

B. L. D. E Association's
S. B Arts and K. C. P Science College,
Vijayapur



Department of PG Studies in Physics

**SKILL BASED VALUE ADDED COURSE
FOR
THIRD SEMESTER PG STUDENTS OF PHYSICS
(For the Academic Year 2019-20)-I**

**Course Name: Instrumentation
(Course Code: SBKCP/PGPHY/VAC/01)**

REPORT

B. L. D. E. Association's
S. B Arts and K. C. P Science College, Vijayapur
Department of PG Studies in PHYSICS
Value Added Course 2019-2020
Course Name: Instrumentation
Course Code: SBKCP/PGPHY/VAC/01

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Co-ordinator

Department of PG Studies in Physics
S.B. Arts and KCP Science College
VIJAYAPUR



IQAC, Co-ordinator

S.B.Arts & K.C.P.Science College,
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Principal,

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Phone (08352) – 261766, (08352) 262770 Extn. 2223, 2224

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REF: _____

Date: 16-Aug-2019

Department of PG Studies in Physics

Value Added Course: 2019-2020

NOTICE

This notice is to inform about Value Added course for the year 2019-2020. All M. Sc III Sem Physics students are requested to enroll their names in the departments on or before 19th of August 2019. Last date for the submission of enrollment forms is 24th of August 2019.

**Coordinator
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Department of PG Studies in Physics
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Department of PG Studies in PHYSICS
Value Added Course

Course Name: Instrumentation

Course Code: SBKCP/PGPHY/VAC/01

Objective: The main objective of the course is to make the students understand the Principle and Theory of instruments.

Scope: This course has wide scope and after completion of M. Sc it helps students in Research and Teaching.

Syllabus

Total Duration of Teaching: 50 Hours

Duration of Teaching per week: 02 Hours

Total hours allotted: 30 hours

Theory Syllabus

Unit:I

Structural and composition characterization: Basics of X- ray diffraction (XRD), powder XRD, Transmission Electron Microscope (TEM), Scanning Electron Microscope (SEM), Atomic Force Microscopy (AFM), Scanning Tunneling Microscopy (STM).

5hrs

Unit:II

Optical spectroscopy and Raman Spectroscopy: Fourier Transform Infrared Spectroscopy (FTIR), UV- Vis. Spectroscopy, and Raman Spectroscopy, Raman and IR spectroscopy, structure determination by IR and Raman spectroscopy.

5hrs

Unit:III

Electric and thermal measurements: a.c and d.c electrical conductivity measurements as a function of temperature and frequencies. Magneto resistance measurements, specific heat measurements, Impedance spectroscopy: A. C. impedance spectroscopy, Thermo Gravimetric analysis (TGA), differential thermal analysis (DTA) and differential scanning calorimetric (DSC) analysis.

8hrs

Unit:IV

Nuclear Detectors: Scintillation detector- NaI(Tl) gamma ray spectrometer; Principle, working and energy resolution. Semiconductor detectors.

2hrs

Text Books:

1. Physics of Atoms and Molecules: 2nd Ed., Brans den B.H. and Joachim C. J., Pearson Education, India (2006).
2. Elementary Atomic Structure (2nd ed.): G. K. Wood gate, Clarendon Press, Oxford (1980).
3. Molecular Spectra & Molecular Structure: Vol- I, Herzberg, D. VanNo strand Co. Princeton, J. J. (1945).
4. Spectroscopy – Vol. 3, S. Walker & B. P. Strauhghan, Chapman & Hall,(1976).
5. Fundamentals of Molecular Spectroscopy: C. N. Barnwell and E. M. McCash, Tata Mc Graw- Hill Co., 4th revised edition, (9th reprint, 2000)

(Each practical of two hours)

Practical Syllabus: List of experiments

1. Hall effect in metals
2. Determination of Magnetoresistance
3. Temperature Dependence of Hall Coefficient.
4. Determination of e/K_b .
5. Determination of band gap of semiconductors using Four probe Method.

Evaluation:

Students will be evaluated through the examination conducted by the physics department at the end of the course and they will be awarded course certificate accordingly.

