



Establishment
27/11/1928

SNJB (Jain Gurukul's)

K.K.H. Abad Arts, S.M.G. Lodha Commerce & S.P.H. Jain Science College
Neminagar, Chandwad-423101, Dist.-Nashik, Maharashtra

(Affiliated to Savitribai Phule Pune University) Id. No.PU/NS/AC/015/1970

(02556) Off. 252125 Res.252126 Tel. Fax:02556-252125

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• Website : www.acschandwadcollege.com

DST-FIST Funded (2018-19)

UGC-NSQF Courses (B.Voc. & CC)

Best College Award by Savitribai Phule Pune University (2015-16)

MSc. II Physics

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Faculty of Science and Technology

M. Sc. (Physics)

Choice Based Credit System (CBCS)

To be implemented from Academic Year 2020-2021

Structure and Syllabus

SAVITRIBAI PHULE PUNE UNIVERSITY

GANESHKHIND, PUNE-411007

Proposed Structure of M. Sc. (Physics) Syllabus (C. B. C. S.)

1. Title of the Course: M. Sc. Physics

2. Preamble:

The curriculum for the M. Sc. (Physics) programme is designed to cater to the requirement of Choice Based Credit System following the University Grants Commission (UGC) guidelines. In the proposed structure, due consideration is given to Core and Elective Courses (Discipline specific - Physics), along with Ability Enhancement (Compulsory and Skill based) Courses. Furthermore, continuous assessment is an integral part of the CBCS, which will facilitate systematic and thorough learning towards better understanding of the subject. The systematic and planned curricula divided into two years (comprised of four semesters) shall motivate the student for pursuing higher studies in Physics and inculcate enough skills for becoming an entrepreneur.

Objectives:

- To foster scientific attitude, provide in-depth knowledge of scientific and technological concepts of Physics.
- To enrich knowledge through problem solving, minor/major projects, seminars, tutorials, review of research articles/papers, participation in scientific events, study visits, etc.
- To familiarize with recent scientific and technological developments.
- To create foundation for research and development in Physics.
- To help students to learn various experimental and computational tools thereby developing analytical abilities to address real world problems.
- To train students in skills related to research, education, industry and market.
- To help students to build-up a progressive and successful career in Physics.

3. Introduction: Semester Credit System

4. Eligibility: As per the rules and regulations published by SPPU, Pune.

5. Examination: As per the **BOOKLET** prepared by SPPU, Pune

- A. Pattern of Examination
- B. Standard of Passing
- C. ATKT Rules
- D. Award of Class
- E. External Students
- F. Setting of Question paper / Pattern of Question paper
- G. Verification / Revaluation

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Structure of M. Sc. Physics (Choice Based Credit System)

To be implemented from the Academic Year 2020-21

Subject Name	Year	Semester	Course Type	Course Code	Course Name	Credit		
Physics	1	I	Core Compulsory Theory Paper (CCTP)	PHCT-111	Mathematical Methods in Physics	4		
				PHCT-112	Classical Mechanics	4		
				PHCT-113	Electronics	4		
			Choice Based Optional Paper (CBOP-I)	PHOT-114	Choose any one from Group I	Theory	4	
				PHOP-114		Practical	0	
			OR					
			CBOP-I	PHOT-114	Choose any one from Group I	Theory	2	
				PHOP-114		Practical	2	
			Core Compulsory Practical Paper (CCPP)	PHCP-115	Physics Lab-I		4	
			II	CCTP	PHCT-121	Electrodynamics		4
		PHCT-122			Atoms and Molecules		4	
		PHCT-123			Quantum Mechanics		4	
		CBOP-II		PHOT-124	Choose any one from Group I	Theory	4	
				PHOP-124		Practical	0	
		OR						
		CBOP-II		PHOT-124	Choose any one from Group I	Theory	2	
				PHOP-124		Practical	2	
		CCPP		PHCP-125	Physics Lab-II		4	

