of Faculty handling the course:

a. Name of the Faculty handling the Value Added course: Dr. Honey Sharma

b. Details including designation and expertise: Assistant professor(Physics), Department of Physical Science and Ph. D in Physics(Nuclear Physics)

c. Contact details

Email ID: honeyshrma777@gmail.com

Phone No: 9465101307

6. Tentative Time Table:

Course Name	Course Code	Duration	Batch Timings	Tentative Batch Start Date
Nuclear Instrumentation	PHY001	2 weeks (30 hours)	2.5hrs(2.00-4.30pm)	September 2020 onwards

7. Number of students opting for the course: 20**8. Department Consultative Committee:**

S.NO.	Name	Designation	Department	Institute	Position
1	Dr. Nisha Sharma	Coordinator	Physical Science	UISH	Chairperson
2	Dr. MithuMaiti Jana	Assistant professor	Physical Science	UISH	Member
3	Dr. AshimaKanwar	Assistant professor	Physical Science	UISH	Member
4	Dr. Inderdeep Singh	Assistant professor	Physical Science	UISH	Member
5	Dr. Honey Sharma	Assistant professor	Physical Science	UISH	Member

9. Name and Designation of the Coordinator:

Dr. Honey Sharma
Assistant professor (Physics)
Department of Physical Science.

Head of the Department

(with date & seal)

Dean Academics

Controller of Examination

Value Added Course : Nuclear Instrumentation

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Course Name	Course Code	Duration	Batch Timings	Tentative Batch Start Date	Course Coordinator
Nuclear Instrumentation	PHY001	2 weeks (30 hours)	2.5hrs(2.00-4.30pm)	September 2020 onwards	Dr. Honey Sharma

Eligibility:

B.Sc(N.M)/M.Sc(Physics)

Prerequisites

Students must have learnt Physics as core subject at undergraduate level.

Course Fee:

Not Applicable

Course Duration information:

2 weeks (30 hours)

Course Syllabus

Week 1: Radiation detection and measurement, Ionization chamber, Geiger Muller counters, Scintillation counters, Neutron detectors based on recoil measuring circuits including modulators; converters & stabilizers, Synchronous detectors.

Week 2: Nuclear techniques and analytical instruments, X.R.F techniques, Industrial instruments, density estimation of the fluids, Medical instrumentation, thyroid estimation, CT, MRI. Gamma Ray Spectroscopy Technique.

Course Outcome: Students will able to

1. Understand basics of ionizing radiations and their applications in different areas.
2. Understand about different radiation detectors and medical instrumentation in different modes.
3. Compare protocols of measurements, advantages, disadvantages and limitations of various detectors.
4. Get thorough knowledge of electronics and counting systems used in nuclear instrumentation.
5. Get detailed information about applications of nuclear instrumentation in medicine, industry etc.