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Department of PG Studies in PHYSICS
Value Added Course 2019-2020
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List of Faculty

- 1. Dr. Girija M. Nimbal**
- 2. Mr. Jirankalagi Siddaraya N.**



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Department of PG Studies in PHYSICS
Value Added Course 2019-2020
Course Name: Instrumentation
Course Code: SBKCP/PGPHY/VAC/01

List of Students Enrolled

Roll.No	Candidate's Name	Sign
1	Amrutha Shivanand Bhogi	A.S.B
2	Arpita Patil	Arpita
3	Hrishikesh Dixit	HD
4	Iswari Kori	I. Kori
5	Kiran patil	Kiran
6	Koli Basavraj Malappa	KBM
7	Mahantesh Godekar	M.G
8	Mallesi Hullur	M.Hullur
9	Manjula Bashetti	MBashetti
10	Pragathi Kulakarni	PKulkarni
11	Sakkubai Balagannavar	Balagannavar
12	Shalini Sajjan	Shalini
13	Shilpa Megadi	Shilpa
14	Shridevi Amate	Shridevi
15	Shrigouri Kokkalaki	Shrigouri
16	Shweta Biradar	Shweta
17	Swati V Palbhavi	Swati



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Time Table

Time\Days	Friday	Saturday
02.00 pm - 04.00 pm	Practical	Practical
04.00 pm – 05.00 pm	Theory	Theory


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Value Added Course (VAC)

2019-20

STUDENT ATTENDANCE

Sl. No.	Name	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Amruta B Bhogi	P	P	P	P	P	P	P	P	P	P	P	P	P
2	Arpita Patil	P	P	P	P	P	P	P	P	P	P	P	P	P
3	Hrishikesh Dixit	P	P	P	P	P	P	P	P	P	P	P	P	P
4	Ishwari Kori	P	P	P	P	P	P	P	P	P	P	P	P	P
5	Kiran Patil	P	P	P	P	P	P	P	P	P	P	P	P	P
6	Koli Basavaraj Mallappa	P	P	P	P	P	P	P	P	P	P	P	P	P
7	Mahantesh Godekar	P	P	P	P	P	P	P	P	P	P	P	P	P
8	Malleshi Hallur	P	P	P	P	P	P	P	P	P	P	P	P	P
9	Manjula Basketti	P	P	P	P	P	P	P	P	P	P	P	P	P
10	Pragathi Kulkarni	P	P	P	P	P	P	P	P	P	P	P	P	P
11	Sakubai Balagannavar	P	P	P	P	P	P	P	P	P	P	P	P	P
12	Shalini Sajjan	P	P	P	P	P	P	P	P	P	P	P	P	P
13	Shilpa Megadi	P	P	P	P	P	P	P	P	P	P	P	P	P
14	Shridevi Amate	P	P	P	P	P	P	P	P	P	P	P	P	P
15	Shrigouri Kokkalki	P	P	P	P	P	P	P	P	P	P	P	P	P
16	Shreeta Biradar	P	P	P	P	P	P	P	P	P	P	P	P	P
17	Swati V Palbhavi	P	P	P	P	P	P	P	P	P	P	P	P	P

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Association's

REGISTER

Theory Classes

Sl. No.	Name	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	No. of Days taken	No. of Days Present	Date of Original Admission of the class or of promotion
1	Amruta B Bhogi	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
2	Arpita Patil	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
3	Hrishikesh Dixit	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
4	Ishwari Kori	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
5	Kiran Patil	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
6	Koli Basavaraj Mallappa	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
7	Mahantesh Godekar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
8	Malleshi Hallur	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
9	Manjula Basketti	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
10	Pragathi Kulkarni	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
11	Sakubai Balagannavar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
12	Shalini Sajjan	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
13	Shilpa Megadi	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
14	Shridevi Amate	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
15	Shrigouri Kokkalki	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
16	Shreeta Biradar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	
17	Swati V Palbhavi	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	12	12	

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REF./ PÅæ³AiÅAPA :

Date /cÅAAPA: 03/12/2019

Department of PG Studies in Physics

Value Added Course: 2019- 2020

NOTICE

The Value added Course 2019-2020 theory and Practical Examinations will be conducted on the below dates. All the students attend both the exams without fail.