	Year	Semester	Course Type	Course Code	Course Name	Credit		
2	III	CCTP		PHCT-231	Statistical Mechanics	4		
				PHCT-232	Solid State Physics	4		
				PHCT-233	Experimental Techniques in Physics - I	4		
		CBOP-III		PHOT-234	Special-I from Group II	Theory	4	
				PHOP-234		Practical	0	
		OR						
		CBOP-III		PHOT-234	Special-I from Group II	Theory	2	
				PHOP-234		Practical	2	
		CCPP		PHCP-235	Physics Laboratory - III		4	
		IV	CCTP		PHCT-241	Nuclear Physics	4	
					PHCT-242	Experimental Techniques in Physics-II	4	
			CBOP-IV		PHOT-243	Choose any one from Group I	Theory	4
					PHOP-243		Practical	0
			OR					
	CBOP-IV			PHOT-243	Choose any one from Group I	Theory	2	
				PHOP-243		Practical	2	
	CBOP-V			PHOT-244	Special-II from Group II	Theory	4	
				PHOP-244		Practical	0	
	OR							
	CBOP-V		PHOT-244	Special-II from Group II	Theory	2		
			PHOP-244		Practical	2		
	CCPC		PHCP-245	Project		4		
Total credits of M. Sc. Physics course						80		

**Preparation of Aluminium Potassium Sulfate dodecahydrate
[$kAl(so_4)_2 \cdot 12H_2O$] single crystal**

**A project report submitted to
Savitribai Phule Pune University, Pune
For the partial fulfillment of the degree of
Master of Science**

**In
PHYSICS**

**By
UGALE NEETA NARAYAN**

Seat No.

**Under the guidance of
(Ms. HUDA IMRAN AHMAD)**

Assistant Professor

Department of Physics

**SNJB's KKHA Arts, SMGL Commerce and SPHJ Science College,
Neminagar, Chandwad -423101**

Academic Year: 2021-2022

Seat No. :



ESTD - 1928



CERTIFICATE

This is to certified that project report entitled "**Preparation of single crystal of Aluminium Potassium Sulfate dodecahydrate $[KAl(so_4)_2 \cdot 12H_2O]$** " submitted by **Miss. Ugale Neeta Narayan** of **MSc (Physics)** during the academic year **2021 -2022** carried out the work by the candidate under my guidance.

H. Udale

Ms. Huda Imaran Ahemad

Guide

Shinde

Dr. Sarika D. Shinde

HEAD
Department of Physics

SI-MGU Commerce &
Sciences College, Chaldwad,
Dist. Nashik 423 101, Maharashtra

Shinde
26/5/2022
Internal Examiner

Shinde
26/5/2022
External Examiner

Dr. Anil B. Gole

CHAPTER V

Reference

- R.A.Kiper Properties of compounds. Handbook
- S.Nyburg, Structure of the alums, the sulfate group disorder in the alpha alum
- D.West, Structural disorder, octahedral coordination and two-dimensional ferromagnetism in anhydrous alums
- <https://microbenotes.com/uv-spectroscopy-principle-instrumentation>
- Chapter 10 - Importance of Physicochemical Characterization of Nanoparticles in Pharmaceutical Product Development
- Growth, structure, thermal, electrical and optical properties of potassium Aluminium sulphate dodecahydrate (Potash alum)Single Crystal
- Bish, DL and Post, JE, editors. 1989. Modern Powder Diffraction. Reviews in Mineralogy, v. 20. Mineralogical Society of America.
- Cullity, B. D. 1978. Elements of X-ray diffraction. 2nd ed. Addison-Wesley, Reading, Mass.
- Klug, H. P., and L. E. Alexander. 1974. X-ray diffraction procedures for polycrystalline and amorphous materials. 2nd ed. Wiley, New York.
- Pimpinelli, Alberto; Villain, Jacques (2010). Physics of Crystal Growth. Cambridge: Cambridge University Press.
- Growing Single Crystals
- How to Grow Single Crystals for X-ray Analysis by Solution Crystallisation
Olga Chetina Chemistry department, Durham University
- Preparation of single crystal of copper sulphate penta hydrate [CuSO₄.5H₂O]
- Growth and characterization of Aluminium potassium sulphate dodecahydrate Single Crystal