	Date	Time
Theory	20/12/2019	2pm to 5.00 pm
Practical	21/12/2019	2pm to 6.00 pm

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Theory Test Question Paper

Maximum Marks: 60 Marks

I. Answer any 08 questions each carrying 05 marks. (5m x 8q = 40m)

1. Explain the importance of XRD analysis.
2. Explain the construction of Transmission Electron Microscopy (TEM) with neat diagram.
3. Explain the basic principle underlying working of SEM.
4. Describe the importance of optical spectroscopy.
5. Explain working of UV –Vis Spectroscopy.
6. Give the difference between IR and Raman spectroscopy.
7. What is the importance of a. c and d. c conductivity measurement?
8. Explain a. c impedance spectroscopy.
9. What are Semiconductor detectors?
10. Explain energy resolution in Scintillation detectors.

II. Answer any 02 questions each carrying 10 marks. (10m x 2q = 20m)

11. Explain construction and working of powder XRD.
12. Explain the structure determination by IR and Raman spectroscopy.
13. Explain Thermo Gravimetric analysis (TGA).
14. Explain the principle and working of NaI (TI) gamma ray spectrometer.


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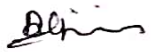
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Value Added Course 2019-2020
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Marks List

Maximum Marks: 100

Roll No.	Candidate's Name	Theory(60)	Practical(40)	Total	Sign
1	Amrutha Shivanand Bhogi	57	40	99	ASB
2	Arpita Patil	56	40	96	AP
3	Hrishikesh Dixit	57	40	97	HD
4	Iswari Kori	55	40	95	IK
5	Kiran patil	55	40	95	KP
6	Koli Basavraj Malappa	53	40	93	KBM
7	Mahantesh Godekar	50	38	88	M.G.
8	Malleshi Hullur	50	38	88	M.H.
9	Manjula Bashetti	55	38	88	MB
10	Pragathi Kulakarni	55	40	95	PK
11	Sakkubai Balagannavar	52	39	91	SB
12	Shalini Sajjan	53	40	93	SS
13	Shilpa Megadi	54	40	94	SM
14	Shridevi Amate	52	39	91	SA
15	Shrigouri Kokkalaki	50	39	89	SK
16	Shweta Biradar	50	36	86	SB
17	Swati V Palbhavi	56	40	96	SP



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Value Added Course 2019-2020
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Course Outcome

A value added course on Instrumentation for the year 2019-2020 was conducted in Department of PG studies in Physics for M. Sc Final year students. The course was conducted between 26th August 2019 and 10th December 2019. Dr. Girija M. Nimbale and Mr. Jirankalage siddaraya N., Assistant Professors of the department conducted the classes.

In this course students were familiarized with the theory and the principle involved in the instruments equipped for the characterization of the materials. This is helpful for the in future for research and teaching as well.


The understanding of the students towards this course was evaluated by both theory and Practical examination. And certificates were issued at the end of the course.


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Internal Quality Assurance Cell Initiative

VALUE ADDED COURSE

Certificate




This is to certify that Mr./Ms. Amrutha Shiranand Bhogi


has Completed the Value Added Course on Instrumentation



Conducted by the Department of M.sc physics during the

Year 2019-2020


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Head of the Department


Co-ordinator, IQAC


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VALUE ADDED COURSE

Certificate




This is to certify that Mr./Ms. Arpita patel

has Completed the Value Added Course on Instrumentation



Conducted by the Department of M.sc physics during the

Year 2019-2020


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Head of the Department


Co-Ordinator, IQAC


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Internal Quality Assurance Cell Initiative

VALUE ADDED COURSE

Certificate



This is to certify that Mr./Ms. Hrishikesh Dixit

has Completed the Value Added Course on Instrumentation

Conducted by the Department of M.sc Physics during the

Year 2019-2020.

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VALUE ADDED COURSE

Certificate




This is to certify that Mr./Ms. Iswari Kori

has Completed the Value Added Course on Instrumentation

Conducted by the Department of M. sc Physics during the

Year 2019-2020.


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VALUE ADDED COURSE

Certificate



This is to certify that Mr./Ms. Kishan Patel
has Completed the Value Added Course on Instrumentation
Conducted by the Department of M.Sc Physics during the
Year 2019-2020


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