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Department of Physics

Smt. Dr. S. D. Shinde

Head, Dept of Physics

E-mail: sarikagotan@rediffmail.com

M. Sc Project list 2021-22

Sr. No.	Name of the Students	Project Title	Remark
1	Anita Kisan Shewale	Synthesis & Characterization of Cu ₂ O Nanoparticles	
2	Varsha Kedu Gangurde	Synthesis of Copper oxide by using Chemical bath deposition method	
3	Tejaswini Vasant Kolhe	Synthesis and characterization of lead oxide thin film by electro chemical deposition and two electrode configuration system using lead oxide	
4	Darshana Dipak Thoke Momin Tooba Raees Ahmad Pranjal Prakash Thakare	Preparation & Characterization of CDS Thin Film by CBD method	
5	Varsha Dharmraj Bachhav Monika Umesh Thorat Neeta Narayan Ugale	Preparation of Aluminium Potassium Sulphate dodecahydrate Single Crystal	
6	Vijay Chintaman Thakare	Solar Inverter	
7	Vrushali Sunil Kakade	Op-Amp as a Adder & Subtractor	

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Department of Physics

Smt. Dr. S. D. Shinde

Head, Dept of Physics

E-mail: sarikagotan@rediffmail.com

T.Y.B.Sc Project List 2021-22

Sr. No.	Name of the Students	Title	Guide
1	Dhanashri Pandharinath Chavan Rutuja Ashok Gangurde	A Zener Diode as a Voltage Regular	Dr.S.D.Shinde
2	Gayatri Vitthal Mahajan Tejaswini Naval Thoke	Double Refracting Prism	Dr.S.D.Shinde
3	Seema Vikram Thakare Madhuri Balu Gangurde	Earthquake Detector Alarm using Arduino	Dr.S. D.Shinde Mr. G. B. Dhomse
4	Tushar Ashok Ghanghav Vaibhav Subhash Shinde	Ligic Gates	Dr.S.D.Shinde
5	Gopal Girish Bidgar Shubham Ashok Waghmode	Bike Theft Detector	Dr. G.E.Patil
6	Monali Rajendra Patil	Electronic Eye	Dr. G. E. Patil
7	Vaishnavi Nishikant Pawar Priyanka Satish Bhadane	Synthesis and Characterization of lead sulphide Nanoparticles using Lead Acetate and Thioria	Dr. A.B.Gite Dr. G.E.Patil
8	Mayur Shivaji Narshinge Ashutosh Nandu Kapse Rushikesh Arun Jadhav Suraj Dashrath Chande	Alcohol Detection and Engine Locking	Dr.A.B.Gite
9	Perana Babaji Bhavar Anisha Vishwas Deore Kaveri Sanjay Tope	Calibration of Spectrometer	Ms.Huda I.A.



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10	Gayatri Chandrakant Shelar Ashvini Sanjay Lamkhade	Op-Amp as a Adder and subtractor	Ms.P.S.Nikam
11	Shubham Dattu Handge Harshada Ekanath Thakare	Introduction of ultrasonic interferometer and experimental techniques for determination of ultrasonic, velocity, density,viscosity,compressibility and various themodynamic parameters	Ms. S.B.Thakare
12	Pallavi Narhar Nere Jyoti Fula Navar Tejal shrikant Bagul	Mobile Jammer	Ms. Harshali Jadhav
13	Gaurav Narayan Aware Sachin Bhagwat Chaudhari Vishal Valmik Wankhede Shivam Rajendra Pawar Navnath Garibrao Ugale	Box Type Solar Cooker	Ms.A. G. Lokhande

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